

Alternatives to Joint Replacement Surgery

Just because you have arthritis doesn't mean you need a joint replacement. Being **strong, supple and slim** will keep your joints going longer. Joint replacement surgery is a one way street, and can't be undone. These less aggressive measures are safe and will not compromise surgery in the future.

Physiotherapy

A physiotherapist is likely to be of help with strength and suppleness exercises, which is useful at any stage of arthritis. They also have a specific value prior to and immediately after surgery as a constant source of information and coaching.

Weight loss

The ideal body weight is unknown by most people. A rough rule of thumb of height (in cm) – 100 works for adults over 140cm in height. Body mass index (BMI) is the medical way of calculating ideal weight of 20 to 25. $\text{Height (m)} \times \text{Height (m)} / \text{weight (kg)}$. Different calculations are used in childhood.

Being overweight, will overload your joints. The knee for example carries 9 times your body weight when climbing stairs. Weight reduction not only reduces joint pain, but improves hypertension and type 2 diabetes. indeed may achieve

Your weight reflects how much you eat and exercise. A dietician or your GP can help you understand and set goals with what and how much to eat. An exercise regime can be organized through a physiotherapist, exercise physiologist, or personal trainer.

Bariatric surgery – weight reduction surgery like gastric sleeve surgery – is mainstream and effective at weight loss. This can be undertaken in Ballarat through the general surgeons.

Muscle strengthening

Strength is improved with activity such as walking, swimming, and cycling. Some people should consider gymnasium training.

Impact reduction

Different sporting pursuits alter how much the joints are loaded. Sports like tennis place high impacts and twisting motions on your joints. Swimming and cycling on the other hand generally reduce arthritic pains. Walking can make arthritic pains worse if you have poor quality shoe wear.

Improve suppleness

Our western society causes us to reduce joint movement - sitting on chairs rather than the floor decreases the range of movement the joints move through. Stiff joints hurt more, and the natural response is to avoid activities pushing the joints. Actually the opposite approach is better. A physiotherapist can teach stretching exercises, or you could take up yoga classes!

Shoe Wear

Hard shoes cause a jolt as the heel strikes the ground. For knee & ankle arthritis, this can be a substantial problem and can be improved by changing shoes. For long walks, hiking boots or shoes make a dramatic difference in both distance walked and speed. Arthritis of the big toe is improved with stiffer she's, rather than ones that can easily bent.

Activity modification

In general – most people are insufficiently active and need to increase their activity level. Inactivity contributes to depression and a self fulfilling prophesy of joint pain.



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Rarely though, some people may actually be doing harm through the wrong activities. Some occupations tend to have only young workers because the work is too hard for older people. Running on hard surfaces in inappropriate shoes is a crazy. A house with a staircase may be too difficult as retirement house. Public transport and cars are useful! Disabled parking permits can be arranged through your general practitioner and local council.

Vibration treatments

The literature on "Whole Body Vibration" and vibration training is inconclusive.

Medications

Glucosamine tablets

50% of patients report these are useful. If they work for you, that's great, it certainly seems a safe alternative to NSAIDs. But, if the cost exceeds the benefit, move on.

Paracetamol

Panadol ® and Panamax ® are quite safe in normal doses and do not cause stomach irritation. Some patients and doctors feel it is just as useful as NSAIDs without the side effects. It makes good sense to try this first! It can be used on an intermittent basis such as when pain is present, or even prior to predicted painful activities.

Anti-inflammatory tablets

There are hundreds of different anti-inflammatory tablets. Nurofen can be bought "over the counter" at a pharmacy without a prescription. Prescriptions from your GP could be for Voltaren or Naprosyn. More modern ones are felt to reduce the stomach ulceration side effects - Celebrex is an example of these. These tablets can be used either before or after activity, or on a regular basis. This class of tablets has been associated with an increase risk of heart attacks, but the serious risks of these tablets is almost definitely lower than the risk of surgery for most people. It is usually advised the tablets are taken

with you meal. These tablets can be used as necessary, in anticipation of painful activity, or regularly.

Injection treatments

Cortisone injections

Cortisone is a naturally occurring substance which reduces inflammation. It can be injected into the knee joint quite easily in the consulting rooms. It is very useful to control an acute flare up of arthritic pain. Surgeons typically limit how many injections are given to an area to minimize the risk of joint deterioration, and infection either de novo or after joint replacements.

Synvisc Injections

Joints have a natural lubricating fluid – synovial fluid contain "hyaluronic acid". In some circumstances, injecting the knee with a commercial version of this can provide relief. In joints that are very swollen, it is less obvious that it will help, although the manufacturers suggest removing the existing fluid, then injecting the Synvisc. Eighty percent of patients claim a benefit for 6 months or more. Synvisc is most commonly used in patients with early osteoarthritis. The Synvisc is not funded by the PBS, so costs the patients approx \$475 in addition to appointment fees. The \$475 cannot be claimed from medicare or any private health insurance policy.

Platelet Rich Plasma (PRP)

It is possible to take some of your blood, and centrifuge it to extract "leukocyte poor, platelet rich plasma". This can be injected in a sterile technique into an arthritic joint, and seems to have an anti-inflammatory effect for six months or so.

The PRP technique is available at Ballarat Orthopaedics & Sports Medicine through our sports medicine physicians. The cost is approximately \$350 to cover the disposables and the doctors fees for the injection.

PRP is also used for tendon complaints such as tennis elbow.

Stem Cells (“experimental”)

Orthopaedic surgeons have had substantial experience with stem cell treatments in the last decade. MACI techniques (Matrix Autologous Chondrocyte Implantation) was performed as open surgery with the stem cells adhered to prepared bone, in association with realignment surgery. It was performed for traumatic damage to the knee. It is no longer funded by Medicare for a lack of evidence. Stem cell injections seem even less likely to work and our advice is to not waste money on this placebo treatment.

Walking stick & walking poles

A walking stick is extremely useful to reduce arthritic pains. For the hip, a walking stick in the opposite hand can reduce the force being transmitted through the joint by 75

More fashionable is a walking pole. These are commonly used bushwalking, but there are also convenient collapsible designs that can be folded up and put in a handbag or backpack in case you’ve walked “too far”.

Techniques for older patients

Whilst the following techniques can be used for patients of all ages, there are some things hard to sell to young patients! If you are on a public hospital waiting list for surgery though, it would be crazy to pretend these options don’t exist.

Raised chairs / toilet seats / bed

Difficulty getting out of a low chair is a characteristic problem with knee arthritis. The problem can be improved by not going so low. Higher chairs with arm rests are best – the medical supplies companies like MEM hire them. Raised toilet seats with arm rests to go over an existing toilet are often used for 6 weeks after hip replacement surgery, but could also benefit patients with a bad knee. A rail can be installed next to

the toilet to help with getting up and down. Your bed height can be similarly modified – you may recall beds of a couple of generations ago were substantially higher than now. A cushion on a car seat will help with getting in and out.

Hip Specific Treatments

Shoe raise

Some patients with hip arthritis have unequal leg lengths, this then alters the forces through the hip joint. Correcting this discrepancy can be valuable, a cobbler or orthotist can build up a shoe by 1-2cm. A small heel raise of 5-10mm can be put inside the shoe. Greater discrepancies can be surgically corrected, but the risks may exceed the potential benefit. A shoe raise also helps if the hip has a “fixed adduction” deformity.

Surgery to correct underlying problems

Arthritis occurring at a young age usually has a precipitating cause. A number of childhood hip conditions cause either point loading of the hip joint (dysplasia, CDH, DDH), or impingement in flexion (SUFE, rim lesions, and Ganz lesions). In the early stages, these patients may have relatively normal XRs and the problem not reported by the radiologist. Arthroscopic resection of rim lesions, and osteotomies to realign either the femur or the acetabulum has a place to correct pre-arthritic conditions. A torn cartilage in the hip (labrum, or labral tear) can be rectified with arthroscopic surgery.

At this stage, the results of hip arthroscopy where arthritis clearly is present are disappointing. Medicare has withdrawn funding for most hip arthroscopies, and you would need to fund it yourself.

Knee Specific Treatments

Shoe wear

Hard heels cause an impact up your leg. Softer heels exist on walking shoes and

workboots for a reason. If you must wear hard heels, it is possible to put a rubber cushion from chemist shop into the shoe.

Shoe wedge

If the leg is bowed or knock kneed, correcting some of this deformity with a wedge in the shoe heel relieves knee pain. For a bow leg, the wedge is placed under the outside of the heel. A cobbler or orthotist can build up the lateral heel by 5mm, or some physiotherapists have wedges that can be put inside the shoe. For people with a bow leg, a podiatric orthotic will make the bow worse, and worsen the arthritic pain.

Elastic knee brace

A standard elastic knee brace from a chemist shop or sports store can help control swelling, and give some additional comfort.

Realignment brace

The ultimate brace is a “Unloader 1 brace”, which has a hinge and a strap that holds the arthritic surfaces apart somewhat. It is useful if the arthritis is in a single area, in people with activity related pain, and costs around \$1000.



Figure 5. Left leg bow improved by brace.

Knee arthroscopy

In patients with catching, clicking or locking, arthroscopy may help. Night pain in a well localised spot may mean a torn cartilage is to blame. Arthroscopy is unlikely to help if the pain is just an activity related ache or weight bearing. XRs show “bone on bone”. Kneecap arthritis might be helped with a lateral release or denervation.

Chondrocyte grafting & microfracturing

These techniques restore the damaged joint surfaces, but are currently unavailable since Medicare withdrew funding for this treatment. It was used with realignment osteotomy. Chondrocyte grafting (MACI) involves molecular biology techniques, and a good number of cases have been done in Ballarat. It tends to be used only if the damaged joint area is very large, and the patient young.



Figure 6. Realignment osteotomies can be in the femur or tibia depending where the deformity is. The most common type is tibial osteotomy for bow legs (left image).

Realignment Osteotomy

If the arthritic area is located only in one part of the knee, the leg can be realigned. Typically this is the preferred option in people under 50, sometimes older depending on the scenario. Most commonly the deformity is corrected in the tibia, but some deformities are corrected by realigning the femur, or rarely the patella.

Non operative management of arthritis v2.0

