

Patient information from the BMJ Group

Osteoarthritis

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Osteoarthritis

Osteoarthritis can make your joints feel stiff and painful. But there are treatments that can help.

We've brought together the best research about osteoarthritis and weighed up the evidence about how to treat it. You can use our information to talk to your doctor and decide which treatments are best for you.

What is osteoarthritis?

Osteoarthritis is a condition that affects your joints. It's the most common joint problem: about 1.5 million people in the UK have osteoarthritis. When you hear people, particularly older people, saying their arthritis or rheumatism is bothering them, they usually mean osteoarthritis.

Osteoarthritis can make your joints stiff and painful. It's most common in the joints in your knees, hips, hands, and spine. Some people find that osteoarthritis makes it hard for them to do everyday things, such as getting out of chairs, reaching high shelves or combing their hair.

Unlike other types of arthritis, osteoarthritis only affects your joints. It does not have an effect on any other part of your body.

Osteoarthritis can't be cured, but there are treatments that can ease the symptoms.

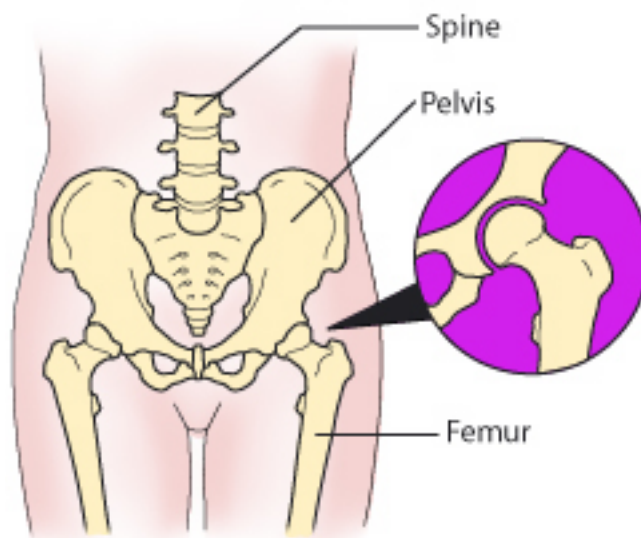
Key points for people with osteoarthritis

- It's most common in older people.
- Osteoarthritis is the most common joint problem. As many as 2 in 10 people over the age of 60 have osteoarthritis.
- The parts of your body most commonly affected by osteoarthritis are the joints in your knees, hips, hands, and spine.

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- Most people don't have a severe form of the condition. Only a few will need surgery to replace an affected joint. Surgery can work very well, but it doesn't work for everyone.

What is a joint?



A normal hip joint

To understand osteoarthritis, it helps to know how your joints work.

A joint is where two bones meet. Some joints don't move.

Osteoarthritis only affects joints that move, like your hip and knee joints.

Your hip joint

You can't see most of your hip joint from the outside of your body, but it's where your thigh bone (doctors call it the femur) meets your hip bone (part of the pelvis).

The top bit of the thigh bone is shaped like a ball, and the bottom of the hip joint is shaped like a socket. The way these bones fit together allows a lot of movement at your hip joint. It allows you to sit, kick a ball and climb stairs.

Your knee joint

This joint is formed by your thigh bone (femur), shin bone (tibia), and knee cap (the patella).

This type of joint is called a **hinge joint** because it allows your knee to move in the same way a hinge on a door allows the door to move.

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How does a joint work?

Joints are designed to cope with walking, jumping and other repetitive movements. They are made of the following things.

- **Cartilage:** This is a hard, slippery material that coats the end of a bone where it meets another bone. Cartilage allows bones to move smoothly without rubbing together. It also helps to stop too much stress being put on any one part of the bone. This stops bones from shattering when pressure is put on the joint: when you stand on one leg, for example.
- **Capsule:** The parts of bones that join to make a joint are held together in a capsule. This is fibrous tissue that is made stronger in places by thicker bands of tough tissue called **ligaments**.
- **Muscles:** Muscles around the joint help keep it in position and control its movement.
- **Synovial membrane:** The joint capsule has a lining called the synovial membrane, which makes a fluid called **synovial fluid**. This fluid lubricates the joint and helps it to move smoothly. It also feeds the outer area of the cartilage and keeps it healthy.

What happens in osteoarthritis?

Osteoarthritis is a disease of the joints. It happens when the cartilage at the ends of bones becomes damaged. The bone in your joints then tries to repair the damage. (Bone can grow and mend itself.) But instead of making things better, in osteoarthritis the bone grows abnormally and makes things worse. For example, the bone can grow into a knobby shape and make the joint painful and unstable.

No one really understands why bone does this. And it's not clear if the cartilage damage happens before the bone grows abnormally.

What happens in the joint?

Osteoarthritis is a complicated disease. All the parts of a joint depend on each other, and when something goes wrong in one part, it affects the others. No one is sure whether the cartilage goes wrong first or whether the bone does. But changes are seen in both. The cartilage and bone are both destroyed and then repaired abnormally.

- **Cartilage** becomes thinner and softer, and shows signs of **pitting** (having little holes in it) and roughening. It may split in places.
- The **bone cells** under the cartilage grow in an abnormal way. They break down and repair themselves more quickly than usual. The new bone that grows under the cartilage is thicker than usual in some places but thinner in others. It may develop tiny cracks in the thinner areas. It may also get stiffer and be less able to act as a 'shock absorber'. Meanwhile, the surface of the joint loses bone in some places while it forms too much new bone in other places. This bone growth happens faster

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than it normally would. And, in places, the bone forms outgrowths called **spurs** that have a 'cap' of cartilage. These bone spurs can change the shape of joints, which means they can't move so well.

- **Bits of bone or cartilage** can break off into the joint.
- The **synovial membrane**, the thin layer lining the capsule of the joint, becomes red and inflamed because of all the change in the bone and cartilage. It produces more fluid than usual, and this fluid has cells in it that normally fight infection in the body.
- **Muscles and ligaments**, the muscles around the joint, become weaker and smaller. This makes the joint less stable. No one knows why the muscles become weaker. They may become smaller because they get used less.
- The **bones in the joint** can get out of line with each other because of all the changes in the bone. The surfaces of the joint may no longer fit snugly. Instead, they rub against each other in a way that causes pain. The ends of the bones can get out of shape.

Osteoarthritis: why me?

Osteoarthritis is not simply due to ageing or wear and tear on the cartilage in your joints. It's a disease that affects all of the joint: the cartilage, the bone, the membrane, the fluid within the joint, the ligaments and the muscles. We don't know why some people get osteoarthritis and others don't. And it may be that what causes osteoarthritis in one joint is different to what causes it in another.

However, there are certain things that make some people more likely than others to get osteoarthritis. These are called risk factors. Risk factors are things that may make it more likely that you will get a condition. But having these factors does not mean you will definitely get osteoarthritis. We only know that these factors seem to happen more often with people who have the condition.

Being older and being overweight are two common risk factors for osteoarthritis.

Age

Age is the most important risk factor for osteoarthritis. About 1 in 10 to 2 in 10 people aged over 60 have osteoarthritis that causes them pain. ^[1]

Weight

Being overweight is a risk factor, particularly for osteoarthritis of the knee. It is also a risk factor for osteoarthritis of the hip. Being overweight leads to both hips being affected, not just one. If you already have signs of osteoarthritis, being overweight will increase the likelihood that your disease will progress. ^{[2] [3]}

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Some studies have also found that being overweight is linked to osteoarthritis of the hand. This suggests that the connection between being overweight and having osteoarthritis goes beyond the fact that extra kilograms put additional pressure on the joints. Hand joints are not weight-bearing joints, so something else must be at work here. ^[4]

Hormones

Twice as many women as men get osteoarthritis, mainly in the years after the **menopause**. However, it's not clear how **hormones** are linked to osteoarthritis.

Genetics

Osteoarthritis seems to run in families, particularly osteoarthritis of the hand and hip. With osteoarthritis of the hand, there is more than a 50 percent chance of it being a hereditary condition. ^[5] It may be that the genes involved in making cartilage are not working properly.

Your job

Doing some jobs increase your risk of osteoarthritis. For example, factory workers who do repeated tasks with their thumb and fingers have an increased risk of getting osteoarthritis.

Heavy physical labour, especially lifting, can lead to osteoarthritis of the knee or hip, as can repeated kneeling and squatting. ^[6] ^[7]

Ankle osteoarthritis, which is rare in most people, is common in ballet dancers. ^[8]

Sports

There's some evidence that running and high-impact sports, such as football, rugby, and squash, can increase your risk of osteoarthritis of the hip. ^[9]

Racial differences

Research shows that people in different parts of the world are affected by arthritis differently.

For example, studies have found a low rate of hip osteoarthritis in black people in Jamaica and South Africa, and the risk of osteoarthritis among Asian people appears to be even lower. ^[4]

What are the symptoms of osteoarthritis?

The symptoms of osteoarthritis come on gradually, sometimes over many years.

Once a joint has symptoms of osteoarthritis, it means it can't do its job properly. It can no longer move smoothly without feeling stiff or causing pain.

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Pain

You may have pain most days. It may hurt just when you use the joint that is affected or it may be with you all the time. It may be mild or it may be severe. The pain can be burning, aching or sharp. People with osteoarthritis sometimes say their joints hurt and they want to rub them to make them feel better. Osteoarthritis can get better as well as worse, and you may find that your pain improves with time. ^[10]

Pain has a psychological as well as a physical side, and if you feel more in control of your condition, then you are likely to cope better with the pain. People who manage to exercise and see their friends and family tend to feel less pain than people who are inactive and feel socially isolated.

If your arthritis does get worse, it may keep you awake at night. Night pain indicates more severe osteoarthritis. ^[11]

Stiffness

Stiffness is a common symptom of osteoarthritis. Typically you feel stiff first thing in the morning and it eases as you begin to move about, usually within 30 minutes. You may also feel stiff if you are sitting still in one position.

Problems moving

If you have osteoarthritis, you may find you have problems doing everyday things like climbing stairs, reaching high shelves, combing your hair or tying your shoelaces. Unlike morning stiffness, when you have difficulty in moving, it doesn't wear off. You may find you can't get your joint to move like it used to and that you become less mobile.

Swelling

Your joint may look and feel swollen.

A crunching feeling in a joint

Doctors call this **crepitus**. It's the unpleasant feeling of the bones crunching together. It can sometimes hurt.

Knobbly joints

Your knee or fingers may feel and look knobbly.

Muscle weakness

The muscles around the affected joint may become weak, particularly in osteoarthritis of the knee. This problem is especially likely in women.

Unstable joints

If you have osteoarthritis of the knee, you may feel as though your knee is unstable, as though it might give way at any time. This can make going down stairs difficult.

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How do doctors diagnose osteoarthritis?

There is no single test for osteoarthritis. Doctors take several things into account when deciding if you have osteoarthritis, such as which of your joints are affected and what X-rays show.

Your doctor will ask about your symptoms and carefully check your joints. You may have an X-ray and you may need to see a specialist.

What symptoms you have

Your doctor may ask if you have any of these symptoms.

- **Joint pain:** This varies from a dull ache to a stabbing pain. It's worse when you move, and it gets better when you rest.
- **Morning stiffness:** This stiffness in your joints usually lasts less than 30 minutes (stiffness for more than 45 minutes is more typical of another joint disease, [rheumatoid arthritis](#)).
- **Limited movement:** You may not be able to climb in and out of the bath or go up and down stairs.
- **Difficulty doing everyday things:** You may find it hard to do things like combing your hair, and you may even have difficulty doing your job.
- **Depression:** This is not a symptom of arthritis, but you may become depressed by having the condition. You may find that your life is restricted and that you feel isolated. ^[15]
- **Osteoarthritis of the hand:** Your hand may be painful, ache and feel stiff. The small joints at the ends of your fingers and the base of your thumb are the parts most likely to be affected.

Doctors use a variety of ways to work out how severe your symptoms are. ^[16] They may ask you about the following.

- **Pain:** for example, when walking or climbing stairs, or at night or when resting.
- **Stiffness:** in the morning or later in the day.
- **Difficulty doing things:** like going up and down stairs, getting up from a chair, standing, bending, getting in and out of a car, going shopping, putting your socks on, and getting in and out of the bath.
- **Social activities:** such as how often you go out with your family or friends.

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Researchers sometimes use what's called a **doctor's global evaluation of pain** to measure if your pain improves with treatment. ^[10]

- Completely gone (score 3): You have had no joint pain (such as knee pain) from arthritis for three or more days.
- Much better (score 2): Your pain gets a lot better when you take painkillers, but you still have some pain.
- Slightly better (score 1): Your pain is slightly better, but you are still in quite a lot of pain.
- Same (score 0): Your pain hasn't changed.
- Worse (score -1): Your pain is worse and you feel it more often.

Which joints are affected

Osteoarthritis most commonly affects:

- Small joints at the ends of the fingers and the base of your thumb
- The knee joint (this affects 10 percent of people over the age of 60. Osteoarthritis in the knee is more common than osteoarthritis of the hip in people over the age of 60)
- The hip joint (this affects 5 percent of people over 60)
- The neck and lower spine.

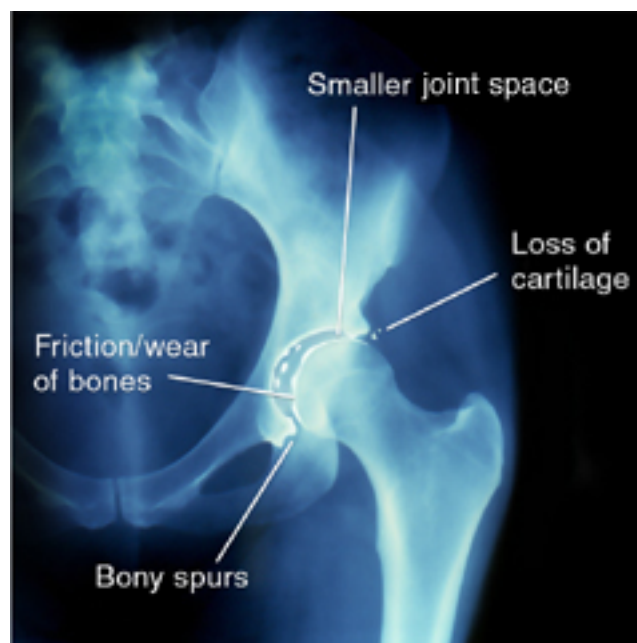
What an examination reveals about your joints

Your doctor will look at your joint, ask you to move your joint and then move it for you. The clues that you may have osteoarthritis are:

- Your joint is larger than normal and knobbly
- You can't move it as much as normal
- Your joint hurts if your doctor tries to move it past the point where you can move it on its own
- Your joint creaks when you move it
- Your muscles aren't as strong as they should be
- You have some tenderness around your joint or some fluid on your joint.

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What an X-ray reveals about your joints



An X-ray may show bony spurs and other signs of osteoarthritis.

Your doctor will look to see if your X-ray has the key signs of osteoarthritis.

But even if your X-ray shows that your disease is severe, your symptoms may not be bad.

Here's what an X-ray may reveal.

- The space in the joint is smaller: Usually there is a space in the joint between the bones. In osteoarthritis, this space is reduced because of the loss of cartilage, and the abnormal overgrowth and reshaping of the bone.
- Your joint has bony spurs: Your doctor will see if you have any bony spurs, called **osteophytes**, around your joint. Spurs are due to abnormal bone growth and are a very important sign of osteoarthritis on an X-ray.
- Your bone may be thicker in some places and thinner in others: Your X-ray may show sections of bone that are whiter than usual (your doctor may call this **sclerosis**). This is caused by the bone cells being more active than normal in that area. In other places, the bone in the joint may look patchy and more see-through because it is being destroyed. These thin areas are sometimes called **cysts** and can mean you have osteoarthritis.

What other tests show

Your doctor may do some additional tests, such as blood tests, to rule out other diseases that can be confused with osteoarthritis, such as [rheumatoid arthritis](#) , [gout](#) , or [Lyme](#)

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[disease](#) . Your doctor may also draw off some fluid from your joint and test it for white blood cells or crystals.

White blood cells are the cells of the [immune system](#) that are involved in fighting inflammation. If you have osteoarthritis, the number of white blood cells in your joint may be slightly raised. If you have rheumatoid arthritis, the number of white blood cells is likely to be higher. If the number is very high indeed, you might have an infection called Lyme disease. If there are crystals in your joint fluid it may mean you have gout.

Your GP may also want to do extra tests to see if you have a condition that can cause osteoarthritis. Most people get osteoarthritis for no particular reason, but it can be caused by:

- Damage to your ligaments, bones or cartilage
- Overuse, such as from intense exercise or physical work
- Looseness of the joint, which may make it unstable and wear out more quickly
- Joint deformities, such as [bowlegs](#)
- Infections of the bone or joint
- Problems with your nerves that make it hard for you to feel things (your doctor may call this **neuropathy**). This could be caused by underlying diseases, such as [diabetes](#)

Referral to a specialist

GPs can usually diagnose osteoarthritis by examining your joints, asking about your symptoms and doing some tests. Your GP will usually be able to treat you too.

However, if treatments aren't helping or you have some special problems, then your GP might refer you to a specialist. This may be an orthopaedic surgeon (a surgeon specialising in bones, joints and muscles) or a rheumatologist (a doctor specialising in non-surgical treatment of bones and joints), depending on the treatment you need. You might also see a [physiotherapist](#) .

- For a straightforward case of osteoarthritis you will have a routine NHS outpatient appointment. You might have to wait several weeks to see someone.
- If your doctor thinks you might have an infection of the hip joint or knee joint, you should be referred immediately to hospital.
- If your symptoms suddenly become much worse (usually osteoarthritis gets worse slowly) and are causing you severe disability, you should be referred urgently.

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- If your knee has suddenly become inflamed, as is the case with a condition such as gout, you should be seen urgently.
- If your knee keeps giving way when you try to walk, if you have become severely disabled, or if your symptoms have got worse quickly then you need to be seen soon.

How common is osteoarthritis?

Many people have osteoarthritis in their joints but do not realise it because they do not have any symptoms. They do not have any pain or any difficulty in moving their joints.

If you looked at X-ray pictures of most people over the age of 65, you would find that around two-thirds of them have signs of osteoarthritis, but less than half of those with the signs would have any symptoms.^[12] ^[13] And only about half the people with severe osteoarthritis would have symptoms.

About 2 million people in the UK visit their doctor because of osteoarthritis each year.^[14]

Osteoarthritis is rare in people under the age of 45. Only 2 in 100 people in this age group are affected.

We don't know why some people who have signs of osteoarthritis on X-rays have no symptoms while others with less severe signs have a lot of pain and disability.

What treatments work for osteoarthritis?

There is no cure for osteoarthritis, but there are treatments that can help control the pain and discomfort it causes, as well as help you move more freely.

Key points about treating osteoarthritis

- You'll probably need a combination of treatments to control your symptoms, rather than just one treatment.
- What works for you may be different from what works for someone else. You will need to work with your GP to find the best combinations of treatments that suit you and your lifestyle.
- Exercising regularly may reduce your pain and help you stay active. If you are overweight, losing weight may also help.
- Taking paracetamol may help control your pain. Your doctor might also recommend using a cream or gel that contains a painkiller called a nonsteroidal anti-inflammatory drug (NSAID).

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- If you need more pain relief, your doctor may recommend taking an NSAID as a tablet. These drugs work well to control pain in the short term, but they can cause side effects.
- Other treatments may provide pain relief as well, including taping or bracing, and injections into your joint,
- If other treatments haven't helped, surgery to replace a knee or hip usually works well, and the benefits last for at least 10 years. Other joints with arthritis can sometimes be replaced too, but we haven't looked at the research on replacing them.

Treatments for osteoarthritis

There are lots of treatments for osteoarthritis. Most research has looked at osteoarthritis of the knee, or of the hip. So, we can't say for sure how well these treatments work if you have osteoarthritis elsewhere in your body, such as in your hands. But you may still find the information useful.

For help in deciding which treatment is best for you, see [How to make the best decisions about treatment](#).

We've separated the information into treatments without surgery and surgical treatments.

- [Treatments without surgery](#) : These treatments include exercise and physiotherapy, painkillers, creams and gels, strapping, and injections.
- [Surgical treatments](#) : These include hip and knee replacement, a knee operation called osteotomy, and hip resurfacing.

Treatment Group 1

Treatments without having surgery

Treatments that work

- [Exercise and physiotherapy](#) : General exercise, such as walking, swimming and cycling, improves your overall fitness. Other exercises are aimed at moving and strengthening the joint that is affected by osteoarthritis. [More...](#)
- [Nonsteroidal anti-inflammatory drugs \(NSAIDs\)](#) : These are painkillers that also reduce inflammation. Common examples are ibuprofen and naproxen (Naprosyn). [More...](#)

Treatments that are likely to work

- [Paracetamol](#) : This is a common painkiller. [More...](#)

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- [Creams and gels containing NSAIDs](#) : You rub these into your joints. Doctors call them topical treatments. NSAIDs are painkillers that also reduce inflammation. [More...](#)
- [Creams and gels containing capsaicin](#) : These are painkilling creams or gels that can be prescribed by a doctor. [More...](#)
- [Tape or a brace for your knee](#) : There are lots of devices, including joint braces, splints and tapes. [More...](#)
- [Injections into the knee joint](#) : A needle is put into the knee, and a drug is injected into the fluid inside the joint (the synovial fluid). [More...](#)

Treatments that work, but whose harms may outweigh benefits

- [Opioid painkillers](#) : These are strong painkillers that your doctor can prescribe if other painkillers don't work. [More...](#)

Treatments that need further study

- [Chondroitin](#) : This is a supplement you can buy from a pharmacy. [More...](#)
- [Glucosamine](#) : This is a supplement that you can buy from a pharmacy. [More...](#)
- [Injections into the hip joint](#) : A needle is put into the hip, and a drug is injected into the fluid in the joint (the synovial fluid). [More...](#)
- [Shoe insoles and wedges](#) : These are aids you can wear inside your shoes. [More...](#)
- [Acupuncture](#) : This is when thin needles are inserted into the skin at specific points in the body. It is believed to unblock energy. [More...](#)

Other treatments

We haven't looked at these treatments in as much detail as other treatments we cover. (To find out more, see Our method.) But we wanted to cover them because you might be interested or have questions about them.

- [Rubs and ointments](#) : These are products you rub on your joints. [More...](#)

Treatment Group 2

Surgical treatments

Treatments that work

- [Hip replacement](#) : This is an operation to replace the damaged hip with an artificial one. [More...](#)

Treatments that are likely to work

- [Knee replacement](#) : This is an operation to replace the damaged knee with an artificial one. [More...](#)
- [Osteotomy of the knee](#) : This is an operation to remove a piece of bone from a joint. [More...](#)

Treatments that need further study

- [Hip resurfacing](#) : This is an operation to replace the surfaces of your hip joint with artificial coverings. [More...](#)

What will happen to me?

Osteoarthritis affects people in very different ways. People whose X-rays show signs that they have severe osteoarthritis may not have symptoms. But others, with less severe signs, may have a lot of pain and disability. No one knows for certain why this is.

Osteoarthritis can make you feel depressed and anxious, because you may worry about how you will cope if you become disabled by the condition. It's hard to predict what will happen to you as an individual. If your osteoarthritis is due to an injury, for example, then you may get symptoms earlier than other people do. Osteoarthritis usually gets worse slowly over time, but some people's pain and stiffness actually gets better. But, whatever the cause, there are many things that may help you avoid getting severe symptoms. Here are some of the things we know from research:

- Being overweight increases the risk of osteoarthritis getting worse
- Your osteoarthritis is more likely to get worse if you have heart disease or another chronic (long term) condition, because you are likely to be less mobile.

How much pain people can take differs enormously. This is one reason why some people with osteoarthritis find their joints hurt, while other people don't. But the following things are known to reduce pain and stiffness in most people with osteoarthritis. ^[15]

- Simple aerobic exercise: You could try walking or swimming.

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- Avoiding thick-soled shoes: People who are unsteady on their feet, especially anybody who is prone to falling over, should avoid thick-soled shoes as they make it harder to 'feel' the ground underfoot. For everybody else, shock-absorbing shoes are a good idea.
- Walking sticks: Not everyone likes using walking sticks. Some people feel that they look old and disabled when using them. Others say that they couldn't walk down the street without them.
- Support from family and friends.

Questions to ask your doctor

If you've been diagnosed with osteoarthritis, you may want to talk to your doctor to find out more.

Here are some questions that you might want to ask.

- Is there anything I might be doing that could be making my symptoms worse?
- What's the best treatment for me?
- Are there any nutritional supplements or vitamins that might help my joints?
- What medications can help? Are they over-the-counter or prescription?
- Are there any injections you can give me in my painful joint that might be helpful?
- When should I start taking medicines, and which medicines should I take first?
- Can I get addicted to painkillers?
- If painkillers don't work, what's next?
- What are the side effects of treatment?
- Is there anything I can do to help myself, such as exercising or losing weight?
- If I should exercise, what kind of exercise should I do?
- How will you decide whether I need to have my joint replaced?
- Would wearing special shoes or using a walking stick help me? Are there any other aids that would help me?

Treatments:

Exercise and physiotherapy

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[Can they be harmful?](#)

[How good is the research on exercise and physiotherapy?](#)

This information is for people who have osteoarthritis. It tells you about exercise and physiotherapy, treatments used for osteoarthritis. It is based on the best and most up-to-date research.

Do they work?

Yes. If you have osteoarthritis of the knee, exercise can reduce your pain and disability and help you lead a more normal life. We're not sure how well it works for osteoarthritis of the hip.

Other physical therapies, including heat or ice treatments, are popular for dealing with osteoarthritis. But there isn't any good evidence that these treatments help, although they might make your joint feel better for a short time.

What are they?

Exercise for osteoarthritis can be either general exercises for your whole body, like walking, swimming, or aerobic exercises, or it can be specific exercises for the joint that is troubling you. The best specific exercises for the knee may be those that strengthen the muscle at the front of the thigh.

There are many different exercises that may help your osteoarthritis. You should discuss what might work best for you with your doctor or a **physiotherapist**. An exercise programme may include strengthening and stretching exercises. Your physiotherapist may also recommend a treatment to help your joint move better, called manual mobilisation.

Knee exercises

These are strengthening exercises for the muscles at the front of your thighs. In one exercise, you lift your leg straight up in the air. You do 200 of these straight leg-raises a day. Your knee joint doesn't actually move, but you strengthen the muscles that support it.

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Resistance exercise



Resistance exercise may help your osteoarthritis.

You lie flat and lift your heel straight up until it's 30 centimetres (1 foot) off the ground. You bend your foot up and down and side to side in a T shape, and you repeat this pattern three times. You may then move on to an exercise in which you stand against a wall and slide into a squatting position so that your knee is bent to 30 degrees. You hold this for 10 to 15 seconds and repeat three times.

General aerobic exercise

This form of exercise is designed to improve your overall fitness. It improves the ability of your heart to pump blood around your body and the ability of your lungs to take in air. It can help you lose weight and feel good about yourself. Aerobic exercise should increase your heart rate (your pulse). You can do aerobic exercise in various ways:

- Swimming: 30 minutes, three times a week
- Walking: 30 minutes, three times a week
- Cycling: 30 minutes, three times a week.

Before exercising

Some physical therapies, such as warm baths, spas, and moist, or dry, warm packs, can make your joints feel warm, and you may find any one of these treatments useful before exercising. You can also use ice packs or cooling sprays (for example, ones that contain menthol) to make your joint cooler and prevent soreness.

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Manual mobilisation

In addition to helping you exercise, your physiotherapist may also provide a therapy called manual mobilisation. This involves using their hands to move your joint and the soft tissue around it. The goal is to improve your joint movement and stability, and lower your pain

How can they help?

If you have osteoarthritis in the knee exercising can help.^{[17] [18] [19]} It could be exercises you do on your own or as part of a group of people with osteoarthritis. Exercise can:

- Reduce the pain you feel in your joints^{[18] [19] [20] [21] [22]}
- Help you do more things more easily.^{[18] [20] [21] [22] [23]} For example, you may find you can walk further without pain. Or you may be able to get dressed and find it easier to get in and out of the bath
- Help you do things faster.^[24] For example, you may be able to walk quicker than before
- Keep you active, so you depend less on other people to help you do things^[25]
- Help you feel better about your life^{[18] [26]}
- Improve your overall physical health.^[27]

One study looked at weight loss through diet, combined with an exercise programme, for people with osteoarthritis of the knee. After the programme, people who had lost weight and exercised were able to climb stairs a little faster and walk further.^[28]

Another study also looked at the effects of diet and exercise on people with osteoarthritis of the knee. One group followed an exercise programme, another group only had a special diet (replacing some meals with shakes), and another group followed both the diet and the exercise programme. People in the diet group and people in the diet and exercise group had more weight loss and less inflammation (swelling and pain) when compared with people in the exercise-only group.^[29]

A review of studies also found that exercise plus manual mobilisation improved people's knee movement and reduced their pain more than exercise on its own.^[30]

We're not sure whether exercise helps for hip osteoarthritis. There has been some research on this but the results weren't clear.^{[22] [31] [32]}

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One study looked at aquatic exercise (exercise in a swimming pool) for people with hip osteoarthritis. But it didn't find that this type of exercise helped. ^[33]

How do they work?

Exercise can improve the strength in the muscles around your joints. This helps support the affected joint and reduce symptoms.

Exercise will improve your overall fitness, reducing your risk of heart disease, obesity, type 2 diabetes, high blood pressure, and lung problems.

It can also improve your mood, because it releases chemicals called **beta-endorphins**, which are natural painkillers (similar to morphine) and make you feel happier.

Applying superficial heat to your joints with packs before stretching may reduce muscle spasms. Applying coldness to your joints is thought to relieve muscle soreness.

Having a physiotherapist move your joint and the tissue around it may help reduce stiffness and improve how your joint moves and feels.

If you are overweight, exercising and losing weight may help by reducing the strain on your joints.

Can they be harmful?

Talk to your doctor or physiotherapist about which type of exercise is best for you. If you don't do exercises properly, they may not help you as much, and you could even injure yourself.

How good is the research on exercise and physiotherapy?

Osteoarthritis of the knee

We found seven big summaries of the evidence (systematic reviews) and six other good-quality studies (randomised controlled trials) looking at different types of exercise for people with osteoarthritis of the knee. ^{[20] [22] [30] [23] [25] [24] [27] [26] [28] [34] [35] [18] [19]}

All types of exercise seemed to help people feel less pain and move around more. The research doesn't tell us which types of exercise work best. Some research suggests that adding manual mobilisation to exercise may help symptoms more than exercise on its own. ^[30] (In manual mobilisation, a physiotherapist moves your joint and the tissue around it.)

Osteoarthritis of the hip

We found one summary of the evidence and two other studies looking at exercise for people with osteoarthritis of the hip. ^{[22] [31] [32]}

Osteoarthritis

The summary didn't give enough evidence to show whether exercise was helpful. One of the studies found exercise helped relieve pain, but the other study found it didn't make much difference.

Nonsteroidal anti-inflammatory drugs (NSAIDs)

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[How good is the research on nonsteroidal anti-inflammatory drugs \(NSAIDs\)?](#)

This information is for people who have osteoarthritis. It tells you about nonsteroidal anti-inflammatory drugs (NSAIDs), a treatment used for osteoarthritis. It is based on the best and most up-to-date research.

Do they work?

Yes. Nonsteroidal anti-inflammatory drugs (NSAIDs) can help get rid of the pain of osteoarthritis as well as reducing inflammation, but they can't cure osteoarthritis.

NSAIDs can have serious side effects.

COX-2 inhibitors are newer NSAIDs that were developed to cause fewer stomach problems than NSAIDs. But some COX-2 inhibitors have been taken off the market because they can cause heart problems. COX-2 inhibitors and other NSAIDs seem to work about as well as each other when it comes to treating the pain of osteoarthritis.

What are they?

In low doses, NSAIDs are painkillers. At higher doses, they also reduce inflammation.

Some examples of NSAIDs (with their brand names) are:

- diclofenac (Diclomax, Motifene, Voltarol)
- ibuprofen (Nurofen, Cuprofen)
- indometacin (Indocid, Rimacid)
- ketoprofen (Orudis, Oruvail)
- naproxen (Naprosyn).

You can buy some NSAIDs, such as ibuprofen, over the counter, although the doses you can get are smaller than those usually used to treat osteoarthritis. Lower doses of diclofenac are also available without a prescription (Voltarol Pain-eze tablets). A newer tablet combines naproxen with a drug called esomeprazole to help prevent stomach

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problems, a common side effect of NSAIDs. It's called Vimovo and it requires a prescription.

You can also buy NSAIDs as creams or gels that you rub into your skin. We've looked at these separately. See [Creams and gels containing NSAIDs](#) .

COX-2 inhibitors are a newer type of NSAID. Examples of COX-2 inhibitors used to treat osteoarthritis (with brand names) are:

- celecoxib (Celebrex)
- etodolac (Eccoxolac, Etopan, Lodine)
- etoricoxib (Arcoxia)
- meloxicam (Mobic).

How can they help?

NSAIDs may help with pain and inflammation in and around your joints for a short time. ^[36] This should help you move your joints more easily. There's more research to show they help for knee arthritis than for hip arthritis.

We don't know if they'll keep working if you take them for a few years. ^[36]

NSAIDs work better than the painkiller [paracetamol](#) . ^[37]

NSAIDs can't stop osteoarthritis getting worse. They can only improve symptoms.

How do they work?

NSAIDs are painkillers, and they can also reduce inflammation. Inflammation is your body's normal response to an injury. In osteoarthritis the cartilage is destroyed, although no one knows why. Some of the tissues in the joint around the destroyed cartilage get inflamed. That means they get red and swollen. NSAIDs stop some of the body's immune system cells getting into the tissues around the joint and making the inflammation worse.

Can they be harmful?

The authorities in the UK have published advice for doctors and patients about the safety of some NSAIDs. Research shows that people taking high doses of some NSAIDs for a long time have a slightly higher risk of a **heart attack** or **stroke** . People who have heart problems shouldn't take diclofenac.

To read more, see [Warnings about side effects of NSAIDs](#) .

Here are some of the common problems that NSAIDs can cause.

Osteoarthritis

Stomach problems

If you take NSAIDs regularly, they may irritate your stomach and cause indigestion or even stomach ulcers. If you have stomach ulcers, the lining of your stomach is weakened, exposing the stomach wall underneath. Ulcers can also cause bleeding in the blood vessels beside them. This can lead to bleeding into the stomach, which can cause you to vomit blood.

Your doctors will probably recommend taking a drug called a **proton pump inhibitor (PPI)** along with the NSAID. ^[14] This is to protect against stomach problems.

NSAIDs are particularly likely to cause problems if you are older or have had stomach problems before. ^[38] The risk is greater if you take higher doses of drugs. You should talk to your doctor about this. A daily dose of 1,600 milligrams of ibuprofen is, according to one review, one of the safer treatments. This is two standard-strength tablets (200 milligrams each), taken four times a day. ^[39]

COX-2 inhibitors are said to be less likely to cause stomach ulcers than older NSAIDs, but there haven't been enough studies to be certain about this.

You can't take the COX-2 inhibitor called etoricoxib if you have high blood pressure. ^[40] However, you can take it once your blood pressure is under control. If you're taking etoricoxib, your doctor will probably recommend regular checks to make sure your blood pressure doesn't become high.

Other side effects

NSAIDs can also cause damage to the **kidneys**. ^[41]

If you have heart failure, you probably shouldn't take NSAIDs, because they can make your heart failure worse.

Most NSAIDs don't seem to affect the pace of your disease, but one called indometacin may make your knee get worse more quickly. In one study, indometacin was found to increase the rate of deterioration in the knee joint. ^[39] ^[42] This is because it affects the cartilage directly, which encourages it to break down. This does not seem to be true of all NSAIDs, but there needs to be more research before we can say for certain.

Proton pump inhibitors (PPIs) may prevent a heart drug called clopidogrel (brand name Plavix) from working properly. Clopidogrel is an anti-platelet drug, similar to aspirin, which stops the blood from clotting too easily. It's used for some heart conditions: for example, to prevent heart attacks. But PPIs may prevent the body from breaking clopidogrel down properly, so it doesn't work as well. Doctors have been advised to avoid using PPIs along with clopidogrel. ^[43]

Which NSAID should I take?

Some NSAIDs cause more side effects than others. For example, ibuprofen has fewer side effects than ketoprofen and piroxicam. However, some of the differences in the

Osteoarthritis

drugs may be explained by the fact that some, such as ibuprofen, are generally used at a lower dose.

Because of the higher risk of side effects with piroxicam, including stomach and skin problems, it should only be prescribed by a specialist.^[44] If you're taking piroxicam pills, your doctor should review your treatment at your next routine appointment. There may be a safer drug you can switch to.

Who is at risk?

There isn't much good evidence to show who is most at risk of NSAID side effects, but doctors tend to be cautious about giving these drugs to:

- People already on anticoagulant (blood-thinning) tablets, or steroids
- People over 65 years old
- Smokers
- People with heart disease
- Heavy drinkers
- People on other drugs, such as ACE inhibitors and water tablets (diuretics), both of which are taken for heart failure
- People with stomach ulcers, or people who are at risk of stomach bleeding.

How good is the research on nonsteroidal anti-inflammatory drugs (NSAIDs)?

We found one big summary of the research (a systematic review) that shows that nonsteroidal anti-inflammatory drugs (NSAIDs) reduce the pain of osteoarthritis.^[36]

There are also hundreds of studies (randomised controlled trials) that show that NSAIDs reduce the pain and swelling of osteoarthritis.

However, the research studies had the following problems.

- They were short, sometimes only a few weeks long, so it's hard to say what would happen if people took the drug over many years. Osteoarthritis doesn't last just a few weeks, it can last for the rest of your life because once you have it, it never really goes away. So, these research studies aren't as helpful as they might have been.
- Many of these studies were funded by drug companies that want to sell their products.

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- Some studies didn't include people who had other diseases in addition to osteoarthritis. Unfortunately, in real life, many people who have osteoarthritis also have other health problems and are on other drugs that might interfere with NSAIDs.
- There is not enough evidence to back up the claims that the newer type of NSAIDs, known as COX 2 inhibitors, have a reduced risk of causing people stomach problems, but more evidence is becoming available all the time.

Paracetamol

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[How good is the research on paracetamol?](#)

This information is for people who have osteoarthritis. It tells you about paracetamol, a treatment used for osteoarthritis. It is based on the best and most up-to-date research.

Does it work?

Yes, paracetamol can help if you have osteoarthritis. It can help reduce joint pain and tenderness. And it may help you do everyday things like getting out of a chair or going for a walk.

Paracetamol may not work as well as [nonsteroidal anti-inflammatory drugs \(NSAIDs\)](#) .

Some people may prefer taking paracetamol because it causes fewer side effects than NSAIDs. Or they may not be able to take NSAIDs because of a medical condition.

What is it?

Paracetamol is a common painkiller. You can buy it yourself from a pharmacy or supermarket.

Paracetamol reduces pain, but doesn't reduce swelling and inflammation in the joint, like NSAIDs do. However, it doesn't irritate your stomach in the way that NSAIDs can.

Paracetamol works best for osteoarthritis when it is taken every 4 to 6 hours. The standard dose for adults is two 500 milligram (mg) tablets, four times a day. You shouldn't take more than eight tablets in 24 hours.

How can it help?

Paracetamol may help your knee to feel less painful, whether you are sitting still or moving around. ^[54] But not all studies show this. ^[55] ^[56] ^[57]

Osteoarthritis

It doesn't seem to work as well as NSAID drugs for reducing pain, or for making it easier to move your joint. ^[58]

How does it work?

Paracetamol is a painkiller that works directly on the brain and the spinal cord, and changes the way your body feels pain. It can also reduce fever, which is why people take it when they have a cold or flu.

You need to take paracetamol regularly for it to work, and you need to take the right dose to get the most benefit.

Can it be harmful?

Paracetamol is a widely used painkiller, and it's safe when taken in the recommended amounts. You should not take more than 4,000 milligrams (mg) in 24 hours. That's 4 grams (g) - eight ordinary 500 mg tablets.

You shouldn't take more than the recommended dose because paracetamol can kill the cells in your **liver**, leading to liver failure. Taking frequent paracetamol on most days for many years may lead to **kidney** damage in some people, but more research is needed to say for sure. ^[59]

If you drink alcohol heavily, you shouldn't take paracetamol without discussing it with your doctor. You may have already damaged your liver from drinking, and be at risk of further damage from taking the painkiller.

You shouldn't take paracetamol if you already have liver damage. ^[60]

You may be able to take paracetamol if you have kidney problems, but check with your doctor first.

Paracetamol does not irritate the stomach like NSAIDs do, so for most people it may be a safer drug to try first.

How good is the research on paracetamol?

There's some evidence that paracetamol can be helpful for people with osteoarthritis, but different studies show different things.

One summary of the evidence (a **systematic review**) shows that paracetamol works better than a dummy (**placebo**) drug. ^[54] But three other good-quality studies not in the review said paracetamol is not much better than a placebo. ^{[61] [62] [63]}

There's quite a lot of research comparing paracetamol with [nonsteroidal anti-inflammatory drugs \(NSAIDs\)](#). All of the studies found that NSAIDs worked better. ^{[63] [64] [65] [66]}

Creams and gels containing NSAIDs

Osteoarthritis

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[How good is the research on creams and gels containing NSAIDs?](#)

This information is for people who have osteoarthritis. It tells you about creams and gels containing NSAIDs, a treatment used for osteoarthritis. It is based on the best and most up-to-date research.

Do they work?

Yes. There is good evidence that NSAID creams or gels rubbed into the joint can relieve the pain of osteoarthritis.

What are they?

Painkilling creams or gels for osteoarthritis usually contain nonsteroidal anti-inflammatory drugs (NSAIDs). Ibuprofen is a common NSAID.

You can also take [NSAIDs as tablets](#) .

You can buy some painkilling creams or gels that contain NSAIDs from a pharmacy, without a prescription. These contain the NSAIDs ibuprofen or diclofenac. And doctors can prescribe a range of creams and gels that contain higher doses of NSAIDs. These could contain ibuprofen, piroxicam, ketoprofen, felbinac, or diclofenac.

The table lists some common brand names of painkilling creams and gels. You can get piroxicam gel from your doctor as a non-branded (generic) version.

Brand name of cream or gel	NSAID it contains	Needs a prescription?
Nurofen Gel Maximum Strength	ibuprofen	No
Ibugel Forte	ibuprofen	Yes
Ibuleve	ibuprofen	No
Powergel	ketoprofen	Yes
Traxam	felbinac	Yes
Voltarol Emulgel	diclofenac	Yes
Voltarol Emulgel P	diclofenac	No

Creams or gels may be more useful for osteoarthritis in your hand or knee than in your hip, where the joint is deeper.

How can they help?

Regularly using creams or gels containing an NSAID can reduce knee pain. ^[67] ^[68] ^[69]

Studies have looked at creams or gels containing drugs like ibuprofen and diclofenac.

People used them for a few weeks. We don't know how well they work in the long term.

Osteoarthritis

Several studies show that diclofenac gel may help your knees feel less stiff and make it easier to stand up, walk and climb stairs.^{[67] [70] [71]} The cream is usually applied four times a day, and works within an hour.

We don't know whether creams and gels work better than taking [NSAID tablets](#). But we do know they are less likely to cause side effects such as stomach upsets.^{[72] [73] [74]} This is because not as much of the drug gets into the bloodstream when it's put on the skin.

How do they work?

NSAIDs reduce pain and inflammation. The NSAIDs in creams and gels are absorbed through the skin.

Can they be harmful?

Creams or gels only affect the area that you rub them into. So they are less likely to have side effects than painkilling tablets, which affect the whole body.

NSAID gels may cause itchiness and a rash.^[68]

Gels containing ketoprofen can make your skin more sensitive to sunlight.^[75] Avoid direct sunlight and sunbeds if you're using this treatment, and be careful for the two weeks after you stop using it. If you get a skin reaction, see your doctor.

How good is the research on creams and gels containing NSAIDs?

There is lots of good evidence that painkilling creams and gels help to relieve the pain of osteoarthritis. But most of the studies only lasted a short time. We need more evidence to say whether these products can help people over a number of years.

We found three summaries of the research (called [systematic reviews](#)) on creams and gels containing a [nonsteroidal anti-inflammatory drug](#) (NSAID).^{[67] [68] [69]} And we found three other good studies.^{[73] [72] [76]}

All the studies found that creams and gels containing an NSAID helped relieve the pain caused by osteoarthritis, over several weeks.

Creams and gels containing capsaicin

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[How good is the research on capsaicin creams and gels?](#)

Osteoarthritis

This information is for people who have osteoarthritis. It tells you about creams and gels containing capsaicin, a treatment used for osteoarthritis. It is based on the best and most up-to-date research.

Does it work?

Yes, probably. There's some evidence that capsaicin cream may be helpful if you have osteoarthritis in your hands. But the research is quite old, so we can't rely on it completely.

What is it?

Capsaicin comes from capsicum, the pepper plant. It's one of the chemicals that makes chillis hot. Capsaicin is also used to treat other conditions. It is used to help people with diabetes cope with the pain from nerve problems, for example.

Doctors can prescribe creams and gels that contain capsaicin. These include Axsain and Zacin.

Creams or gels that you rub into your joint may be more useful for osteoarthritis in the fingers, thumb or knee than in the hip, where the joint is deeper.

How can it help?

Creams or gels containing capsaicin can reduce pain in the short term and, if used regularly, their effect can build up. After a week of rubbing in a little bit of capsaicin three or four times a day, up to two-thirds of people who used it for osteoarthritis said it had eased their pain. ^[77] ^[78] ^[79]

How does it work?

Capsaicin acts on the nerve endings in the skin that feel pain. These nerve endings produce a chemical called substance P that's partly responsible for making you feel pain. Capsaicin reduces the nerve endings' supply of substance P and stops you from feeling so much pain from your joint. ^[79]

Can it be harmful?

Creams or gels with capsaicin often irritate the skin, giving a burning feeling. Nearly half of the people who use them get this irritation, but it's mild. ^[80] You should wash your hands after applying the cream or gel (unless you're using it for the joints in your hands) and make sure you keep it away from your eyes, broken skin and mucous membranes (delicate parts of your body that are covered in mucus, like the inside of your nose).

How good is the research on capsaicin creams and gels?

There is some evidence that capsaicin creams can help ease the pain of osteoarthritis in the hands. But the studies are quite old and we need more research to be certain that they work.

We didn't find any good-quality studies looking at capsaicin for osteoarthritis of the knee or hip.

Tape or a brace for your knee

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[How good is the research on a tape or a brace for your knee?](#)

This information is for people who have osteoarthritis. It tells you about using tape or a brace to support your knee, a treatment used for osteoarthritis. It is based on the best and most up-to-date research.

Do they work?

Using a tape or a brace to support your knee may help you. It depends what your symptoms are.

What are they?

Tape and braces are physical aids for people with osteoarthritis.

- Tape can fix your joints into a less painful position.
- Braces support your joints. They can be used on your thumb, wrist, knee, and ankle.

Your doctor or **physiotherapist** will be able to tell you whether tape or a brace is suitable for your joint problems.

How can they help?

Having your knee taped may reduce your pain within three weeks of starting, and the benefits seem to last for at least three weeks.^[81] You'll need to talk to your doctor and get help from a physiotherapist before taping your leg.

Wearing a knee brace may reduce your pain and help you to move around better.^[82] You might be able to walk further if you use a knee brace.^[83]

How do they work?

Taping puts the knee cap into a stable position. Braces can keep the joint stable or reduce pressure on the joint.

Can they be harmful?

There's no evidence that physical aids can be harmful.

How good is the research on a tape or a brace for your knee?

There is some evidence that tape or a brace can help with the pain of osteoarthritis of the knee.

One good-quality study of 87 people found taping the knee helped with pain. ^[81]

And a summary of all the research on braces (a **systematic review**) found that a knee brace helped people who had osteoarthritis of the knee. ^[82] But there were some problems with the evidence so the results aren't completely reliable.

Injections into the knee joint

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[How good is the research on injections into the knee joint?](#)

This information is for people who have osteoarthritis. It tells you about injections into the knee joint, a treatment used for osteoarthritis. It is based on the best and most up-to-date research.

Do they work?

Yes. Injecting a drug based on hyaluronic acid may reduce pain and stiffness in the knee joint. Injecting a corticosteroid (a steroid drug) may also help to reduce pain, but the effect only lasts up to a month.

What are they?

These treatments involve injecting a drug into your joint. Before doing this, your doctor may draw some fluid out of the joint. This is known as aspiration of the joint. Your knee joints normally have fluid in them to help the bones slide smoothly over each other. If you have osteoarthritis, you may get too much fluid, which can make your joint feel tight and uncomfortable. So, removing some of the fluid may be helpful.

The two most common drugs injected into the knee joint are:

- Corticosteroids (usually referred to as **steroids**). Examples include dexamethasone and triamcinolone. These steroids are similar to chemicals your body makes to reduce inflammation. They're not the anabolic steroids used by some bodybuilders
- Drugs based on hyaluronic acid, a chemical that occurs naturally within the joint. Brand names for hyaluronic acid include Hyalgan and Synvisc.

How can they help?

Corticosteroids

Injecting corticosteroids into the knee joint reduces pain by a small amount. The effect lasts for one to four weeks, but it's unlikely to help for longer than that. ^[84]

Hyaluronic acid

Injecting hyaluronic acid into the knee joint reduces pain about as much as corticosteroids. But the effects may last longer. In studies, hyaluronic acid worked better than corticosteroids between five and 13 weeks after injection. ^[85]

Hyaluronic acid injections may help with pain for up to six months. ^[85] But in some studies, the effects wore off more quickly than this. ^{[86] [87]}

The National Institute for Health and Care Excellence (NICE), the government body that decides which treatments should be available on the NHS, doesn't recommend using hyaluronic acid as a treatment for osteoarthritis. ^[14] When NICE reviewed the studies on hyaluronic acid, it concluded that the research wasn't strong enough to be sure that the treatment is helpful.

How do they work?

Corticosteroids reduce inflammation (redness and swelling) by stopping the body producing certain chemicals. These chemicals are produced in response to the damage that's being done to your joints by osteoarthritis, but they actually make things worse. By putting corticosteroids directly into the joint, it is hoped that the swelling of osteoarthritis will be reduced.

Levels of hyaluronic acid are lower in older people and in people with osteoarthritis. The aim of this treatment is to replace the missing hyaluronic acid in the protective fluid around the joint (synovial fluid).

Can they be harmful?

There's no evidence that these treatments cause any serious harm. Some people say their joints were uncomfortable after the injection.

There's a risk that injecting into a joint can introduce infection, but this seems to be rare.

How good is the research on injections into the knee joint?

We found two big summaries of the research (systematic reviews) that looked at injections into the knee joint. They looked at about 6,000 people who had osteoarthritis of the knee. ^{[88] [89]}

The reviews found that both corticosteroids and hyaluronic acid work to relieve pain, when injected into the knee joint. Hyaluronic acid may work better in the long term.

Opioid painkillers

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[How good is the research on opioid painkillers?](#)

This information is for people who have osteoarthritis. It tells you about opioid painkillers, a treatment used for osteoarthritis. It is based on the best and most up-to-date research.

Do they work?

Yes. If you get bad pain, and other treatments don't help, your doctor may suggest strong painkillers called opioids.

There are several different types. They work well, but they can have side effects.

What are they?

Opioid painkillers are strong painkillers. You can get some low-dose types, combined with paracetamol, in pharmacies. But mostly opioids have to be prescribed by doctors.

The opioids that have been tested for osteoarthritis are tramadol (brand names include Zamadol, Zydol), dihydrocodeine (DF 118 Forte) and pentazocine (Fortral). You usually take these painkillers as tablets, but a medicine called fentanyl comes as skin patches (brand name Durogesic DTrans).

The trouble with opioid painkillers is that they often have side effects. Also, some people become dependent on them. This means you get unpleasant withdrawal symptoms when you stop taking your medicine. So, doctors don't usually suggest opioids unless you've tried other treatments first.

How can they help?

Opioid painkillers can reduce the amount of pain you feel, and help you move around more. ^[90] ^[91]

We don't know which opioid works best. One study found that found that tramadol worked better than dextropropoxyphene and pentazocine. But it had more side effects than dextropropoxyphene. ^[91]

How do they work?

Opioids are strong painkillers. They help block your pain, but won't make any difference to your joints.

Can it be harmful?

Yes, opioid painkillers can have serious side effects. Common side effects include feeling drowsy, getting constipation, feeling sick, and vomiting. More serious effects include breathing problems and low blood pressure. ^[92]

Some people become dependent on opioid painkillers, especially if they take high doses for a long time. This means you get unpleasant withdrawal symptoms when you stop taking your medicine. You're less likely to become dependent on tramadol. ^[92]

This is what we know about the different types of opioids, from studies: ^[90] ^[91]

- Almost half the people who took tramadol felt sick
- Tramadol is less likely to cause constipation than some other opioid painkillers
- Only 10 in 100 people who took dextropropoxyphene had side effects
- 44 in 100 people who used a fentanyl patch felt sick.

How good is the research on opioid painkillers?

There's some good-quality evidence to show that opioid painkillers can help relieve pain.

We found one summary of the evidence (a [systematic review](#)), which included three studies looking at more than 700 people. ^[91]

It showed people were much more likely to get good pain relief from tramadol than from a dummy ([placebo](#)) drug.

The summary also found tramadol worked better than two other types of opioid painkillers, called dextropropoxyphene and pentazocine.

Another good-quality study (a [randomised controlled trial](#)) of 400 people looked at an opioid painkiller called fentanyl, given by a patch. It showed that fentanyl worked better than a dummy (placebo) patch. ^[90]

Chondroitin

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[How good is the research on chondroitin?](#)

This information is for people who have osteoarthritis. It tells you about chondroitin, a treatment used for osteoarthritis. It is based on the best and most up-to-date research.

Osteoarthritis

Does it work?

We're not certain. There's some evidence that chondroitin helps the symptoms of osteoarthritis in the knee. But the improvement might be small and not all studies show this.

There hasn't been enough research to say if chondroitin works for osteoarthritis in the hip.

What is it?

Chondroitin is a natural substance that's made by your body. It helps to make healthy joint tissue.

You can buy chondroitin supplements as tablets from your local health food shop or pharmacy. You can also buy it combined with another supplement, [glucosamine](#). Some people take them together.

How can it help?

Chondroitin may reduce pain and stiffness in your knee joints, making it easier to walk. [\[93\]](#) [\[94\]](#) [\[95\]](#)

But not all studies showed it worked. In some studies, it didn't work any better than a dummy ([placebo](#)) drug. [\[96\]](#) [\[97\]](#)

How does it work?

We're not sure. But it could work by helping the body to make new joint cartilage and repair damaged cartilage.

Can it be harmful?

In the studies we looked at chondroitin didn't have any side effects.

How good is the research on chondroitin?

We found two summaries of the research ([systematic reviews](#)) and three extra studies comparing chondroitin with a dummy drug (a [placebo](#)). [\[93\]](#) [\[96\]](#) [\[97\]](#) [\[98\]](#) [\[99\]](#)

In the summaries and the first extra study, people who took chondroitin said their knee pain was better and they were better able to move their joints compared with people who took the placebo. But the difference in pain was small. In the two most recent studies, chondroitin was no better than a dummy (placebo) drug.

Taking a combination of chondroitin and glucosamine may be more effective than taking chondroitin or glucosamine alone. One study found that people who took both supplements daily for two years had less joint damage than people who took only one

supplement or a placebo.^[100] However, the combined supplements didn't seem to be any more effective than a placebo at reducing knee pain.

Glucosamine

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[How good is the research on glucosamine?](#)

This information is for people who have osteoarthritis. It tells you about glucosamine supplements, a treatment used for osteoarthritis. It is based on the best and most up-to-date research.

Does it work?

We don't know. There is some research suggesting that glucosamine might help with the symptoms of osteoarthritis. But there isn't enough evidence to be sure.

What is it?

Glucosamine is a natural substance that's made by your body. It's an essential building block of joint cartilage, ligaments, bone and blood vessels.

You can buy glucosamine dietary supplements as tablets from your local health food shop or pharmacy. It's sometimes sold combined with another supplement, [chondroitin](#). Some people take them together.

How can it help?

Glucosamine may reduce pain and stiffness.^[101] ^[102]

Some studies even suggest that glucosamine may work better at reducing pain than a [nonsteroidal anti-inflammatory drug \(NSAID\)](#).^[103]

But there hasn't been enough good-quality research to be sure that glucosamine works.

How does it work?

We're not sure whether glucosamine works.

It could work by helping the body to make new joint **cartilage** and to repair damaged cartilage.

Can it be harmful?

In the studies we looked at there weren't any side effects of glucosamine.

Osteoarthritis

The glucosamine used in supplements is made from the shells of sea creatures, so if you have an allergy to seafood, check with your doctor before taking it. ^[104]

Glucosamine may interfere with the way warfarin works. ^[104] Warfarin is a drug that helps stop your blood clotting. It may be best to avoid taking glucosamine and warfarin at the same time. If you do want to try glucosamine and you're taking warfarin, talk to your doctor first.

How good is the research on glucosamine?

There is some research showing that glucosamine may help with the symptoms of osteoarthritis. But the quality of the evidence is not very good. And many of the studies give different results, so it's hard to know which studies to rely on.

We found several summaries of the evidence ([systematic reviews](#)) looking at glucosamine, or glucosamine combined with [chondroitin](#) .

Two summaries found that, overall, glucosamine helped with pain and stiffness. ^[101] ^[105] But some of the studies in the summaries were small and may not be reliable.

Another summary found that, overall, glucosamine was no better than a dummy ([placebo](#)) drug at reducing pain or improving knee flexibility. ^[103] But in two of the studies, glucosamine seemed to work better than [nonsteroidal anti-inflammatory drugs \(NSAIDs\)](#) .

One other summary of two studies found that glucosamine helped reduce damage to the joint more than a placebo. ^[106] But another good quality study found no difference between glucosamine and a dummy treatment (placebo). ^[102]

A summary of 19 studies on knee osteoarthritis found that glucosamine did not help relieve pain more than a placebo. But there was some evidence that people who took glucosamine for more than six months had less stiffness in their knees. ^[107]

Taking a combination of glucosamine and chondroitin may be more effective than taking glucosamine or chondroitin alone. One study found that people who took both supplements daily for two years had less joint damage than people who took only one supplement or a placebo. ^[100] However, the combined supplements didn't seem to be any more effective than a placebo at reducing knee pain.

Injections into the hip joint

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[How good is the research on injections into the hip joint?](#)

Osteoarthritis

This information is for people who have osteoarthritis. It tells you about injections into the hip joint, a treatment used for osteoarthritis. It is based on the best and most up-to-date research.

Do they work?

We don't know. Not much good research has been done on injecting drugs into the hip joint to reduce pain and stiffness. Studies do show [injections can help with osteoarthritis of the knee](#) .

What are they?

These treatments involve injecting a drug into your hip joint. Before doing this, your doctor may draw some fluid out of the joint. This is known as aspiration of the joint. Your joints normally have fluid in them to help the bones slide smoothly over each other. If you have osteoarthritis, you may get too much fluid, which can make your joint feel tight and uncomfortable. So, removing some of the fluid may be helpful.

The two most common drugs injected into the joint are:

- Corticosteroids (usually referred to as [steroids](#)). Examples include dexamethasone and triamcinolone. These steroids are similar to chemicals your body makes naturally. They're not the anabolic steroids used by some bodybuilders
- Drugs based on hyaluronic acid, a chemical that occurs naturally within the joint. Brand names for hyaluronic acid include Hyalgan and Synvisc.

The National Institute for Health and Care Excellence (NICE), the government body that decides which treatments should be available on the NHS, doesn't recommend using hyaluronic acid as a treatment for osteoarthritis. ^[14]

How can they help?

There's not much research about injecting corticosteroids into the hip joint. But one study shows it may reduce pain by about a half, and the results may last up to three months. ^[108] Another study found that most people who had a corticosteroid injection had improved pain and movement after one week, and the improvements lasted over eight weeks. ^[109]

Two small studies suggested hyaluronic acid doesn't work any better than a dummy treatment ([placebo](#)). ^[109] ^[110]

How do they work?

Corticosteroids reduce inflammation (redness and swelling) by stopping the body producing certain chemicals. These chemicals are produced in response to the damage that's being done to your joint by osteoarthritis, but they actually make things worse. By putting corticosteroids directly into the joint, it is hoped that the swelling of osteoarthritis will be reduced.

Osteoarthritis

Hyaluronic acid is one of the main ingredients of the fluid found in joints (synovial fluid), and it is thought to help in shock absorption and in lubricating the joint. Hyaluronic acid is found to decrease in older people and in people with osteoarthritis. The aim of this treatment is to replace the missing hyaluronic acid in the synovial fluid.

Can they be harmful?

There's no evidence that these treatments cause any serious harm. There's a risk that injecting into a joint could lead to an infection, but this seems unlikely.

How good is the research on injections into the hip joint?

There's not much good research about injecting corticosteroids into the hip joint. We found two small studies. One, with 52 people, found that people who had corticosteroid injections had less pain than people who had injections containing no corticosteroids.

^[108] Another study, with 77 people, found that more than 7 in 10 people had improved symptoms after a corticosteroid injection, compared with only 2 in 10 people after an injection of salt water (saline), 1 in 10 people after an injection of hyaluronic acid, and 1 in 10 people after no injection. ^[109]

We also found a small study of hyaluronic acid injections for hip joints that was a fair test of treatment (a randomised controlled trial). It found that that a single injection of hyaluronic acid into the hip joint was no more effective than a dummy (placebo) injection.

^[110]

Shoe insoles and wedges

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[How good is the research on shoe insoles and wedges?](#)

This information is for people who have osteoarthritis. It tells you about shoe insoles and wedges, a treatment used for osteoarthritis. It is based on the best and most up-to-date research.

Do they work?

We're not sure if insoles can help if you have osteoarthritis. The research doesn't give us a clear answer.

What are they?

There are lots of physical aids available for people with osteoarthritis. You will need to discuss with your doctor or physiotherapist whether any are suitable for you. These aids include devices that go in your shoes, such as shoe wedges and insoles.

How can they help?

We're not sure if insoles or wedges can help.

Overall, the studies of insoles and wedges didn't find that one type worked better than another type.^[111] And they didn't find that insoles and wedges worked better than a dummy treatment (flat insoles).^[112]

One study found that people wearing insoles had less pain at the end of the study than at the start.^[113] But they were also taking painkillers, so we don't know for sure that the insoles made a difference.

Another study found that insoles seemed to help people's symptoms as much as a [knee brace](#). And people were more likely to regularly use an insole than a brace.^[114]

How do they work?

There are two reasons why insoles or wedges might be expected to work:

- Shock-absorbing footwear reduces the pressure on all the joints of your leg. When you walk, you press on the joints in your foot, which will be painful if you have osteoarthritis.
- Heel insoles or wedges aim to shift some of the weight that is on the knee joint so it is moved away from the painful part of your joint.

But we don't know for sure that they help in this way.

Can they be harmful?

The main side effect people in the studies had from insoles and wedges was foot pain. But this wasn't bad enough for them to stop using the insoles. However, it's best to see a physiotherapist or doctor to make sure they are right for you. If they don't fit properly they might make your pain worse.

How good is the research on shoe insoles and wedges?

The evidence isn't very clear.

We found two summaries of the evidence ([systematic review](#)). The first summary looked at three studies comparing different types of insoles and wedges.^[115] The second summary looked at 12 studies comparing wedges with not having any treatment or having a dummy treatment (flat insoles).^[112]

We also found three good-quality studies ([randomised controlled trials](#)) comparing insoles and wedges made of different materials and of different heights.^{[116] [117] [118]}

Osteoarthritis

Overall, there is no clear evidence that one type of insole or wedge can help more than another type, or more than not using insoles at all.

We found one study suggesting that insoles can help people's symptoms as much as [knee braces](#). The study also found that people were more likely to regularly use insoles than braces. However, the study was fairly small (91 people), so we can't be entirely certain of its findings. ^[114]

Acupuncture

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[How good is the research on acupuncture?](#)

This information is for people who have osteoarthritis. It tells you about acupuncture, a treatment used for osteoarthritis. It is based on the best and most up-to-date research.

Does it work?

We don't know for sure. Different studies show different results.

What is it?

Acupuncture is a traditional Chinese treatment. It's a type of complementary or alternative medicine. If you have acupuncture, a trained acupuncturist puts sterile needles into your skin.

Traditional acupuncturists believe that acupuncture improves the flow of energy around the body. Some modern doctors think that putting needles in the skin could encourage the release of natural chemicals that block pain and help you feel relaxed. ^[119] Another theory is that acupuncture might work a bit like talking therapy. Discussing your situation with an acupuncturist and relaxing while the needles are put in might reduce anxiety, or help you cope better with pain.

How can it help?

We're not sure whether acupuncture really helps. The research is mixed. But some research shows it may work for osteoarthritis of the knee.

In some studies, acupuncture seems to work better than not having acupuncture, or having sham (pretend) acupuncture, where the needles are not put into the usual acupuncture points. ^{[120] [121] [122] [123] [124]} But a recent summary of the research found that acupuncture didn't seem to work any better than sham acupuncture. ^[125]

We also don't know if acupuncture works for osteoarthritis of the hip. One good-quality study found it worked no better than sham acupuncture. ^[126] Another study found that

Osteoarthritis

people who had acupuncture had less pain and stiffness after three months, compared with those who did not have acupuncture. They were also able to move around better. ^[127]

How does it work?

It's not clear how acupuncture might work. One theory is that it stimulates the release of natural chemicals in the body that block pain. These chemicals are called endorphins and enkephalins.

Can it be harmful?

If you see a qualified acupuncture therapist who uses properly sterilised needles, you are unlikely to have serious problems.

In the studies we looked at, several people had redness or bruising from the needles and one person fainted. ^[121] ^[123]

How good is the research on acupuncture?

We found three summaries of the evidence (**systematic reviews**) that looked at acupuncture for osteoarthritis of the knee. ^[121] ^[125] ^[120]

Two of the summaries showed acupuncture helped pain and movement of the knee joints. ^[121] ^[120] A more recent summary found that people who had acupuncture had improved pain and movement compared with those who had no acupuncture. But there wasn't much difference between people having acupuncture and those having 'sham' acupuncture, a type of **placebo**. Sham acupuncture might mean having needles put in non-traditional acupuncture points, or the needles might not go far into the skin. Some trials have pressed the skin with toothpicks as a sham treatment. ^[128] The aim is to make sure that people can't tell whether they are having traditional acupuncture or the sham treatment. ^[125]

We also found two studies looking at acupuncture for osteoarthritis of the hip. ^[126] ^[127] One found it helped with pain, stiffness, and movement, but the other found the improvements weren't any better than with sham acupuncture.

But there were problems with some of the studies. For example, some people were also taking painkillers. So it's hard to know for sure how much difference acupuncture makes.

Rubs, ointments, sprays and lotions for osteoarthritis

In this section

This information is for people who have osteoarthritis. It tells you about rubs, ointments, sprays and lotions, which can be used as treatments for osteoarthritis. It is based on the best and most up-to-date research.

Osteoarthritis

We haven't looked at these treatments in as much detail as other treatments we cover. (To find out more, see Our method.) But we wanted to cover them because you might be interested.

There are lots of products for sore joints available from pharmacies and health food shops. Many rubs, ointments, sprays or lotions contain ingredients that make the skin feel hot or cold. They are popular for relieving the pain of osteoarthritis.

Some examples are:

- Boots Warming Pain Relief Spray
- Deep Freeze Cold Gel
- Deep Heat
- ELLIMAN'S Universal Embrocation.

These products work by mildly irritating the skin, which tends to relieve pain from the same area. Doctors and pharmacists call this type of product a **counter-irritant** or **rubifacient**.

Hip replacement

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[How good is the research on hip replacement?](#)

This information is for people who have osteoarthritis. It tells you about hip replacement surgery. It is based on the best and most up-to-date research.

Does it work?

Yes. If you have a hip replacement operation there's a very good chance that you'll have less pain and stiffness afterwards. You'll also be able to move more easily. The benefits of a new hip usually last for at least 10 years.

Not everyone with osteoarthritis needs a hip replacement. It's a big operation, and some people get complications.

What is it?

During a hip replacement operation (also known as a **total hip replacement**) a surgeon removes the parts of bone that make up the joint and replaces them with an artificial joint. The artificial joint is called a **prosthesis**.

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The hip joint is a type of joint called a ball-and-socket joint. The ball is the top of the thigh bone (the femur), which fits into the hip socket. During surgery, parts of your bones are removed and replaced with an artificial alternative. There are lots of different kinds of artificial hip joints, made of different materials.

Having your hip replaced is a serious operation. You'll probably need to stay in hospital for seven to 10 days. But you might notice that the pain you have from osteoarthritis starts to ease almost straight away.

We've prepared some extra information for people thinking of having this operation. To read more, see Hip replacement.

How can it help?

If you have a hip replacement operation, there is a very good chance that the pain and stiffness in your hip will get better or go away completely.^[129] Almost everyone who has a hip replacement says that their pain improves a lot.

This operation will help you move more easily so that you can do everyday things without the problems you used to get.^[129] For example, you may be able to walk further without pain. Everyday things like getting dressed, climbing the stairs and getting out of the bath, should be easier. And the operation should help people over the age of 80 just as well as younger people.

Your new hip will keep working for many years. At least 7 in 10 people find that the benefits of having a hip replaced last at least 10 years.^[130] Most studies last 10 years, so it's possible that a new hip keeps working well for much longer.

How does it work?

Osteoarthritis causes pain because your joints don't work as smoothly as they should. Bone grows where it shouldn't, and cartilage in the joints can become rough. Osteoarthritis also makes the affected joint swollen and puts stress on the muscles and ligaments around it. The overall effect is to make the joint move less smoothly, so it hurts and feels stiff. Replacing the joint allows it to move smoothly again.

Can it be harmful?

All surgery has risks. Although hip replacement is a serious operation, the results are usually very good and problems afterwards aren't common.

Some problems can happen straight after surgery, while others happen some years after the operation. Here we look at some of the problems that can happen.

Stroke

The chance of having a stroke increases after hip replacement surgery.^[131] Researchers in Denmark looked at information from more than 66,000 hip replacement operations and found that the chance of a stroke increased more than four times (fourfold) two weeks

Osteoarthritis

after surgery. The study showed that taking aspirin may reduce the chance of having a stroke after hip replacement surgery, but more research is needed before we can be certain.

Blood clots in your veins (venous thromboembolism)

Especially during the first few days after surgery, there's a risk of getting a **blood clot** in your veins. This is called venous thromboembolism (VTE). VTE usually occurs in the deep veins of the legs. This is called **deep vein thrombosis** (DVT). If the blood clot travels to your lungs it can lead to a **pulmonary embolism**, which is very serious and can lead to death.

In a Danish study that followed 90,000 people who had hip replacement surgery, 80 in 10,000 people developed VTE three months after surgery. This compared with 5 in 10,000 in the general population who developed VTE over the same time period. Although the chance of getting VTE is 16 times higher after hip replacement surgery, the overall number of people who get VTE is actually very low. ^[132]

There are ways of lowering the chance of getting DVT. You might be given anticoagulant (blood-thinning) drugs, or special stockings to reduce your chance of getting blood clots in your legs.

Pain

You might get pain in your thigh. But your risk of getting this varies with the different types of artificial hips used. It is more common in people who have a new hip fitted without cement.

About 1 in 5 people who have one type of hip fitted (called a **porous-coated hip**) get thigh pain. ^[130]

Infection

There's a chance you could get an infection in your new hip. But infection has become less common since surgeons started to use **antibiotics** to prevent it.

If the infection doesn't clear you might have to have another hip fitted which means another operation. But this is rare. ^[133]

A second hip replacement

If your artificial hip becomes loose you may need to have it replaced.

About 1 in 100 people who have a hip replacement need to have their new hip replaced because of this. ^[130] ^[133]

The results of second operations are, on average, nearly as good as the results of first operations.

Metal-on-metal (MoM) hip replacements.

Osteoarthritis

Some studies have found that one type of new hip, called a metal-on-metal (MoM) hip (because both parts are made of metal), might be more likely than other kinds to cause problems or need to be replaced.^{[134] [135] [136]} Most hip replacements done in the UK are not MoM. But if you're worried, talk to your doctor.

For more information, see Hip replacement.

How good is the research on hip replacement?

There is some good evidence that having a hip replacement operation helps to relieve the symptoms of osteoarthritis.^[130] The benefits seem to last for at least 10 years.

We found two reviews of the research on lots of different kinds of hip replacements and how they helped people with osteoarthritis of the hip.^{[130] [129]}

The problem with the evidence is that the studies don't always say why people had their hips replaced. Surgeons often replace hips for reasons other than osteoarthritis. For example, an older person who has a hip replacement because of a hip fracture is less likely to have a successful result than an otherwise fit and healthy 60 year old who has the same operation for osteoarthritis.

But, although the quality of research isn't great, the results do show that surgery works well for many people. We need more research into which people will do best with surgery and the best time to replace their joints.

Knee replacement

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[How good is the research on knee replacement?](#)

This information is for people who have osteoarthritis. It tells you about knee replacement, a treatment used for osteoarthritis. It is based on the best and most up-to-date research.

Does it work?

Yes. Having the joint in your knee replaced with an artificial one should reduce the pain in your knee or get rid of it completely. You should also be able to move more easily after your operation. In one study, 9 in 10 people rated their new knee as good or excellent five years after surgery.

What is it?

In a knee replacement operation, a surgeon removes the damaged surfaces from bones in your knee, and replaces them with artificial surfaces.

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There are a several different operations that surgeons can do on the knee joint. There are also lots of different kinds of artificial knee. Your surgeon will decide which operation is best for you depending on where you have osteoarthritis.

Replacing the knee joint is quite a serious operation. You'll usually be in hospital for between 7 and 10 days.

We've prepared some extra information for people thinking of having this operation. To read more, see [Knee replacement](#).

How can it help?

If you have a knee replacement operation, there's a very good chance that the pain in your knee will get better or go away completely, whatever type of operation you have.

[\[137\]](#) [\[138\]](#) [\[139\]](#) [\[140\]](#)

You'll be able to bend your knee and move more easily. [\[137\]](#) [\[140\]](#) This should help you get around more easily than you used to. For example, you should find it easier to walk and climb the stairs.

The benefits of your operation will last for at least five years. In one review of nearly 10,000 people who had a knee replacement operation, 9 in 10 of them rated their lack of pain and ease of movement as good or excellent five years after their operation. [\[137\]](#)

Knee replacement operations seem to work well whatever your age. [\[141\]](#) [\[142\]](#)

How does it work?

Osteoarthritis causes pain in your knee because the joint doesn't move as smoothly as it should. Bone grows where it shouldn't, and the cartilage in the joint can become rough. Osteoarthritis also makes the joint swollen and puts stress on the muscles and ligaments around the joint. Replacing the knee joint allows it to move smoothly again.

Can it be harmful?

All surgery carries risk. Having your knee replaced is quite a serious operation, but the results are generally very good and side effects are rare.

Some problems can happen straight after surgery, while others happen some years after the operation. The biggest problem in the first few days after surgery is getting a **blood clot** in your veins. This is called **deep vein thrombosis**, or DVT for short. If the blood clot travels to your lungs it can lead to **pulmonary embolism**, which is very serious and can lead to death. DVT affects about one-quarter of people who have knee surgery. [\[143\]](#)

[\[144\]](#) But you should be given drugs after your operation to prevent it.

The main problem in the years after knee replacement surgery is that the artificial joint can become loose and you may need to have the operation repeated. Between 4 and 9

Osteoarthritis

people out of 100 need to have their artificial knee joint replaced with a new one within about five years of surgery. ^[137] ^[138]

How good is the research on knee replacement?

There is some good evidence that having parts of your knee joint replaced will reduce your pain and help you move more easily.

We found three reviews of the research and several other studies looking at knee replacement. ^[137] ^[138] ^[140]

The studies showed knee replacement helps to improve pain and make it easier to get around for most people.

The first review looked at more than 100 studies that involved nearly 10,000 people having knee surgery. ^[137] When researchers combined the results from all of these studies, they worked out that surgery provided pain relief and improved mobility in nearly all the patients, and that the benefits lasted for at least five years. After five years, 9 in 10 patients rated the results of surgery as "good" or "excellent".

However, there were some problems with the research. These types of studies look at what happens to people before and after having an operation. They don't compare what happens to groups of people, if some have the operation and others don't. So we can't be completely sure that the improvement in pain wouldn't have happened without the operation (for example, if people had tried other treatments).

Also, we can't easily tell which type of operation works best. This is partly because the studies looked more at things like how long the new joint lasted before needing repair, rather than which type of joint is best at reducing pain.

Osteotomy of the knee

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[How good is the research on osteotomy of the knee?](#)

This information is for people who have osteoarthritis. It tells you about osteotomy of the knee, a treatment used for osteoarthritis. It is based on the best and most up-to-date research.

Does it work?

Probably. Having a small piece of bone removed from your knee joint may be a way to treat osteoarthritis of the knee. But there haven't been enough studies to say for sure whether it works as well as knee replacement.

Osteoarthritis

This treatment relieves the pain of osteoarthritis and lets the joint move further, allowing you to carry out normal activities such as walking and getting up from chairs.

What is it?

Osteotomy is an operation that can be used for osteoarthritis of the knee. It is used as an alternative to [knee replacement](#) .

Often in osteoarthritis the knee joint goes out of shape because one side of the joint wears down more than the other. This means that too much weight is put on one side of the joint, causing the joint to become painful and stiff.

In an osteotomy operation, a small wedge of bone is removed from around the knee joint. This puts the joint back into a straight line. Your weight is then balanced over the whole joint, which reduces pain and stiffness.

In time, another osteotomy may need to be done. This operation is known as a **revision**. A revision is not normally required until at least 10 years after the first operation. However, revision may be required earlier if you get problems, such as an infection deep within the knee.

How can it help?

Osteotomy can reduce pain and improve movement in the knee joint. After an osteotomy you will probably be able to take fewer painkillers, or even stop taking them at all. You are likely to be able to walk further and climb stairs more easily and less likely to need to use handrails on the stairs or have to use a walking stick. ^[145]

Osteotomy seems to work as well as knee replacement surgery for some people. ^[145]
^[140] ^[146] But we need more research to be certain.

How does it work?

Osteotomy puts the damaged joint back into a straight line. Your weight is then balanced over the whole joint, rather than the damaged part. This reduces pain and stiffness.

Can it be harmful?

There are always risks with surgery.

One risk is that the site of your operation could become infected.

Another risk is that the operation won't work. About 1 in 5 people need another osteotomy. ^[145]

How good is the research on osteotomy of the knee?

For people with osteoarthritis of the inner side of the knee (called **medial osteoarthritis**), there is evidence that osteotomy may be just as good for reducing pain and increasing mobility as [replacing part of the knee](#) .^[145]

We found two summaries of the research ([systematic reviews](#)) and one other good study (a [randomised controlled trial](#)) that compared osteotomy with replacing part of the knee.^{[145] [140] [146]}

- The reviews found that people who had osteotomy had as much of a reduction in pain and disability as people who had a knee replacement.^{[140] [146]}
- The extra study included 60 people aged over 60 who had osteoarthritis. About 7 to 10 years after their surgery, those who had an osteotomy were able to walk as well as those who had part of their knee replaced.^[145]

Hip resurfacing

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[How good is the research on hip resurfacing?](#)

This information is for people who have osteoarthritis. It tells you about hip resurfacing, a treatment used for osteoarthritis. It is based on the best and most up-to-date research.

Does it work?

We aren't sure. Some studies show that people's pain, stiffness and movement are much better after hip resurfacing, which involves replacing the surfaces of the hip joint with artificial coverings. But more studies need to look at the long-term safety of this treatment.

What is it?

Hip resurfacing is sometimes used as an alternative to [hip replacement](#) .^[147] In a hip replacement, the parts of bone that make up the hip joint are cut out and replaced. This involves sawing off the head of the thigh bone (the "ball" of the joint) and replacing it with an artificial head. In hip resurfacing, however, the damaged hip ball is reshaped, not removed, and covered with a artificial cap. In both operations, the hip socket is also drilled deeper and covered with an artificial cup.

Artificial joints can last for many years, but they won't last forever. This isn't usually a problem for older patients, who are unlikely to outlive their joint. Younger patients, however, may need their joint replaced in future. Some experts think hip resurfacing may

Osteoarthritis

be a better first treatment for these patients, as more of the hip ball is left intact. This may make a hip replacement easier if needed down the road.

How can it help?

We can't say for certain how well hip resurfacing works. This is a newer treatment and not many good studies have looked at it. In particular, we don't know how well this treatment works over the long term.

We found a good-quality study that compared hip resurfacing with hip replacement. After a year, people had similar improvements in pain, stiffness and mobility with either treatment.^[148] Another study found the improvements were about the same after two years.^[149]

A review of studies also found that hip resurfacing works at least as well as total hip replacement in improving people's movement and discomfort. But people who had resurfacing were more likely to have hip problems later on and need more surgery.^[150]

How does it work?

Osteoarthritis causes pain because your joints don't work as smoothly as they should. Bone grows where it shouldn't, and cartilage in the joints can become rough. Osteoarthritis also makes the affected joint swollen, and puts stress on the muscles and ligaments around it. The overall effect is to make the joint move less smoothly, so it hurts and feels stiff.

Hip resurfacing replaces the parts of the hip joint damaged by osteoarthritis, so the joint can move smoothly again.

Can it be harmful?

Hip resurfacing is fairly new, so we don't know how safe this treatment is over the long term.

Research suggests that some patients may be more likely to have problems after hip resurfacing than after hip replacement.^{[150] [151] [152]} Although resurfacing allows patients to keep more of their hip bone, the bone needs to stay strong for the treatment to last. Many older patients and women who've gone through the **menopause** have weaker bones, which could put them at higher risk of problems, such as the head of their thigh bone cracking. However, more studies need to confirm this and also explore which patients are the best candidates for resurfacing.

There are also other risks with resurfacing. These are similar to those of hip replacement.

- Excessive bleeding during the operation.
- Infection: This can happen after any operation. But it is much more serious after a hip surgery because the artificial hip can get infected. However, infection has become less common since surgeons started to use **antibiotics** to prevent it.

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- Blood clots in your legs (deep vein thrombosis): After surgery, you move around less. This encourages blood clots to form in your leg veins. Blood clots in leg veins are dangerous because they can break off and be moved along to the blood vessels in your lungs. If they are large enough to block one of these vessels, they can kill you. But surgeons have various ways of reducing your risk of getting deep vein thrombosis. Some will give you anticoagulant ('blood-thinning') tablets or injections, or tablets like aspirin that make your blood less sticky. Others will use special leg stockings to reduce your chance of getting blood clots in your legs.
- Dislocation: If your hip dislocates, it means the ball of your thigh bone has come out of the socket of your hip bone. This is painful and should be considered an emergency.
- Urinary-tract infection: After your operation, you may be more likely to get an infection in your urinary tract (the parts of the body that produce and remove urine). This is more common in older people. It can happen after operations because you are less mobile and urine may stay around longer in your bladder. Also, if you have a tube (catheter) in your bladder, you might be more likely to get an infection.
- Metal-on-metal (MoM) hips: Some studies have found that people who had a total hip replacement with a type of hip called a metal-on-metal hip (because both parts are made of metal) might be more likely than people who had other kinds of new hip to have problems. These problems include having to have a second operation, called a revision.^{[135] [153] [134]} The evidence was mainly in people who had total hip replacements rather than hip resurfacing, and MoM caps and cups are not often used in the UK. But if you're worried, talk to your doctor. For more information, see Hip replacement.

How good is the research on hip resurfacing?

Hip resurfacing is a newer treatment, so not much research has been done on it.

Studies so far show that people have less pain and stiffness and better movement one and two years after surgery.^{[148] [149]} These improvements are similar to those of [hip replacement](#) .^[150] But good-quality studies need to confirm these findings and explore how safe this treatment is over the long term. Some research suggests people are more likely to develop problem after hip resurfacing than after total hip replacement, and need more surgery on their hip.^[150]

Further informations:

Warnings about side effects of NSAIDs

Nonsteroidal anti-inflammatory drugs (NSAIDs) are used to treat pain and inflammation. Ibuprofen is probably the best-known NSAID. Although they are often useful, they can have side effects, including causing stomach upsets and ulcers, or more rarely, allergies or problems with your kidneys or liver. ^[45]

As well as these other side effects, people who take high doses of some NSAIDs for a long time may have a slightly higher risk of getting a heart attack or a stroke. High doses of NSAIDs may be used over a long period of time to treat conditions such as arthritis.

It's not always clear what counts as a long time for taking NSAIDs. In some research, two-thirds of the heart attacks happened in studies where people took NSAIDs for a year or longer. ^[46]

Below, we look at the different kinds of NSAIDs and what the research that has been done so far shows about their safety.

NSAIDs you can buy over the counter

You can buy low doses of some NSAIDs, such as ibuprofen, at a pharmacy. Taken at this lower dose and for a short time, ibuprofen doesn't seem to increase people's risk of a heart attack or stroke. ^[47]

You can also get larger doses of ibuprofen on prescription from a doctor (see our information on prescription ibuprofen below). Taking these larger doses every day may slightly increase your risk of a heart attack or stroke. But these doses are higher than the amount you'd take for a headache or other kinds of short-term pain.

Diclofenac is another NSAID that you can buy in low doses over the counter. It's sold for treating headaches, other aches and pains, and cold and flu symptoms. Diclofenac does increase the risk of heart attacks and strokes if used regularly. ^[48] However, there's probably much less of a risk if you're taking low doses for short periods of time. ^[49]

You can also buy an NSAID called naproxen without a prescription, for treating period pain. Naproxen doesn't seem to cause much increase in the risk of heart attacks or strokes. ^[46] ^[48] ^[50]

NSAIDs your doctor may prescribe

Selective COX-2 inhibitors

Selective COX-2 inhibitors are a newer type of NSAID. Some people got stomach problems as a side effect of taking older NSAIDs. COX-2 inhibitors were designed to

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cause less irritation to your stomach. But research has found that these newer drugs can slightly increase your risk of a heart attack or a stroke.

COX-2 inhibitors called valdecoxib (brand name Bextra) and rofecoxib (Vioxx) have been taken off the market because of their side effects.^[47]

Other COX-2 inhibitors are still available in the UK. These include:

- celecoxib (Celebrex)
- etoricoxib (Arcoxia)
- meloxicam (Mobic).

The overall risk of having a heart attack or stroke when taking these drugs is fairly small. For every 1,000 people regularly taking high doses, an extra three people will have a heart attack or stroke.^[46] Your doctor can help you weigh up the risks and benefits these drugs will have for you.

Also, you should not take etoricoxib if you have high blood pressure.^[51] But you can take it once your blood pressure is under control.

Other NSAIDs

There are several NSAIDs that aren't COX-2 inhibitors, which may also be prescribed by your doctor. They include (with brand names):

- diclofenac (Diclomax, Motifene, Voltarol)
- etodolac (Eccoxolac, Etopan, Lodine)
- ibuprofen (Brufen, Nurofen, Cuprofen)
- ketoprofen (Oruvail, Orudis)
- mefenamic acid (Ponstan)
- naproxen (Arthroxen, Naprosyn).

Some of these NSAIDs may cause a small increase in your risk of a heart attack or stroke. Research has found that regularly taking high doses of ibuprofen or diclofenac over a long period of time may increase your risk of these problems.^[47]

The body that regulates medicines in the UK to make sure that they work and that they are safe is the Medicines and Healthcare products Regulatory Agency (MHRA).^[52] It has issued a warning about diclofenac. The MHRA says that people should not take

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diclofenac if they have serious heart conditions, such as heart failure, heart disease, or circulatory problems, or if they have ever had a heart attack or stroke.

We don't know exactly how big the risk is, or how it varies between the different drugs. The research that has been done so far suggests that:

- Taking diclofenac has a similar risk of heart attack to some COX-2 inhibitors.^[47] That would mean three extra heart attacks or strokes each year for every 1,000 people taking high daily doses.
- Naproxen may be safer than COX-2 inhibitors.^[47] Most studies so far seem to show that naproxen doesn't increase people's chances of getting a heart attack or a stroke.^[46] ^[48] One study did suggest a small increase in the risk of stroke in people who took naproxen, but it was less than the increased risk with a COX-2 inhibitor.^[50]

Guidelines for doctors say that for most people, the benefits of these drugs outweigh the risks.^[53] The risks are probably lower for people who only take NSAIDs for a short time or take smaller doses.^[47]

Guidelines for doctors

Doctors have guidelines about how they should prescribe COX-2 inhibitors and other NSAIDs. They say that:^[47]

- People should take the lowest dose of an NSAID that works for them
- People should only take NSAIDs for as long as they need to. People taking them for a long time should have their treatment reviewed regularly
- People who already have heart disease shouldn't take COX-2 inhibitors
- Doctors should weigh up the risks and benefits of NSAIDs for each person. For example, your doctor may suggest a COX-2 inhibitor if you're at risk of stomach problems, but not of a heart attack
- People are more likely to get stomach problems if they take aspirin as well as an NSAID. People should only take aspirin and an NSAID together if they really need to.

If you're worried about the medicine you're taking, talk to your doctor.

Glossary:

menopause

When a woman stops having periods, it is called the menopause. This usually happens around the age of 50.

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hormones

Hormones are chemicals that are made in certain parts of the body. They travel through the bloodstream and have an effect on other parts of the body. For example, the female sex hormone oestrogen is made in a woman's ovaries. Oestrogen has many different effects on a woman's body. It makes the breasts grow at puberty and helps control periods. It is also needed to get pregnant.

X-ray

X-rays are pictures taken of the inside of your body. They are made by passing small amounts of radiation through your body and then onto film.

cysts

A cyst is a sac or cavity that develops under your skin and is filled with fluid. Cysts are benign, which means that they are not cancerous.

immune system

Your immune system is made up of the parts of your body that fight infection. When bacteria or viruses get into your body, it's your immune system that kills them. Antibodies and white blood cells are part of your immune system. They travel in your blood and attack bacteria, viruses and other things that could damage your body.

bowlegs

Bowlegs are legs that curve out at the knees. Bowlegs are common in very young children. But their legs usually straighten out as the child grows. Sometimes, with severe bowing, surgery is needed.

diabetes

Diabetes is a condition that causes too much sugar (glucose) to circulate in the blood. It happens when the body stops making a hormone called insulin (type 1 diabetes) or when insulin stops working (type 2 diabetes).

physiotherapist

A physiotherapist is a health professional who is trained to use physical activity and exercises to help people's bodies heal.

morphine

Morphine is a powerful painkiller. Morphine works by attaching to receptors on the nerve cells that carry messages about pain. This stops the messages reaching your brain. Morphine also directly affects your brain, providing a sedating effect (this makes you less alert). Doctors use morphine to give relief from severe pain caused by cancer, surgery or a heart attack.

systematic reviews

A systematic review is a thorough look through published research on a particular topic. Only studies that have been carried out to a high standard are included. A systematic review may or may not include a meta-analysis, which is when the results from individual studies are put together.

randomised controlled trials

Randomised controlled trials are medical studies designed to test whether a treatment works. Patients are split into groups. One group is given the treatment being tested (for example, an antidepressant drug) while another group (called the comparison or control group) is given an alternative treatment. This could be a different type of drug or a dummy treatment (a placebo). Researchers then compare the effects of the different treatments.

inflammation

Inflammation is when your skin or some other part of your body becomes red, swollen, hot, and sore. Inflammation happens because your body is trying to protect you from germs, from something that's in your body and could harm you (like a splinter) or from things that cause allergies (these things are called allergens). Inflammation is one of the ways in which your body heals an infection or an injury.

heart attack

Doctors call a heart attack an acute myocardial infarction (or acute MI). This is the name for the damage that occurs to the heart muscle if it isn't getting enough blood and oxygen because a branch of the coronary arteries is blocked. During a heart attack, you may have pain or heaviness over your chest, and pain, numbness or tingling in your jaw and left arm.

stroke

You have a stroke when the blood supply to a part of your brain is cut off. This damages your brain and can cause symptoms like weakness or numbness on one side of your body. You may also find it hard to speak if you've had a stroke.

kidney

Your kidneys are organs that filter your blood to make urine. You have two kidneys, on either side of your body. They are underneath your ribcage, near your back.

ACE inhibitors

ACE inhibitors are drugs used mainly to lower blood pressure and reduce strain on your heart. ACE stands for 'angiotensin converting enzyme'. Angiotensin is a chemical that can make your blood vessels narrower. ACE inhibitors stop this happening, which helps to lower your blood pressure.

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diuretics

Diuretics are a type of medicine that reduce the amount of fluid in your body. The extra fluid is removed in your urine.

arthritis

Arthritis is when your joints become inflamed, making them stiff and painful. There are different kinds of arthritis. Osteoarthritis is the most common type. It happens when the cartilage at the end of your bones becomes damaged and then starts to grow abnormally. Rheumatoid arthritis happens because your immune system attacks the lining of your joints.

NSAIDs

NSAID stands for nonsteroidal anti-inflammatory drug. NSAIDs help with pain, inflammation and fever. They are called 'nonsteroidal' because they don't contain any steroids. Aspirin and ibuprofen are both NSAIDs.

liver

Your liver is on the right side of your body, just below your ribcage. Your liver does several things in your body, including processing and storing nutrients from food, and breaking down chemicals, such as alcohol.

placebo

A placebo is a 'pretend' or dummy treatment that contains no active substances. A placebo is often given to half the people taking part in medical research trials, for comparison with the 'real' treatment. It is made to look and taste identical to the drug treatment being tested, so that people in the studies do not know if they are getting the placebo or the 'real' treatment. Researchers often talk about the 'placebo effect'. This is where patients feel better after having a placebo treatment because they expect to feel better. Tests may indicate that they actually are better. In the same way, people can also get side effects after having a placebo treatment. Drug treatments can also have a 'placebo effect'. This is why, to get a true picture of how well a drug works, it is important to compare it against a placebo treatment.

steroids

Steroids are a type of chemical. Your body naturally produces steroids, which play a part in many of its processes. For example, steroids are involved in how your immune system, reproductive system and metabolism work. Steroids can also be given as medicines and are used for a number of different conditions: including asthma, rheumatoid arthritis and eczema. Corticosteroids are not the same as the steroids used by some body builders and athletes. Those steroids are called 'anabolic steroids'.

cartilage

Cartilage is a rubbery type of tissue that's usually found at the ends of your bones. It acts like a shock absorber to keep the bones from grinding against each other. It also gives shape to certain parts of your body, such as your nose and the outside of your ears.

prosthesis

A prosthesis is something that's used to replace a part of the body that is damaged, painful or not working properly. Prostheses are used to replace many different body parts, from joints that have worn out, to valves in your heart that are not working well.

blood clot

A blood clot forms when the cells in blood clump together. Sometimes this happens to stop you from bleeding if you've had an injury. But it can also happen on the inside of your blood vessels, even when you haven't had an injury. A blood clot inside a blood vessel is called a thrombus.

deep vein thrombosis

A deep vein thrombosis is a blood clot that has formed in the deep veins of your arms or legs. These clots can form if a person doesn't move their limbs often enough. This is because blood is pushed through your veins by the contraction of muscles that occurs when a limb is moved. Blood tends to clot when it is not kept flowing, so clots can form if a person is not moving. Deep vein thrombosis is also called deep venous thrombosis or DVT.

pulmonary embolism

A pulmonary embolism can give you chest pain, make you feel breathless and uncomfortable or make you breathe rapidly. A pulmonary embolism is dangerous and can kill you if it is not treated.

antibiotics

These medicines are used to help your immune system fight infection. There are a number of different types of antibiotics that work in different ways to get rid of bacteria, parasites, and other infectious agents. Antibiotics do not work against viruses.

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