

Patient information from the BMJ Group

Gout

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Gout

Gout can cause bad pain and swelling in your joints, usually in the joint at the base of your big toe. It can make walking difficult and painful. Most gout attacks go away within a week or 10 days, even without treatment.

We've brought together the best research about gout 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 gout?

Gout is a fairly common condition that can cause bad pain and swelling in your joints, usually in your big toe joint. The disease occurs when tiny crystals of a chemical called urate build up in your joints.

Urate is a chemical in your blood. It's made in the body when you digest certain foods. It's usually in the form of a harmless liquid that passes out of the body in your urine. But in some people, the amount of urate in the blood builds up.^[1] It starts to form tiny crystals, which can collect in a joint. The crystals can cause inflammation and pain.

Gout normally affects only one joint at a time. The main big toe joint (which doctors call the **first metatarsophalangeal joint**) is most often affected. But you can also get gout in any of the joints in your:

- Feet
- Ankles
- Knees
- Wrists
- Fingers
- Elbows.

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Gout can happen when you have too much urate in your blood, but not everyone with high levels of urate gets gout.^[2] However, the more urate you have in your blood, the more likely you are to get an attack of gout.^[1]

Here are some of the reasons why some people get more urate in their blood:

- Drinking too much alcohol. Studies show that drinking beer and spirits, but not wine, increases your chances of getting gout.^[3]
- Eating a lot of certain foods, especially red meat or some seafood. But low-fat dairy products, like skimmed milk, may protect you from getting gout. They help your body process urate faster.^[3] ^[4]
- Being very overweight (**obese**).^[5] ^[6]
- Having certain illnesses. These include heart disease, **high blood pressure** , **diabetes** , and **high cholesterol** .^[5] ^[6] If you have an attack of gout, your doctor may test you for these diseases. But they are not caused by gout.
- Taking certain medicines, such as **diuretics** (water tablets) for high blood pressure and regular aspirin in low doses.^[7]

What are the symptoms of gout?

The first symptom you are likely to notice is very bad pain in one of your joints. This most often happens in your big toe. It comes on suddenly, over a few hours.

People often get attacks of gout at night. The pain may wake you from your sleep. The joints most likely to get gout are in the big toe, foot, ankle, knee, wrist, finger, and elbow.^[8]

Your affected joint usually swells up. The skin around it may look red, shiny, and inflamed. You may also notice that:^[9]

- Your joint feels stiff
- You have a high temperature
- Your joint feels warm or hot to the touch.

The pain is worse if you bump the joint. You may find that even the weight of the bedclothes over your foot makes it too sore to bear.

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Gout can make the affected joint swell up.

Doctors can usually diagnose gout by examining your swollen joint. The doctor will probably also do a blood test, to check how much urate you have in your blood. If you have a high level of urate, it's more likely that gout is causing the problem.

If your doctor is not sure whether you have gout, another test may be done. The doctor will take some of the fluid out of the swollen joint, using a needle and syringe, and send it to the laboratory. The laboratory will then look at the fluid under a microscope. If you have gout, they may be able to see urate crystals in the fluid. ^[10]

Sometimes, urate crystals form under the skin, on your hands, knees, wrists, elbows, and ears. They look like white bumps. Doctors call these bumps **tophi**.

How common is gout?

Gout is quite common, especially in older people.

About 1 in 100 people get it at some point. Gout is far more common in men than women. ^[11]

About 5 in 100 men over 65 have gout. But less than 1 in 100 women of the same age gets it. ^[12] Only about 1 to 2 in 1,000 men aged 50 to 65 has gout. ^[13] It's even less common in younger people. ^[14]

Gout seems to be getting more common. This might be because people are living longer, so they're more likely to reach an age when gout is more common.

Also, people are more likely to have risk factors for gout. These include: ^[15]

- Being obese
- Eating more meat and seafood
- Taking **diuretic** tablets (water tablets) for medical conditions like **heart failure** and **high blood pressure** .

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Gout may also be more common in some non-white ethnic groups.^[11] One study showed that:^[16]

- More than 3 in 1,000 black men have gout.
- Less than 2 in 1,000 white men have gout.

This may partly be because black men are at greater risk of getting high blood pressure. High blood pressure and the medicine used to treat this condition make gout more likely.

What treatments work for gout?

There are treatments that may relieve your pain and swelling during an attack of gout, but they can all cause side effects. There are also things you can try to prevent your gout returning. But the research into gout treatments is not very good, so we can't be sure how well they work.

- A short course of **anti-inflammatory painkillers** (nonsteroidal anti-inflammatory drugs) should ease your symptoms.
- **Colchicine** is a medicine that's been used to treat gout for a long time, but it often causes vomiting and diarrhoea.
- If you get repeated attacks of gout, you could take a medicine called **allopurinol** to try to stop it coming back.
- Making some simple changes to what you eat and drink may lower the urate levels in your blood. This might stop your gout returning.
- There are some things you can do yourself to manage the pain of a gout attack. For more information see [Self-help during an attack of gout](#) .

We've looked closely at the research on treatments for gout and also at treatments used to control this disease. We normally rank the treatments into categories, according to whether they work. But there isn't enough high-quality evidence for any of the treatments for gout. Although doctors agree that many of these treatments can help, we need further research to know how well they work.

We've looked at treatments for gout attacks and treatments to prevent gout attacks separately:

- [Treatments for an attack of gout](#) . These treatments are aimed at easing your symptoms during an attack of gout.
- [Treatments to prevent gout](#) . These treatments are aimed at preventing you from getting another attack of gout.

Treatment Group 1

Treatments for an attack of gout

Treatments that need further study

- [Nonsteroidal anti-inflammatory drugs \(NSAIDs\)](#)
- [Colchicine](#)
- [Corticosteroids](#)

Treatment Group 2

Treatments to prevent gout

Treatments that need further study

- [Changing what you eat or drink](#)
- [Allopurinol](#)
- [Febuxostat](#)
- [Colchicine](#)
- [Sulfinpyrazone](#)
- [Probenecid](#)

What will happen to me?

Your gout attack should go away within a week to 10 days, even if you don't have any treatment. A few people get only one attack of gout in their lives. But, for most people, gout is likely to come back eventually.

It's difficult to say what will happen after you've had an attack of gout because there's not much research on this.

You may get better without treatment. One study found almost 3 out of 10 people with an attack of gout in their big toe joint feel better after seven days without treatment.^[17] But because gout is so painful, most people do have treatment.

However, gout often comes back. In a study of more than 600 people who didn't have treatment to prevent another attack:^[18]

- More than 6 in 10 had another attack of gout within a year

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- More than 7 in 10 had another attack within two years
- More than 8 in 10 people had gout again within three years.

There are treatments you can take to lower the amount of urate in your blood. This may reduce your chances of getting another attack. But there's no good evidence that it works.

A few people who don't have treatment to reduce the amount of urate in their blood get repeated attacks of gout. This is sometimes called **chronic gouty arthritis**.^[9] It's quite rare. The symptoms are the same as for normal gout, but you get it more often. If you get regular attacks of gout, the urate crystals can damage your joints. This makes them feel stiff and painful to move.

If you have high levels of urate, you are also more likely to get [kidney stones](#).^[9] Kidney stones are formed from waste products in your urine, including urate. They develop in your kidneys. They can cause pain when your body tries to flush them out in your urine. But not everyone who has high levels of urate, or gout, will get kidney stones.

Treatments:

Nonsteroidal anti-inflammatory drugs (NSAIDs)

In this section

Nonsteroidal anti-inflammatory drugs (NSAIDs) are the most popular treatment for an attack of gout in the UK. A short course of these drugs should ease your symptoms. But more research is needed to show how well they work.

NSAIDs are painkillers that reduce **inflammation** in the body. There are lots of different types of NSAIDs.

The ones doctors usually prescribe for an attack of gout include diclofenac (brand name Voltarol), etoricoxib (Arcoxia), indometacin, ketoprofen (Orudis, Oruvail), naproxen (Naprosyn, Arthoxen), and sulindac.^[20] You can buy another NSAID called ibuprofen (Nurofen) in shops and pharmacies. Diclofenac is also available over the counter at a lower dose (Voltarol Pain-eze Tablets).

Aspirin is not recommended for gout.^[20]

There's not a lot of evidence to prove that these drugs work.^[21] But many doctors agree they can help to keep pain under control.

One small study (a randomised controlled trial) of 90 people found that indometacin reduced pain as well as a [corticosteroid](#) called prednisolone. But people were more likely to get side effects with indometacin.^[22] However, this study was too small to be entirely reliable.

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We don't know which of the NSAIDs works best for gout. We found two studies that showed that the NSAIDs etoricoxib and indometacin work about as well as each other. ^[23] ^[24] The other studies that compared NSAIDs were all too small to be useful. ^[25] ^[26] ^[27] ^[28] ^[29]

All NSAIDs can have side effects. These drugs can irritate the lining of the stomach. This can sometimes cause bleeding in the stomach and stomach ulcers, especially if you are elderly. This is a serious problem that can be life-threatening. ^[30]

You need to be sure not to take more than the recommended dose. Check with your doctor or pharmacist about how many tablets you can take every day. Higher doses are more likely to cause side effects. But you need high doses when you have gout, because it's so painful.

One type of NSAID for gout might be less likely to cause stomach problems. It's called etoricoxib (brand name Arcoxia). But you should not take etoricoxib if you have high blood pressure. ^[31] You can, however, 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.

Your doctor may prescribe another drug in addition to the NSAID to protect your stomach, if you have a high risk of getting stomach ulcers. ^[30] There are several types of protective drugs. Their names are:

- Proton pump inhibitors, such as omeprazole (brand name Losec) or esomeprazole (Nexium)
- Misoprostol (Cytotec)
- H2 receptor antagonists, such as cimetidine (Dyspamet) or ranitidine (Zantac).

If you have a stomach ulcer, you shouldn't take any NSAIDs at all. ^[31]

There are also concerns that taking some prescription NSAIDs regularly can make you more likely to have a stroke or heart attack. But this risk is linked to taking high doses of NSAIDs every day for a long time. People who have heart problems shouldn't take diclofenac. ^[32]

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

Colchicine

In this section

Doctors agree that this medicine can help with the pain of gout. But it doesn't work for everyone.

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Colchicine has been used for many years to treat gout. It is made from the autumn crocus plant. You may find this medicine helps to reduce pain if you can't take [nonsteroidal anti-inflammatory drugs \(NSAIDs\)](#) (for example, because of another medical condition).

We found two good-quality studies ([randomised controlled trials](#)). The bigger trial included 575 people with gout. They took either high-dose colchicine, low-dose colchicine, or a dummy ([placebo](#)) treatment. It showed that people who took colchicine were more likely to say their pain had reduced by at least half, within 24 hours of taking the medicine. The researchers found that: ^[40]

- 33 out of 100 people taking high-dose colchicine said their pain reduced by half. These people took 4.8 milligrams (mg) over six hours
- 40 out of 100 people taking low-dose colchicine said their pain reduced by half. These people took 1.8 mg over one hour
- 16 out of 100 people taking the placebo said their pain reduced by half.

Side effects are common with this drug, especially at higher doses. The usual side effects are diarrhoea, nausea, and vomiting. In the bigger study, 77 out of 100 people taking high-dose colchicine had some of these side effects, compared to 26 out of 100 people taking low dose.

The smaller study looked at 43 patients who were in hospital because of an attack of gout. It found colchicine helped to reduce pain in 75 out of 100 people. The people in the study took 1 mg of colchicine to start with, then 0.5 mg every two hours.

But all the people taking colchicine got diarrhoea or vomiting, or both, within about 24 hours. You should stop taking the medicine as soon as you get these problems.

You should only take 6 mg of colchicine in total, during an attack of gout. It's only meant to be taken at these doses for a short period of time, to bring a painful attack of gout under control. You can't take high doses of colchicine for long, because it can cause dangerous side effects.

You may get these side effects if you keep taking a dose of colchicine that is too high: ^[31]

- Very bad diarrhoea
- Bleeding from your stomach or gut
- Rashes
- Kidney and liver damage.

You may also get these rare side effects:

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- Nerve problems (peripheral neuritis)
- Muscle pain (myopathy)
- Hair loss (alopecia)
- Failure to produce sperm (if you're a man)
- Blood disorders.

But you shouldn't get serious problems if you take the drug for a short time, as prescribed by your doctor.

Corticosteroids

In this section

Corticosteroids are drugs that are often used to reduce inflammation. They are sometimes called steroids for short. However, these are not the same as the steroids sometimes used by bodybuilders and athletes. They're similar to chemicals your body produces naturally to deal with inflammation.

If you can't take [nonsteroidal anti-inflammatory drugs \(NSAIDs\)](#) or [colchicine](#) because of side effects, your doctor may prescribe a short course of steroid tablets. Or you might have a steroid injection into the inflamed joint to relieve the pain.

If you take steroids for only a short time, you may get fewer side effects than you would from some drug treatments for gout.^[41] One small study (a [randomised controlled trial](#)) of 90 people found that a steroid called prednisolone reduced pain as well as an NSAID called indometacin but with fewer side effects.^[22] But this study was too small to be entirely reliable. We couldn't find any other studies that looked at steroid treatment for an attack of gout.

About 1 in 20 people find that steroid tablets affect their mood.^[42] You may be irritable, anxious, confused, or have trouble sleeping. Or you can get an unusually high mood (euphoria). Rarely, people get more serious side effects, such as thinking about suicide or seeing things that aren't really there. It's also possible to get these side effects when you stop taking steroids.

Your doctor should explain the benefits and risks of steroids before you start taking them. If you get any worrying symptoms while you're taking steroids, see your doctor straight away.

If you take higher doses of steroids or take them for a long time, you can get serious side effects. These are very rare with the short courses of treatment that your doctor may recommend for an attack of gout. For more information about the side effects of higher doses of steroids, see [Corticosteroids and side effects](#) .

Changing what you eat or drink

In this section

We know that gout is more likely if you eat certain foods or drink beer or spirits. You may be able to prevent gout by changing what you eat and drink. But there hasn't been much research, so we don't know how much this can help.

And we don't know if it helps to change what you eat and drink, once you've already had an attack of gout.

A review of the research found only one good-quality study looking at making diet changes to improve gout.^[44] In the study, some people added enriched skim milk powder to their diet, while others added regular skim milk powder or lactose powder. The enriched powder contained two dairy supplements called glycomacropeptide (GMP) and G600 milk fat extract. All three groups had fewer gout attacks during the study. Those having the enriched powder also had slightly less pain than those in the other groups.

Other studies have also looked at how diet affects gout, but these have been lower-quality. One big study found that men eating more meat or fish than average had a higher chance of getting gout.^[45] The study also found that men who ate low-fat dairy products, such as skimmed milk, were less likely to get gout. The men were also more likely to get gout if they drank beer or spirits.^[46] But wine didn't seem to have any effect.

Another study found that sugary soft drinks, and even fruit juice, can increase your risk of gout if you have them every day or nearly every day.^[47] There's no increased risk from diet soft drinks without any sugar.

Gout is caused by having too much urate in your blood. Doctors think that eating lots of meat and fish, and drinking lots of beer and spirits, increases the amount of urate in your blood. So it would seem that cutting down on these things might stop you getting gout.

Although there's no strong evidence that changing what you eat and drink can stop you getting another attack of gout, the following changes are recommended in guidelines for doctors. You may want to try:^[48]

- Losing weight on a calorie-controlled diet (if you're overweight)
- Eating less meat or fish
- Drinking wine instead of beer
- Drinking more skimmed milk.

Allopurinol

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In this section

If you keep getting attacks of gout, your doctor may suggest taking a drug called allopurinol. Allopurinol reduces the amount of urate in your body. It's been used for a long time to prevent gout.

One study found that allopurinol reduced levels of urate in the blood to a target level for nearly 8 in 10 people.^[49] Some people who weren't helped by a lower dose found that a higher dose worked. However, the study didn't look at whether reducing people's urate levels meant they had less pain.

Allopurinol can make your symptoms worse if you start taking it during an attack of gout. So, your doctor will not start it until two or three weeks after an attack of gout has settled.^[20]

Allopurinol can also make you more likely to have an attack of gout when you first start taking it.^[20] So, you'll probably take another drug, either [colchicine](#) or a [nonsteroidal anti-inflammatory drug \(NSAID\)](#), for the first three months of taking allopurinol.^[20] There is good evidence to show that taking colchicine plus allopurinol can prevent a flare-up of gout.^[50]

You have to take allopurinol every day, indefinitely. It may take two or three months to start working. You'll need to have blood tests during that time to be sure it is reducing the amount of urate in your blood.

Allopurinol can sometimes cause skin rashes.^[51] It can also interact with other medicine you are taking. You should check with your doctor or pharmacist.

When you are deciding whether to take allopurinol, or one of the other long-term drugs to prevent gout, you will need to consider:

- How often you have attacks of gout
- How well you can treat them with NSAIDs or colchicine
- How much the attacks stop you getting on with your normal life
- Whether you are happy taking tablets every day.

If you have a lot of attacks that are difficult to treat, you may feel it is worth trying a drug to prevent attacks.

Febuxostat

In this section

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Febuxostat is a newer drug that works in a similar way to [allopurinol](#) . Its brand name is Adenuric. You take it as tablets. But there's not enough evidence to say whether it can prevent gout.

Research shows that febuxostat can lower people's urate levels.^[52] In studies, febuxostat kept the amount of urate in people's blood below a target level for between 5 and 7 in 10 people, depending on the dose. Urate dropped to the same target level for just over 2 in 10 people taking allopurinol, although people only took a low or medium dose. There was no difference between the two treatments in the amount of pain people got from gout.

Just like allopurinol, febuxostat can also make you more likely to have an attack of gout when you first start taking it.^[53] So, you'll probably take another drug, either [colchicine](#) or a [nonsteroidal anti-inflammatory drug \(NSAID\)](#) , for the first six months of taking febuxostat.

We found one study looking at febuxostat. It didn't seem to work any better than a dummy ([placebo](#)) treatment for preventing attacks of gout within the first eight weeks of taking it. In fact, it might increase attacks when you first take it.^[54] There's not enough evidence to say if it works in the long term.

Febuxostat is only recommended in the UK for people who can't take allopurinol because of side effects.^[55]

Side effects from febuxostat can include liver problems, feeling sick, joint pain, and a rash.^[56]

There have also been concerns about whether febuxostat can cause heart problems. In studies, people taking this drug have had a slightly higher risk of having a heart attack or stroke.^[56] It's not certain whether this was caused by febuxostat, but your doctor may want to keep a check on you for any signs of these problems.

Colchicine to prevent gout

In this section

If you can't take [allopurinol](#) because of side effects, or if it doesn't work for you, your doctor may prescribe colchicine to be taken long term. But there's no good evidence to show that this works.

We didn't find any good studies of people taking colchicine alone to prevent gout attacks.

But it does seem to help prevent flare-ups of gout when people take it together with allopurinol. So it might work on its own.

We found one study (a [randomised controlled trial](#)) where people took colchicine plus allopurinol.^[50] Only a third of the people who took both drugs twice a day had an attack

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of gout. But more than three-quarters of those who took only allopurinol had gout again within six months.

The gout attacks were less severe for people who took colchicine. The people in the study kept taking colchicine for three months after the urate levels in their blood were down to normal.

Almost 4 out of 10 people who took colchicine in this study had diarrhoea. But the side effects did not cause anyone to stop taking the treatment. ^[50]

You need to be careful to take only the recommended amount of colchicine. High doses can have dangerous side effects. For more details, see [Colchicine for treating an attack of gout](#) .

Sulfinpyrazone

In this section

Your doctor may prescribe a medicine called sulfinpyrazone (Anturan) to prevent gout returning, if [allopurinol](#) hasn't helped. But we don't know whether it works. It isn't used very much in the UK.

We didn't find any good studies looking at using this drug to prevent gout. It may make you more likely to get [kidney stones](#) . That's because it lowers urate in your blood, but increases levels of urate in your urine.

You may get some other side effects from taking this drug: ^[20]

- Stomach upset
- Skin rashes
- Bloating (water retention)
- Stomach ulcers and bleeding
- Kidney failure
- Liver problems.

If you do take this medicine, you'll probably need regular blood tests to make sure you are not getting problems with your kidneys and liver.

Probenecid

In this section

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Probenecid is another medicine for preventing gout, but it's no longer used in the UK because lots of people who take it get side effects.

We don't know if probenecid works. We couldn't find any good-quality studies looking at probenecid for preventing gout.

Probenecid may make you more likely to get [kidney stones](#) . That's because it lowers urate in your blood, but increases levels of urate in your urine.

If you take it, you need to make sure you drink plenty of fluids, about 2 to 3 litres a day. ^[51]

There are some other side effects you may get from taking this drug: ^[20]

- Stomach upset
- Needing to urinate often
- Headache
- Hot flushes
- Dizziness
- Hair loss (known as alopecia)
- Anaemia
- Sore gums
- Allergic reactions
- Liver or kidney problems
- Blood disorders.

Further informations:

Self-help during an attack of gout

Gout can be very painful. As well as taking the medicine prescribed by your doctor, there are a couple of other things you may want to try. These haven't been studied to the same scientific standards that we use to judge other treatments. (To learn more, see Our method.) But we wanted to cover them because you may find them useful.

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Using an ice pack

You can use a commercial ice pack or you can make an ice pack by wrapping a bag of frozen peas in a clean tea towel. You can put it around the joint that is painful. There's not much research on this, but one small study found it was helpful.^[19] The people in the study used the pack for half an hour at a time, four times a day.

Protecting your joint

You can use a device such as a cardboard box to make a protective cover for your affected joint, to keep the bedclothes off it at night. Just the weight of bedclothes can be painful when you have an attack of gout.

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.^[33]

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. People who have heart problems shouldn't take diclofenac.^[32]

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.^[34]

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.^[35]

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

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increase the risk of heart attacks and strokes if used regularly.^[36] However, there's probably much less of a risk if you're taking low doses for short periods of time.^[37]

You can also buy an NSAID called naproxen for treating period pain. You don't need a prescription to buy this drug. Naproxen doesn't seem to increase the risk of heart attacks or strokes.^[34] ^[36]

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 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.^[35]

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.^[34] 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.^[31] 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
- ibuprofen (Brufen)
- ketoprofen (Oruvail, Orudis)

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- mefenamic acid (Ponstan)
- naproxen (Naprosyn, Arthroxen)

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. ^[35]

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). It has issued a warning about diclofenac. ^[32] The MHRA says that people should not take diclofenac if they have serious heart conditions, such as heart failure, heart disease, 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. ^[35] 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. ^[35] Most studies so far seem to show that naproxen doesn't increase people's chances of getting a heart attack or a stroke. ^[34] ^[36] 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. ^[38]

Guidelines for doctors say that for most people, the benefits of these drugs outweigh the risks. ^[39] The risks are probably lower for people who only take NSAIDs for a short time or take smaller doses. ^[35]

Guidelines for doctors

Doctors have guidelines about how they should prescribe COX-2 inhibitors and other NSAIDs. They say that: ^[35]

- 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

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- 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.

Corticosteroids and side effects

If you take a higher doses of corticosteroids for a long time, you may have some of the following side effects: ^[43]

- High blood pressure
- Diabetes
- Weak bones that are more likely to break
- Stomach ulcers
- Obesity
- Increased body hair
- Eye problems, such as cataracts or glaucoma
- Problems with your adrenal glands. Your adrenal glands make hormones, including adrenaline
- A weaker immune system . This can mean you're at risk of illnesses such as chickenpox .

But these side effects aren't likely if you are taking a short course of these medicines for gout.

Glossary:

obesity

If your body stores more energy than you need, this can make you overweight. The excess energy is stored in your fat cells. If your weight goes above a certain level, doctors call this obesity. Obesity is considered a medical condition. The excess weight can be a strain on your bones and joints. And if you are obese, you're more likely to get other diseases. Doctors have developed a scale for telling how much excess weight you have. This measure, called the body mass index (BMI), depends on your height.

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high blood pressure

Your blood pressure is considered to be high when it is above the accepted normal range. The usual limit for normal blood pressure is 140/90. If either the first (systolic) number is above 140 or the lower (diastolic) number is above 90, a person is considered to have high blood pressure. Doctors sometimes call high blood pressure 'hypertension'.

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).

high cholesterol

If you've been told that you have high cholesterol it usually means that your total cholesterol level is 5mmol/l or higher. But doctors also look at the amount of good (HDL) and bad (LDL) cholesterol you have in your blood. Having high levels of bad cholesterol can make it more likely that you'll get certain diseases in your heart and arteries.

diuretics

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

heart failure

When the heart loses its ability to push enough blood through the blood vessels, it is called heart failure.

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.

ulcer

An ulcer is an open sore. Ulcers can happen in many parts of your body, such as in your stomach, and the skin of your legs, mouth, or genitals.

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.

acute myocardial infarction

Acute myocardial infarction is what doctors call a heart attack. A heart attack is when your heart muscle gets damaged because it isn't getting enough blood and oxygen. This can happen if a branch of your coronary arteries becomes 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.

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.

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.

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.

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.

cataract

A cataract is when your eye's lens, which is normally clear, gets cloudy. This makes your vision blurred or fuzzy, like trying to see through a fogged-up window.

glaucoma

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Glaucoma is a condition that affects the eyes. If you have glaucoma, your vision slowly gets worse. It happens when certain nerves in your head get damaged. These nerves carry images of what you see to your brain. Glaucoma is often caused by high pressure inside your eye.

adrenaline

Adrenaline is a chemical that makes your heart race and makes you feel alert. It is sometimes called the 'fight-or-flight' hormone.

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.

chickenpox

Chickenpox is a common childhood illness caused by a virus. It usually leads to a fever, tiredness and an itchy rash. The virus can easily spread from person to person, and people usually get it about two weeks after they were near someone with the illness. About two days before the rash starts, you can give the virus to others. Chickenpox clears up on its own in most children, but adults and some children may get complications such as pneumonia, kidney problems or heart problems. In the UK, people aren't usually immunised against chickenpox unless they have an immune disease (or another disease that would make infection dangerous for them).

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