

Living with arthritis

Osteoarthritis of the knee

A practical guide to treatments,
services and lifestyle choices



Acknowledgements

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Introduction

What is osteoarthritis of the knee?

Osteoarthritis is the most common form of joint disease, and the knee is one of the most commonly affected joints. In this booklet we'll explain how osteoarthritis of the knee develops, what causes it and how it can be treated. We'll also give some hints and tips to help you manage your arthritis and suggest where you can find out more.

At the back of this booklet you'll find a brief glossary of medical words – we've underlined these when they're first used.

At a glance – Osteoarthritis of the knee

What are the symptoms of osteoarthritis?

The symptoms of osteoarthritis can include:

- pain
- stiffness
- inability or difficulty doing certain activities
- a grating or grinding sensation when the joint moves (crepitus)
- swelling (either hard or soft).

Sometimes the knee may either lock or give way when you put weight on it.

Not everyone experiences all these symptoms.

These symptoms can vary from very mild to severe.

Who gets it?

Almost anyone can get osteoarthritis, but it's most likely if:

- you're in your late 40s or older
- you're overweight
- you're a woman

- your parents, brothers or sisters have had osteoarthritis
- you've previously had a severe knee injury
- your joints have been damaged by another disease, e.g. [rheumatoid arthritis](#) or [gout](#).

What can I do to help myself?

There are several ways you can help yourself, including:

- losing weight if you're overweight
- exercising regularly (both muscle-strengthening and general [aerobic exercise](#))
- reducing stress on the affected joint when doing painful activities (e.g. by pacing your activity, using a walking stick or wearing appropriate footwear)
- using painkillers ([analgesics](#)) or anti-inflammatory creams, gels and tablets.

How does a normal knee joint work?

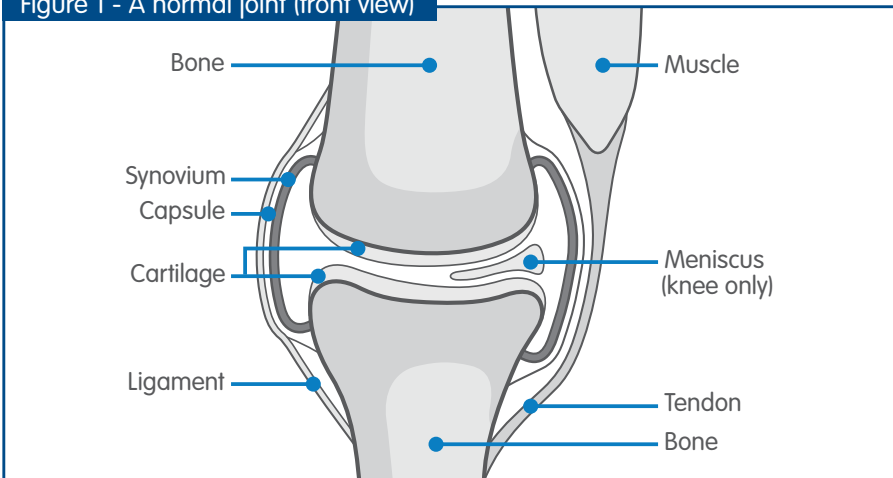
A joint is where two or more bones meet (see Figure 1). The joint allows the bones to move freely but within limits. The knee is the largest joint in the body and also one of the most complicated. It needs to be strong enough to take our weight and must lock into position so we can stand upright. But it also has to act as a hinge so we can walk. Knee joints can also withstand extreme stresses, twists and turns, such as when we run or play sports.

The knee joint is where your thigh bone (femur) and shin bone (tibia) meet. The end of each bone is

covered with [cartilage](#). This has a smooth, slippery surface that allows the ends of the bones to move against each other almost without friction. Your knees have two additional rings of cartilage between the bones. These are called [menisci](#), which act a bit like shock absorbers to spread the load more evenly across the joint.

The joint is surrounded by a tough outer layer called the capsule with a thin lining called the [synovium](#). The capsule helps hold your knee in place and the synovium produces a small amount of synovial fluid, which helps

Figure 1 - A normal joint (front view)





to nourish the cartilage and lubricate the joint.

Your knee joint is also held in place by four large [ligaments](#). These are thick, strong bands which run within or just outside the joint capsule. The thigh muscles also help to give the knee joint stability.

Your muscles are attached to your bones by strong connecting tissues called tendons. These tendons run on either side of the joint and also help to keep the joint in place.

When your muscles contract they shorten, and this pulls on the tendon attached to the bone and makes the joint move.

Your kneecap (patella) is fixed firmly in the middle of the large tendon that attaches your thigh muscles (quadriceps) to the bone just below your knee joint at the front of your shin bones. The underside of your kneecap is also covered with cartilage.

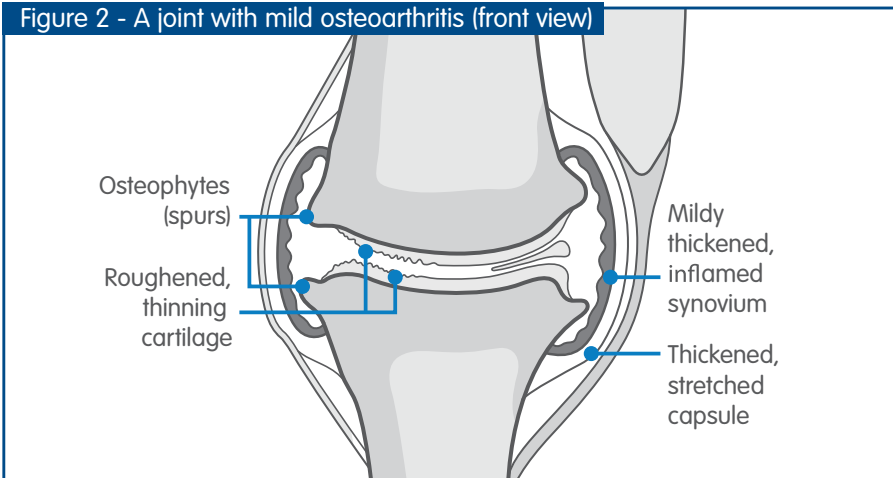
What is osteoarthritis?


Osteoarthritis is a disease that affects your joints. Some structures within and around your joints become damaged so the joint doesn't move as smoothly as it should (see Figure 2). The condition is sometimes called arthrosis, osteoarthrosis, degenerative joint disease or 'wear and tear'. Although you may hear people describe osteoarthritis as 'wear and tear', this is not an accurate description of the disease. The joints do not simply wear away because of too much use. In fact, it may be the complete opposite as osteoarthritis is thought to be the result of a joint working extra hard to repair itself.

When a joint develops osteoarthritis, some of the cartilage covering the ends of the bones gradually roughens and becomes thin. This can happen over the main surface of your knee and in the cartilage underneath your kneecap. After a long period of time, the bone underneath the cartilage may react by growing thicker and becoming broader. All the tissues within the joint become more active than normal – as if the body is trying to repair the damage.

- The bone at the edge of the joint may slowly grow outwards, forming bony spurs called **osteophytes**.

Figure 2 - A joint with mild osteoarthritis (front view)





Osteoarthritis is thought to be the result of a joint working extra hard to repair itself.

- The synovium may become inflamed and produce extra fluid, which then causes the joint to swell. This is called an effusion or sometimes water on the knee.
- The capsule and ligaments may slowly thicken and contract as if they were trying to stabilise the joint.

These changes in and around the joint are partly the result of the

inflammatory process and partly your body's attempt to repair the damage. In many cases, the repairs are quite successful and the changes inside the joint don't cause much pain or permanent damage. Or if there is pain, it's mild and may come and go. However, in some cases the repair doesn't work as well and can cause longer-lasting changes in the way the joint feels, moves and looks.

What are the symptoms of osteoarthritis?

The main symptoms of osteoarthritis are pain and sometimes stiffness, which can affect one or both knees.

The pain tends to be worse when you move the joint or at the end of the day. You may have pain all around your knee or just in a particular place, most likely at the front and sides, and it may be worse after a particular movement, such as going up or down stairs.

The pain is usually better when you rest. It's unusual, but some people have pain that wakes them up at night.

You'll probably find that your pain varies, with times when your knee is more painful (flare-ups), followed by times when the pain is less or you have no pain at all. Sometimes it's easy to identify a reason for the change in your pain, such as overdoing certain activities, but often there may be no obvious reason.

Your knee may feel stiff at certain times, often in the mornings or after a period of rest. Walking for a few minutes will usually ease it. However, many people with osteoarthritis don't have any stiffness at all.

Some people may feel they are not able to move their knee as freely or as far as normal, and it may creak or crunch with movement. Sometimes the joint gives way or feels unstable, either because the muscles around the knee have become weak or because the joint structure has become less strong.

You may notice that your knee looks swollen. The swelling may be hard (caused by extra bony growth around the sides of the joint) or soft (caused by extra fluid in the joint).

The muscles at the front of your thigh that help straighten your knee may look thinner if they have lost some of their strength over time.

What causes osteoarthritis?

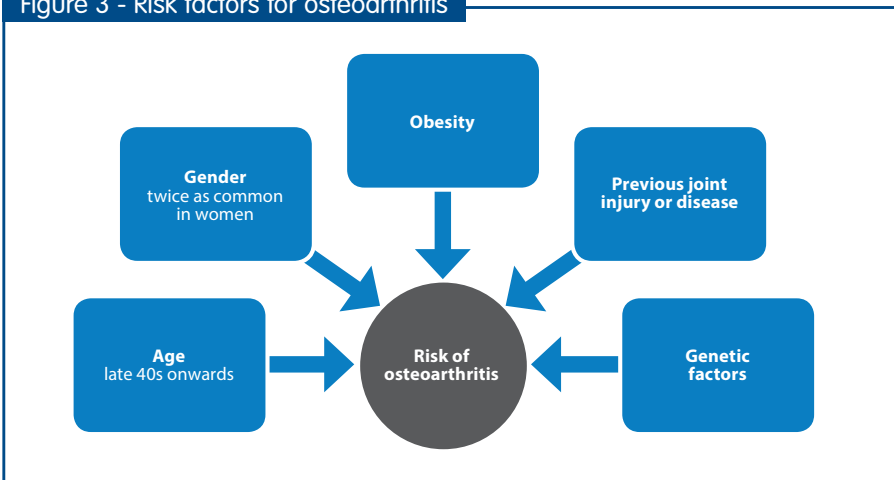
There are many factors that can increase the risk of getting osteoarthritis, and it's often a combination of these that leads to the condition (see Figure 3).

Age – Osteoarthritis usually starts from the late 40s onwards. We don't fully understand why it's more common in older people, but it might be due to factors like weakening of the muscles, the body being less able to heal itself or gradual changes to the joint with time.

Gender – Osteoarthritis of the knee is twice as common in women as in men. It's most common in women over the age of 50, although there's no strong evidence that it's directly linked to [menopause](#). It's often associated with mild arthritis of the joints of the fingers, which is also more common in women.

Obesity – Being overweight is an important factor in causing osteoarthritis, especially in the knee. It also increases the chances of osteoarthritis becoming progressively worse.

Figure 3 - Risk factors for osteoarthritis



Joint injury – Normal activity and exercise don't cause osteoarthritis, but very hard, repetitive activity or physically demanding jobs can increase the risk. Also major injuries to the knee, such as a torn meniscus or ruptured ligament, often lead to osteoarthritis in later life. Having an operation to remove the damaged cartilage (meniscectomy) or repair cruciate ligaments also increases the risk of osteoarthritis in later life.

Genetic factors – Genetic factors play a major part in the development of osteoarthritis of the knee. If you have a parent, brother or sister with knee osteoarthritis then you'll have a greater chance of developing it yourself. We don't know a lot about the genes that cause the increased risk, but we do know that a number of genes will have a small effect rather than one particular gene being responsible.

Other types of joint disease

– Sometimes osteoarthritis is a result of damage from other kinds of less frequent joint diseases, such as gout.

Although there's no evidence that different conditions such as cold or wet weather actually cause or worsen osteoarthritis, many people find that their pain and stiffness may vary with the weather. This may be because nerve fibres in the capsule of affected joints are sensitive to changes in atmospheric pressure.



What will happen over time?

Although there's no cure for osteoarthritis yet, a lot can be done to improve your symptoms.

It's impossible to predict how osteoarthritis will develop and progress for any one person. It can sometimes develop over just a year or two. But more often osteoarthritis is a slow process that develops over many years and results in fairly small changes in just one part of the joint. This doesn't mean it won't be painful, but most people are able to manage their pain using simple self-help measures.

For most people, knee osteoarthritis will be stable and not worsen over time. Sometimes your symptoms might even improve. You may find you have flare-ups (temporary increases in pain) from time to time. Although your knee will feel worse during these times, the pain will usually settle down again.

Changes in lifestyle can greatly reduce the risk of osteoarthritis of the knee progressing. Regular exercise, protecting the joint from further injury and keeping to a healthy weight will all help.

Osteoarthritis doesn't lead to rheumatoid arthritis or other types

of joint disease. It won't spread through the body like an infection might. However, deformity caused by osteoarthritis in one joint may lead to uneven or extra loading of other joints. This could result in pain in those joints.

Baker's cysts (popliteal cysts)

Knee osteoarthritis can be associated with Baker's cysts, a swelling in the back of the knee. Baker's cysts can form when extra synovial fluid is produced in the knee and it becomes trapped in a pouch (hernia) sticking out of the joint lining. They're often painless, but you may be able to feel a soft-to-firm lump at the back of your knee. Sometimes a cyst can cause aching or tenderness when you exercise. Occasionally a cyst can press on a blood vessel, which can lead to swelling in your leg, or the cyst may burst (rupture) and release joint fluid into your calf muscle, which can be very painful, but this is rare.

How is osteoarthritis diagnosed?



It's very important to get an accurate diagnosis if you think you might have arthritis. There are many different types of arthritis and some, such as rheumatoid arthritis, need very different treatments.

Osteoarthritis is usually diagnosed based on your symptoms and the physical signs that your doctor finds when examining your joint, for example:

- tenderness over the joint
- creaking or grating of the joint (crepitus)
- bony swelling
- excess fluid
- restricted movement
- joint instability
- weakness of your thigh muscle.

What tests are there?

There are no blood tests for osteoarthritis, although your doctor may suggest them to help rule out other types of arthritis.

X-rays and scans may show the physical changes in the joint, such as bony spurs or narrowing of the space between the bones. However, x-rays and scans are not good indicators of how much pain or difficulty you're likely to have so are not very useful in diagnosing osteoarthritis. Some people can have a lot of pain but scans or x-rays of the knee are normal, while others may have very little pain despite x-rays showing severe damage. It is better to diagnose and plan your treatment based on your symptoms and any other problems your knee pain is causing you.

What can I do to help myself?

Losing even a small amount of weight can make a big difference to the pain you feel...

There's a lot that you can do to improve your symptoms. Self help measures play a very important part in relieving pain and stiffness, and reducing the chances of your osteoarthritis becoming worse.

Weight management

There's a great deal of evidence that being overweight increases your risk of developing osteoarthritis and also makes it more likely that your arthritis will get worse over time.

Because of the way the joints work, the force put through your knees when you walk, run or go up and down stairs can be up to five to six times your body weight. While putting load on your joint does not make the osteoarthritis worse, higher loads will hurt more. Losing even a small amount of weight can make a big difference to the pain you feel on weight-bearing joints such as the knees.

No special diet has been shown to help specifically with osteoarthritis, but if you need to lose some weight you should follow a balanced, reduced-calorie, healthy diet combined with regular exercise. Making long term

changes to your eating habits is better than short term weight-loss 'diets'.

Exercise

Exercise is one of the best treatments for osteoarthritis. Most types of exercise, including walking and aerobics, are safe (will not make your osteoarthritis worsen) and will help reduce pain in the long term. Because exercise is often a bit painful, you'll need to find the right balance between rest and exercise. Most people with osteoarthritis find that too much activity all at once increases their pain while too little makes their joints stiffen up and muscles weaker. Little and often is usually the best approach to exercise if you have osteoarthritis.

There are two types of exercise that you are recommended to do:

Strengthening exercises will improve the strength of the muscles that control the joint affected by osteoarthritis. Osteoarthritis of the knee can weaken your thigh muscles (quadriceps), so regular exercising of these muscles helps to stabilise and protect the joint. It's



also been shown to reduce pain and is particularly helpful in preventing your knee giving way, reducing the feeling you might stumble or fall.

Aerobic exercise is any exercise that increases your pulse rate and makes you breathe a bit harder. Regular aerobic exercise should help you sleep better, helps you to burn calories, is good for your general health and well-being and can reduce pain by stimulating the release of pain-relieving hormones called endorphins. Examples of aerobic exercise include brisk walking, cycling or using a stationary bike, and swimming.

A [physiotherapist](#) or [exercise physiologist](#) can advise you on the

Exercise is one of the best treatments for osteoarthritis.

best exercises to do and how to do them safely. You'll need to build exercise into your daily routine to get the most benefit.

Swimming or exercising in water can be very good for people with osteoarthritis because the water supports the weight of your body so it can feel less painful to exercise. Your physiotherapist may also recommend special exercises in a [hydrotherapy](#) pool. This can help get muscles and joints working



better and, because the water is warmer than in a typical swimming pool, it can be very soothing.

You might notice some pain when you are exercising, especially if you are just starting out or trying something new. This is to be expected and usually settles down as your body gets used to the activity. If you get a lot of pain during an exercise, or increased pain and swelling after exercising that lasts through to the next day, don't stop exercising completely! Try leaving out the problem exercise or scaling back the exercises until your body has adapted and it no longer hurts as much. If pain and swelling continues to make exercising difficult, seek advice from a physiotherapist or exercise physiologist.

Reducing the strain on your knees

Apart from keeping an eye on your weight, there are a number of other

ways you can reduce the strain on your knees so everyday activities hurt less.

- Pace your activities through the day – don't tackle all the physical jobs at once. Break the harder jobs up into chunks and do something gentler in between. Keep using your knee, but rest it for short periods throughout the day when it becomes painful.
- Use a walking stick to reduce the load and stress on a painful knee. A physiotherapist can advise on the correct length and the best way to use the stick.
- Use the hand-rail for support when going up or down stairs. Go up stairs one at a time with your good leg first, and downstairs one at a time with your painful leg first.
- Think about modifying your home to reduce strain. An [occupational therapist](#) can advise you on special equipment or techniques that will make your daily tasks easier on your sore joints.

- Most people with osteoarthritis are able to continue in their jobs, although you may need to make some alterations to your working environment, especially if you have a physically demanding job. Speak to an occupational therapist or rehabilitation counsellor for more information about your options. They can advise you on changing the way you work and on equipment that may help you to do your job more easily.



Footwear, braces and splints

- Wear low-heeled shoes with soft, thick soles (trainers are ideal). Thicker, rubber soles will act as shock absorbers. Avoid high heels as they change the angle of your hip, knee and big toe joints.
- More evidence to support the use of knee braces for osteoarthritis is becoming available. There are several types that can help to stabilise the kneecap and make it move correctly. You can buy knee braces from sports shops and chemists, but you should speak to your doctor or physiotherapist first. They may also be able to provide braces or recommend the best ones for you.
- Sometimes taping the knee and/or the kneecap can help reduce pain. Your physiotherapist can assess whether this will be useful for you.

Thoughts and emotions

Your thoughts and feelings play an important role in the amount of pain you experience and how it affects you. You may have noticed that your pain levels are worse when you are feeling stressed, sad, worried, scared, tired, frustrated or bored.

Living with a long-term condition like osteoarthritis can lower your morale, lead to anxiety and stress, and may affect your sleep. It's important to tackle problems like these as they could lead to depression and will certainly make the osteoarthritis itself more difficult to cope with.

There are many different techniques you can learn to retrain the way your mind processes pain messages. These include relaxation, distraction, mindfulness and cognitive behavioural therapy. You can learn these techniques from a psychologist, counsellor or

web-based programs on the internet. These techniques take practice to master but can be very effective in managing pain.

It often helps to talk about negative feelings, so it could be useful to speak to your healthcare team, or your family and friends. Support groups are also available – your doctor may be able to tell you about organisations in your area.

Heat and cold

Applying warmth to a painful knee often relieves the pain and stiffness of osteoarthritis. Heat lamps are popular, but a hot-water bottle or reheatable pad are just as effective. This can be helpful if you have a flare-up of pain or when you've done a bit too much. An ice pack can also help. You can apply heat or cold to the painful area for about 15 minutes and you can repeat treatment throughout the day. Make sure the temperature of your skin has returned to normal before re-applying to prevent any tissue damage. Warning: Don't apply ice/heat packs or hot water bottles directly to your skin. Make sure there are some layers of cloth to protect your skin (e.g. about three centimetres of towel).

Sleep

If pain is a problem at night, heat may help. Try a hot bath before

going to bed, or use a hot-water bottle, wheat bag (which you can heat in a microwave) or electric blanket. Taking a painkiller before going to bed can ease night-time pain so you can get to sleep more easily. Placing a pillow between your knees can also help to ease pain. Getting a good night's sleep is really helpful in keeping your pain down and helping you to manage living with a long term condition. If sleep is a problem for you, don't ignore it, try and get help.

Transcutaneous electrical nerve stimulation (TENS)

Some people find that [transcutaneous electrical nerve stimulation \(TENS\)](#) can help to relieve pain, although research evidence on its effectiveness is mixed. A TENS machine is a small electronic device that sends pulses to the nerve endings via pads placed on your skin. It produces a tingling sensation and is thought to modify pain messages transmitted to your brain. TENS machines are available from pharmacies and other major stores, and a physiotherapist may be able to loan you one to try before you decide whether to buy one. They are very safe to use even over many years.

Complementary medicines

There are many different complementary and herbal remedies

that claim to help with arthritis, and some people do feel better when they use them. However, on the whole these treatments aren't recommended for knee osteoarthritis because there's no conclusive evidence that they're effective. This includes glucosamine and chondroitin. There are some promising results but these have come from poor quality studies and further evidence is needed to understand their usefulness. There is also some research showing that [acupuncture](#) can sometimes provide relief from arthritis pain. However the strongest evidence from scientific studies suggests it is no better than a placebo (fake treatment).

Generally speaking complementary and alternative therapies are relatively well tolerated, although you should always discuss their use with your doctor before starting treatment. All treatments, even 'natural' ones, can produce side effects or may interact with other treatments you are using.

In many cases the risks associated with complementary and alternative therapies are more to do with the therapist than the therapy. This is why it's important to go to a legally registered therapist, or one who has a set ethical code and is fully insured.

If you decide to try complementary therapies or supplements, you should be critical of what they're doing for you, appraise their cost and base your decision to continue on whether you notice any improvement.



What medical treatments are there for osteoarthritis?

Many people find that self-help measures, such as those listed previously, are enough to help them manage their symptoms, but your healthcare team will be able to suggest other treatments if you need them.

Because a lot of treatments for osteoarthritis work in different ways, they can be combined to help ease your symptoms.

Drugs

There are a number of tablets and creams that can help the symptoms of osteoarthritis, and because they work in different ways you can combine different treatments if you need to. Your pharmacist can advise you and supply some low-dose tablets and creams without a prescription.

Non-steroidal anti-inflammatory drugs (NSAIDs) - creams and gels

You can apply anti-inflammatory creams and gels directly onto painful joints three times a day. There's no need to rub them in – they absorb through the skin on their own. They're especially helpful for osteoarthritis of the knee, and they're extremely well tolerated as very little is absorbed into the bloodstream. If you have trouble taking tablets then anti-inflammatory creams are a particularly good option to try. You can decide if they help your pain within the first few days of trying them.

If you're already taking NSAID tablets, speak to your doctor about non-NSAID creams (e.g. capsaicin cream) to avoid taking too much of one type of drug.

Anti-inflammatory gels and creams are especially helpful for osteoarthritis of the knee.



Non-steroidal anti-inflammatory drugs (NSAIDs) - tablets

If [inflammation](#) in the joint is contributing to your pain and stiffness, a short course of NSAID tablets may be useful.

Like all drugs, NSAIDs can sometimes have side-effects, but your doctor will take precautions to reduce the risk of these – for example, by prescribing the lowest effective dose for the shortest possible period of time.

Some NSAIDs are available over-the-counter without a prescription. You can use these for a short course of treatment (about 5–10 days), but if they've not helped within this time then they're unlikely to. If the pain returns when you stop taking the tablets, see your doctor for advice.

NSAIDs can cause digestive problems (stomach upsets, indigestion or damage to the lining of the stomach) so in most cases they'll be prescribed along with a drug called a [proton pump inhibitor](#) (PPI), which will help to protect your stomach.

NSAIDs also carry an increased risk of heart attack or stroke. Although the

increased risk is small, your doctor will be cautious about prescribing them if there are other factors that may increase your overall risk, for example, smoking, circulation problems, high blood pressure, high cholesterol or diabetes.

Capsaicin cream

Capsaicin cream is made from the pepper plant (capsicum) and is an effective painkiller. It needs to be applied three times a day to be effective and, like NSAID creams and gels, it's particularly useful for osteoarthritis of the knee.

Most people feel a warming or burning sensation when they first use capsaicin, but this generally wears off after several days of using it. The pain-relieving effect starts after several days of regular use and you should try it for at least two weeks before deciding if it has helped. Don't apply to sensitive areas (such as eyes or genitals) as the burning sensation can be extremely uncomfortable.

Opioids (strong painkillers)

If you have severe pain, for

example while you're waiting for a knee replacement operation, and other medications aren't giving enough relief, your doctor may recommend stronger painkillers (or opioids). Opioids are generally not recommended for osteoarthritis as their risks outweigh their benefits. These stronger painkillers are more likely to have side-effects – especially nausea, dizziness and confusion – so you'll need to see your doctor regularly and report any problems you have with these drugs.

Paracetamol (painkiller)

Paracetamol may be suggested by some doctors to help with pain and stiffness. Ask your doctor or pharmacist about the best dose for you and how often to use it. Some people take paracetamol occasionally, when their pain is very bad or when they're exercising, whilst others may take it more regularly. It's best to try to take it before the pain becomes bad (for example, if you know you are about to do something that will be painful) rather than after.

Take care not to take more than the daily recommended dose as taking too much can cause irreversible liver damage. If paracetamol is not effective for you there are other medicines that your doctor may prescribe.



Steroid injections

Steroid injections are sometimes given directly into a particularly painful knee joint. The injection can start to work within a day or so, and it may improve pain for several weeks. This is mainly used for very painful osteoarthritis where the knee is swollen, or to help people through an important event (such as a holiday or family wedding). However, it's important to remember that steroid injections can't be given frequently or indefinitely. If you feel like you need repeated steroid injections into your osteoarthritic knee (which may increase the risks of the disease progressing more rapidly) then you may need to consider surgery.



Hyaluronic acid, platelet rich plasma (PRP) and stem cell injections

When steroid injections don't work, some doctors give injections of these substances into the knee joint, either as a single injection or as a course of several injections. However, there is currently no convincing evidence that any of these types of injections are helpful so their use is not recommended.

Surgery

For the few people whose pain worsens severely, despite trying other treatments, knee replacement surgery can be a good option.

Like all types of surgery it has risks and can be costly. Most people (80%) who have knee replacement surgery report an excellent result but recovery and rehabilitation can take 12-18 months.

Sometimes keyhole surgery techniques (arthroscopy) to wash out loose fragments of bone and other tissue from your knee may be tried. Research has shown this type of procedure is not useful for people with knee osteoarthritis and is only recommended if your knee is actually 'locked'.

Patient story

John is a 68-year-old retired salesman.

When I was 25 I injured my knee playing football. It locked and was very painful for several weeks. My doctor sent me to see an orthopaedic surgeon, and he removed some damaged cartilage (meniscus) from my knee. I was still in quite a lot of pain and had to have another operation on the same knee a few years later, when I was 30. After that, I didn't really have any problems for some years. My knee used to ache occasionally and it was sometimes stiff, but it didn't stop me doing the things I wanted to.

Then, about 10 years ago, the discomfort and stiffness started getting worse. As time went by the knee got quite painful when I was exercising and it also started to swell a little. By the time I was 64, and coming up to retirement, it was getting difficult to get up and down stairs, and if I walked more than about half a mile I'd be in a lot of pain afterwards.

My doctor examined my knee and told me I'd got osteoarthritis. She said it was probably because of my old injury and the operations I'd had.

She gave me some paracetamol for the pain and some NSAID cream to put on, which helped. I've also had some physiotherapy to help strengthen my thigh muscles. The physio said these muscles often get weak when you've got arthritis in your knee. The exercises certainly made walking and climbing stairs a lot easier.

Now I'm retired I don't have to rush around so much, and I'm finding things easier. I like gardening and do some home decorating, which is fine as long I take it gently. I use the tablets and the cream most days, and I've kept on with the exercises I was shown. I get more pain some days than others. It usually seems worse when the weather's damp. And my knee does tend to stiffen up if I sit still for too long.

Glossary

Acupuncture	A method of obtaining pain relief which originated in China. Very fine needles are inserted, virtually painlessly, at a number of sites (called meridians) but not necessarily at the painful area. Pain relief is obtained by interfering with pain signals to the brain and by causing the release of natural painkillers (called endorphins).
Aerobic exercise	Any exercise that increases your pulse rate and makes you breathe faster.
Analgesics	Painkillers. As well as dulling pain they lower raised body temperature, and most of them reduce inflammation.
Cartilage	A layer of tough, slippery tissue that covers the ends of the bones in a joint. It acts as a shock-absorber and allows smooth movement between bones.
Exercise physiologist	A health professional who can suggest an exercise program tailored to your health and ability.
Gout	An inflammatory arthritis caused by a reaction to the formation of urate crystals in the joint. Gout comes and goes in several flare-ups at first, but if not treated it can eventually lead to joint damage. It often affects the big toe.
Hydrotherapy	Exercises that take place in water (usually a warm, shallow swimming pool or a specially heated hydrotherapy pool). Exercising in water can be less painful than other types of exercise for some people with knee osteoarthritis. As with other types of exercise, hydrotherapy will not make the osteoarthritis worse and can help reduce pain, strengthen muscles and improve mobility.
Inflammation	A normal reaction to injury or infection of living tissues. The flow of blood increases, resulting in heat and redness in the affected tissues, and fluid and cells leak into the tissue, causing swelling.
Ligaments	Tough, fibrous bands anchoring the bones on either side of a joint and holding the joint together.
Menisci (singular meniscus)	Rings of cartilage, like washers, lying between the cartilage-covered bones in the knee. They act as shock absorbers and help the movement of the joint. Each knee has an inside (medial) and an outside (lateral) meniscus.

Glossary continued

Menopause	The time when menstruation ends, usually when a woman is in her 50s. This means the ovaries stop releasing eggs every four weeks, and it's no longer possible to have children.
Non-steroidal anti-inflammatory drugs (NSAIDs)	A large family of drugs prescribed for different kinds of arthritis that reduce inflammation and control pain, swelling and stiffness.
Occupational therapist	A health professional who helps you to get on with your daily activities (e.g. dressing, eating, bathing) or work tasks by giving practical advice on aids, appliances and altering the way you do your activities.
Osteophytes	An overgrowth of new bone around the edges of osteoarthritic joints. Spurs of new bone can alter the shape of the joint and may press on nearby nerves.
Physiotherapist	A health professional who can teach you exercises and other strategies to keep your joints moving and muscles strong. They can help you learn about the things you can do for yourself to ease pain and keep yourself mobile and active.
Proton pump inhibitor (PPI)	A drug that acts on an enzyme in the cells of the stomach to reduce the secretion of gastric acid. They're often prescribed along with non-steroidal anti-inflammatory drugs (NSAIDs) to reduce the side-effects of those drugs.
Rheumatoid arthritis	A common inflammatory disease affecting the joints, particularly the lining of the joint. It most commonly starts in the smaller joints in a symmetrical pattern – that is, for example, in both hands or both wrists at once.
Synovium	The inner membrane of the joint capsule that produces synovial fluid.
Transcutaneous electrical nerve stimulation (TENS)	A small battery-driven machine which can help to relieve pain. Small pads are applied over the painful area and low-voltage electrical stimulation produces a pleasant tingling sensation, which relieves pain by interfering with pain signals to the brain.

Where can I find out more?

If you've found this information useful you might be interested in these other resources:

Information sheets and booklets

Arthritis Australia has a range of information available for download from www.arthritisaustralia.com.au including:

- Taking control of your osteoarthritis (booklet)
 - 10 steps for living well with arthritis (booklet)
 - Osteoarthritis
 - Tips for osteoarthritis of the hip and knee
 - Dealing with pain
 - Working with your healthcare team
 - Medicines and arthritis
 - Physical activity
 - Strength training
 - Water exercise
 - Arthritis and emotional wellbeing
 - Healthy eating and arthritis
 - Saving energy
 - Complementary therapies
 - Glucosamine and chondroitin
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Websites

Arthritis Australia www.arthritisaustralia.com.au

Visit Arthritis Australia's website www.myjointpain.org.au for more information on osteoarthritis and help in managing and choosing the best treatment options for you.

Notes

My contact details

My name: _____

Telephone: _____

My GP

Name: _____

Telephone: _____

My specialist

Name: _____

Telephone: _____

My support team

Name: _____

Telephone: _____

Name: _____

Telephone: _____

My medicines

Name	Dosage	Instructions

Arthritis Australia

Arthritis Australia is a not-for-profit organisation that provides support and information for all Australians affected by arthritis.

[Arthritis Infoline: 1800 011 041](tel:1800011041)

www.arthritisaustralia.com.au

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