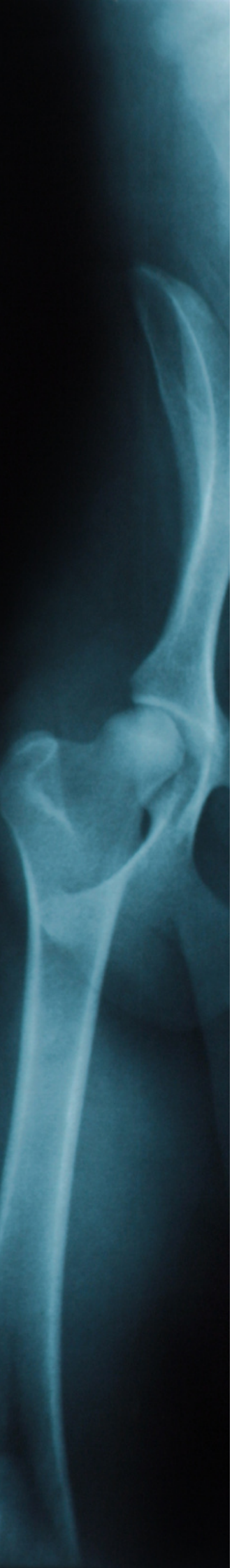
Wellness Embodied

HIP / KNEE OSTEOARTHRITIS EDUCATION & EXERCISE PROGRAMME



OSTEOARTHRITIS OVERVIEW

Arthritis is a disease that affects the whole joint. It is most common in our knees, hips, and hands. The cartilage covering the ends of a bone is called articular cartilage, and this is usually affected most with osteoarthritis. This becomes thinner and more fragile than normal cartilage.

Osteoarthritis commonly presents in middle-aged people and older people. Approximately 5% of people between 35 and 52 have osteoarthritis, and approximately 30% of people between 50 to 70 have osteoarthritis. This further increases in older age groups.

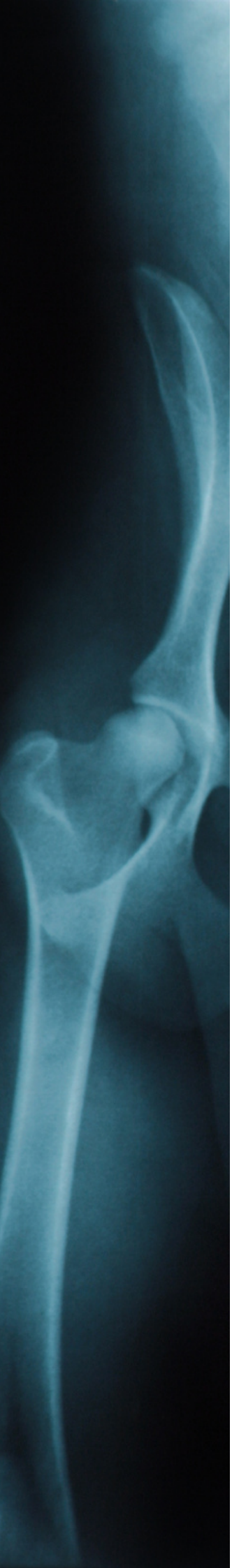
A normal joint is surrounded by an articular capsule, and within the articular capsule, there is synovial fluid. This is an important fluid that helps provide nutrients to cartilage. There are also multiple muscles and ligaments surrounding the joints to provide stability and movement.

ARTICULAR CARTILAGE AND SYNOVIAL FLUID

Articular cartilage helps our bones to move easily and smoothly. It also helps to absorb shock and distribute loads over the joint surface. Articular cartilage does not have pain sensors, so it doesn't cause pain. It also does not have a blood supply, which means nutrients cannot be supplied to the cartilage by blood. Therefore, the synovial fluid is very important as it is the only source for the cartilage to receive nutrients.

The articular cartilage requires loading/ weight bearing activity to gain nutrients from synovial fluid. Imagine the cartilage is a sponge: when load/force is applied on it, fluids are forced out of the sponge. On the other hand, when load/force is removed, fluid will be sucked back into the sponge. And a similar mechanism happens in our cartilage when we walk/exercise, with loading and unloading, fluid and nutrients gets in and out of the cartilage and articular capsule. That is why loading is essential to maintain the health and function of our joints.

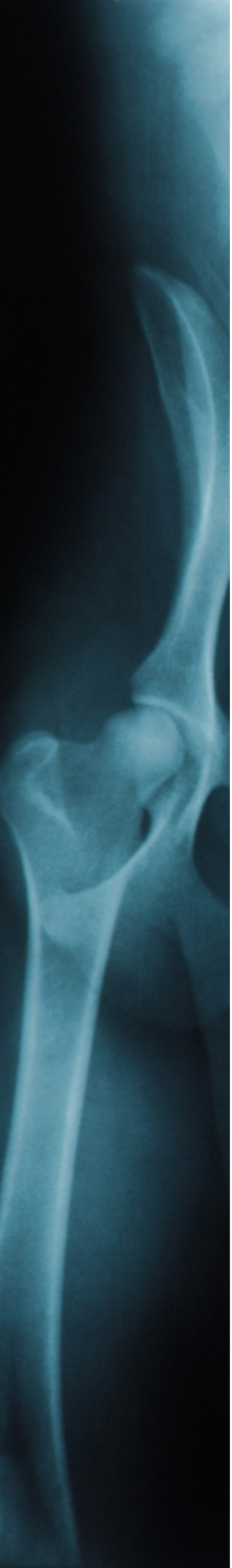
In the past, Osteoarthritis has been called a "wear and tear" disease of the joint; however, this implies that we should not load the joint anymore as it could progress the "wear and tear". This is fundamentally INCORRECT, because even if we have osteoarthritis, we still need to have a certain load applied onto the joint to keep it strong and healthy.



DIFFERENT CONTRIBUTING FACTORS FOR OSTEOARTHRITIS

Unmodifiable factors

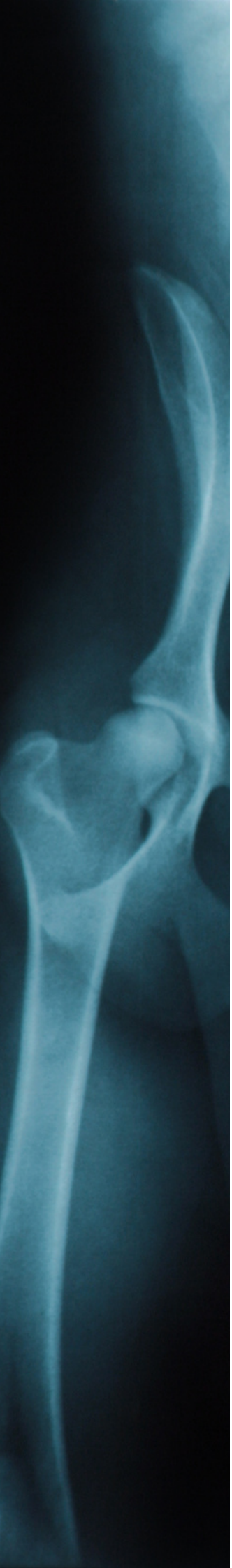
Age – just like wrinkles on our skin, as we age, the cartilage also ages and weakens over the years
Sex – women tend to get osteoarthritis more often than men. Knees and hands osteoarthritis are more common among women, and hip osteoarthritis is more common among men
Heredity – we may be more likely to get osteoarthritis if our family had it too



DIFFERENT CONTRIBUTING FACTORS FOR OSTEOARTHRITIS

Modifiable factors

Obesity – being overweight can impact osteoarthritis as it could put more load on the affected joints, and it could potentially also increase generalised body inflammation.
Physical inactivity – load is essential to maintain the health and regeneration of the cartilage. Therefore, we need a certain amount of physical activity.
Muscle weakness – weak muscles around the joints would not be able to provide sufficient support to a joint. On the other hand, strong muscles can help support the joint and take up some of the load from the cartilage to reduce overloading of it
Sports related joint injury – people with previous severe knee injury from sports may be more likely to get osteoarthritis 10-15 years later, and top level athletes may also have more degeneration of the cartilage
Work related joint injury – overloading of the joint over a long period of time can cause osteoarthritis later in life. People that do manual work such as farming or labouring may be more at risk of developing osteoarthritis

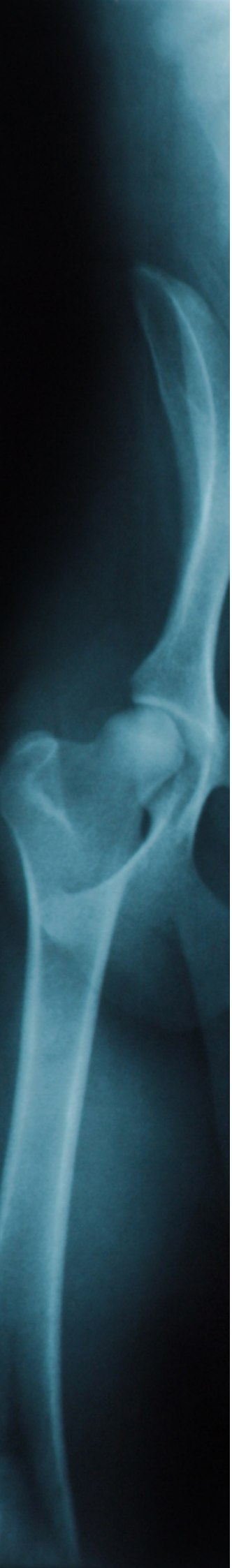


TREATMENT OPTIONS FOR OSTEOARTHRITIS

First line treatments

Exercise, weight management and education are recommended in many different health guidelines around the world as part of optimum management for osteoarthritis.

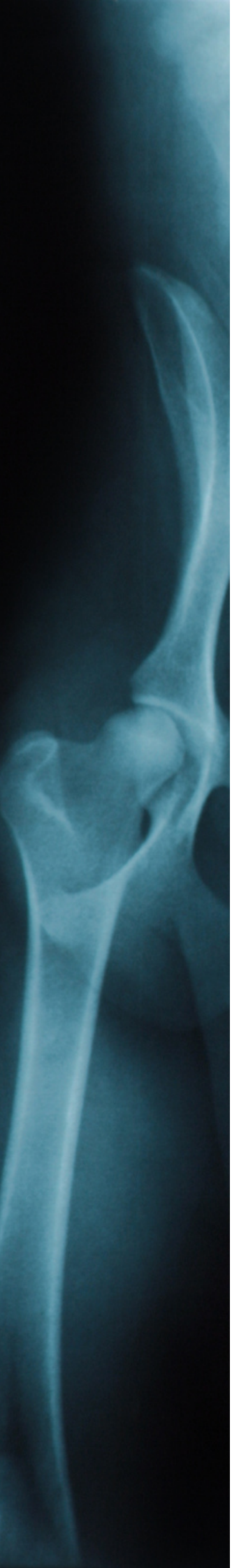
1) **Exercise** - exercise can help reduce pain and improve strength of your joints and muscles. It can help you to function better physically and makes daily activities easier. In addition, it has many other positive effects for your general health, such as improving your cardiovascular health and psychological health. It also helps you to manage your weight better.



TREATMENT OPTIONS FOR OSTEOARTHRITIS

2) Weight management - Being overweight or obese can make the osteoarthritis worse, as extra weight would put more pressure and stress onto the joints. Being overweight and obese is also linked to changes in metabolism, which have been linked to osteoarthritis. It may also contribute to more inflammation in your body.

3) Education - it is very important for patients to have the basic information and knowledge about osteoarthritis, how it may affect your life, and what you can do to manage it. Learning more about osteoarthritis can help you better manage the condition and improve your confidence to manage it.



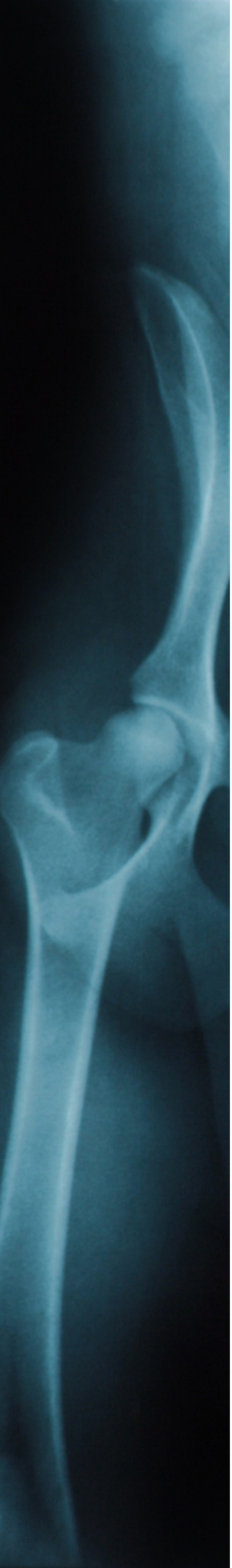
TREATMENT OPTIONS FOR OSTEOARTHRITIS

Second line treatments

If you are not responding well with the first line treatments, second line treatments can be considered as complementary to the first line treatment. However, they should never fully replace the first line treatment.

1) Medications:

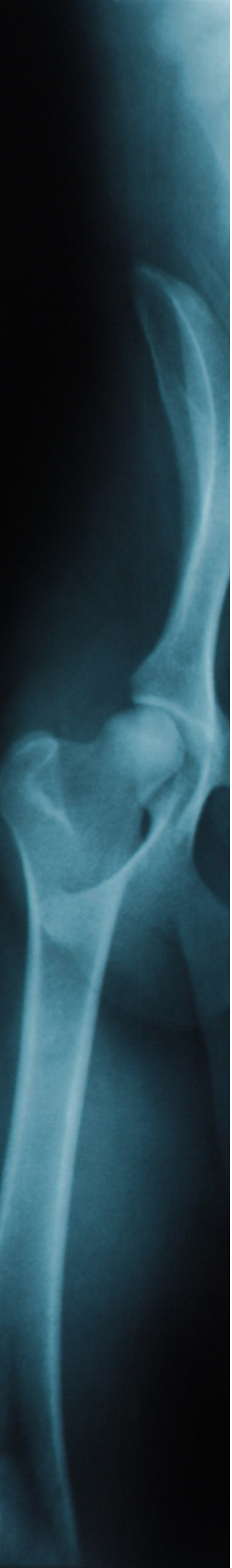
- **Paracetamol** is a common pain medication for osteoarthritis. It is generally safe and has minimal side effects. However, taking more than the recommended dose may lead to liver damage.
- **Non-steroidal anti-inflammatory medications (NSAID)** may be prescribed if paracetamol is not working well enough. It is more effective than paracetamol, but taking too many of them may lead to side effects in your stomach.
- **Corticosteroid injection** - should only be considered if the joint is hot and swollen, and short term rapid pain relief is needed. It may reduce pain in 1-4 weeks; however, long-term effects are not found with corticosteroid injections.



TREATMENT OPTIONS FOR OSTEOARTHRITIS

2) Manual therapy and dry needling:
Manual therapy and dry needling performed by your physiotherapist can improve your movement and provide short-term pain relief. This can be particularly useful when the joint pain is flaring up, or you are struggling to perform any exercises due to joint pain. Manual therapy can help temporarily reduce your pain, so that you can move better and easier, and perform some exercises.

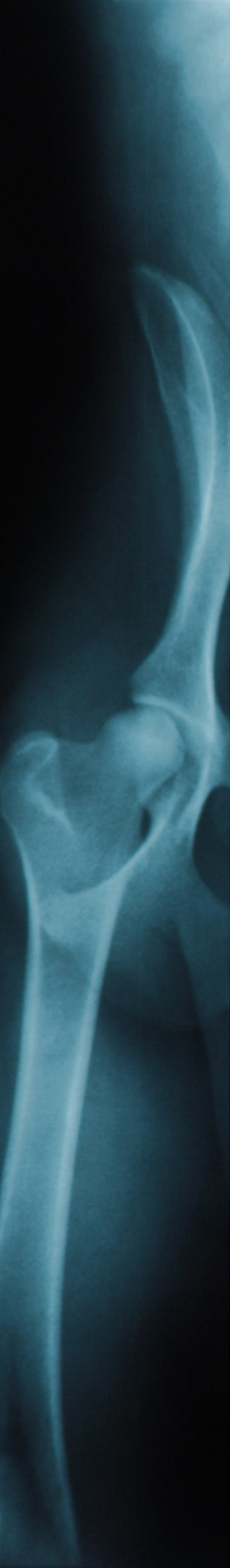
3**) Walking aids or other assistive devices:**
- walking aid such as a stick/cane if you are limping due to your affected joint. A brace or tape can potentially be used if it improves the stability of your joints. If your foot is contributing to your knee/hip pain, a customized insole/orthotic may be prescribed by your physiotherapist or podiatrist.



TREATMENT OPTIONS FOR OSTEOARTHRITIS

Third line treatments

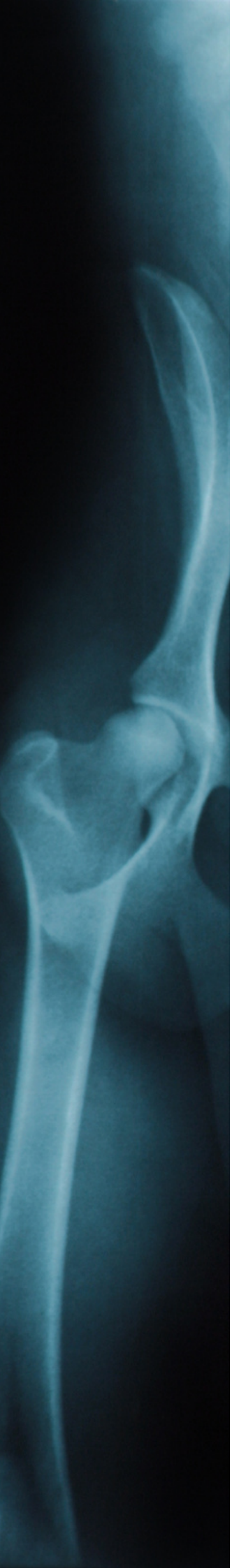
Surgery is a good treatment option for the right candidate at the right time. Most patients can manage their osteoarthritis well with the first and second line treatment, but if this is not possible, surgery may be considered.
- J**oint replacement** - it involves replacing the damaged joint with tailor- made metal artificial joint surfaces. It is a costly and big surgery, and require significant amount of rehabilitation post surgery to regain the physical functions and strength.
- **Osteotomy** - it involves taking out a wedge of bone from the lower leg for people that have severe deformities like a knocked knee or bow-leg. It helps redistribute the load on the joint surface, so that it spreads out more evenly throughout the joint.



BENEFITS ASSOCIATED WITH EXERCISE

Exercises do not just help with your joints and cartilage, but also many other things in your body, including your heart, sleep and bones.

- **Heart:** Exercise makes your heart stronger, and it also helps you to perform work with a lower heart rate and less effort on the heart.
- **Bones:** Your bone may get stronger if you put more load onto it. Similar to muscles, the bones can adapt and can get stronger if we apply load on them. It is important to maintain our bone health to prevent osteopenia/osteoporosis (reduction of bone density), and minimise your chance of getting fractures. Loading is achieved through weight bearing exercise.
- **Pain relief:** when you exercise, your body releases endorphins, which can help reduce your pain and make you feel better and happier.
- **Weight:** Exercise can help convert your fat tissue into muscle. It would also help reduce your risk of developing diabetes.

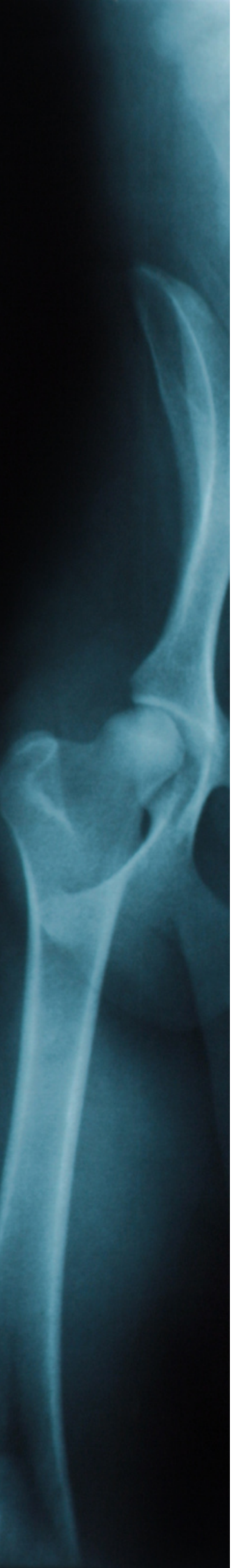


RECOMMENDATIONS FOR EXERCISE

- At least 150min of moderate intensity physical activities per week (the exercise intensity should be enough to make you sweat a bit and feel slightly out of breath.)

- can be done in 10 min blocks.

- At least 2 strengthening sessions per week. These recommendations apply to people regardless of injury, illness and age, but it could be easier to start slowly, then gradually build up. The ideal intensity or type of exercises depends on the person's abilities, conditions, and age.

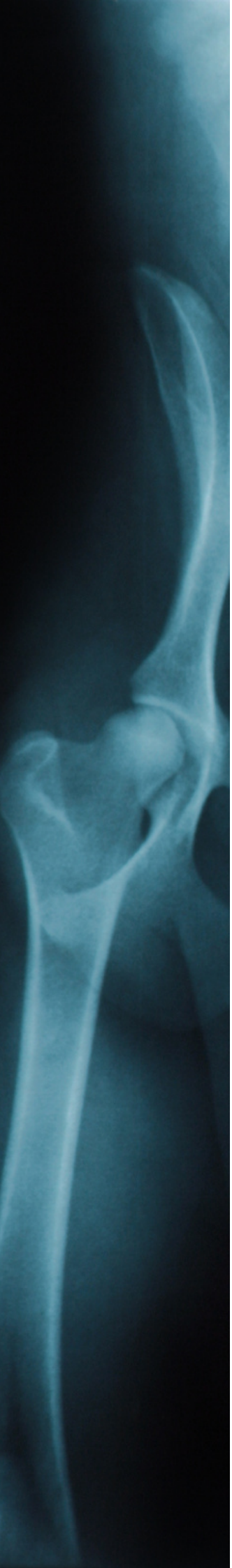


EXPERIENCE PAIN WHEN YOU EXERCISE?

It is acceptable to have a certain amount of pain when you exercise if you have osteoarthritis. In fact, pain does not equal to damage, and it is not dangerous to exercise with some pain, as long as the pain settles within a short period of time.

If you have not used your leg muscles a lot before, starting to do exercise may give you some muscle soreness or joint pain. On a pain scale from 0-10 (0 = no pain at all), We would like the pain to be below 5/10. As long as the pain does not go past the acceptable limit of pain (5/10), and it reduces back to normal within 24 hours, it is acceptable.

If you experienced pain over the acceptable limit (5/10) or it takes a very long period of time to recover, then you may want to consider slightly lowering the repetitions or intensity of your exercise.



PHYSIOTHERAPY

If you require extra help with managing your joint pain, you would benefit from consulting with a physiotherapist. Physiotherapists are skilled health professionals that can guide you through how to optimally manage your joint pain, and improve your strength, physical function and confidence. They would be able to perform a thorough assessment for you, and tailor the treatment with a combination of manual therapy and exercise therapy based on your needs. Manual therapy can be used to reduce your joint and muscle pain, and your physiotherapist will prescribe an individualised exercise program that is most suitable for you to perform.