

## Patient information from the BMJ Group

# Ankle sprain

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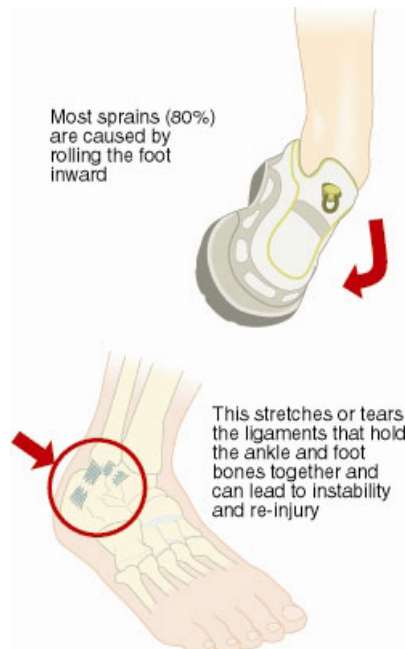
## Ankle sprain

A sprained ankle can be painful and swollen at first. You may find it hard to walk. But getting the right treatment quickly can mean you get back to normal quite soon.

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

## What is an ankle sprain?

A sprain damages the bands of tissue (known as **ligaments**) that connect your bones together at the ankle joint. Your sprained ankle might only be mild, or you could have a more serious injury.



Ankle sprains can stretch or tear ligaments.

Most ankle sprains happen when your foot suddenly twists inwards as you run, turn, or fall. You sometimes hear a pop or a tear.

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How bad your injury is depends on how much damage you've done to the ligaments around your ankle joint.

There are several ligaments in your ankle. You may have injured one or more of them. Your doctor may decide how seriously you've sprained your ankle using these different grades: <sup>[1]</sup>

- Grade 1 is a mild sprain when the ligaments have stretched too far
- Grade 2 is a moderate sprain when the ligaments are partly torn
- Grade 3 is a severe sprain when the ligaments are completely torn.

People who have a high-arched foot or bow legs are more at risk of spraining their ankle. You're also more likely to get a sprained ankle if you've had one before. You can also get an injury known as a **strain**. This is different to a sprain. A strain happens when you stretch or pull a muscle rather than a ligament.

### What are the symptoms of an ankle sprain?

Your sprained ankle will be painful, swollen, and probably bruised, and it may feel warm to touch. You might find it hard to move your foot, walk, or even stand at first.

Your symptoms will depend on how seriously you've sprained your ankle. <sup>[1]</sup>

- Grade 1 is a mild sprain. Pain, swelling, and bruising are usually slight. You can probably move your ankle joint and put weight on your foot.
- Grade 2 is a moderate sprain. Pain, swelling, and bruising are more serious. You may find it hard to move your ankle and put weight on it.
- Grade 3 is a severe sprain. Pain, swelling, and bruising are usually quite bad. You won't be able to put weight on the ankle joint.

You might have felt a pop or tear when you twisted your ankle. This could mean you've completely torn or ruptured the **ligaments**. This type of sprain is the most serious.

You should see a doctor if your ankle is very swollen and you find it hard to stand. You should also ask for advice if you aren't sure how serious the injury is, or need to know how to care for it. Your doctor may gently feel how tender your bone is and see if you can walk four steps. This is to decide if you need an **X-ray** to check whether you've fractured a bone. <sup>[2]</sup>

You need to start treatment, known as **RICE**, as soon as possible to bring the swelling down. RICE stands for [rest, ice, compression, and elevation](#). The pain and swelling of a mild sprain should start to get better after a couple of days. If you have a more serious sprain, your swollen ankle can take a week or longer to settle. If your sprain is moderate

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or severe, you should see your doctor again after about a week to discuss further treatment. <sup>[3]</sup>

### How common are ankle sprains?

A sprained ankle is the most common type of ankle injury.

About 1 in 10,000 people sprain their ankle every day. <sup>[4]</sup>

A quarter of all sports injuries are sprained ankles. A lot of ankle injuries happen in basketball, football, and volleyball. <sup>[5]</sup>

### What treatments work for an ankle sprain?

The treatments for a sprained ankle work well.

What you need to do depends on how serious your sprain is.

- The first thing to do is called RICE. This stands for [rest, ice, compression, and elevation](#) . It helps to bring down the swelling and reduce pain. The sooner you do this, the better.
- Taking a painkiller, such as aspirin, paracetamol, or ibuprofen, may also help at first.
- Moving around early with your ankle bandaged, strapped up, or supported can help you recover more quickly.
- If you still have a weak and sometimes painful ankle after treatment, you may need surgery to repair it.

Which treatments work best? We've looked at the best research and given a rating for each treatment according to how well it works.

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

## Treatment Group 1

### Treatments for ankle sprain

#### First aid

- [RICE \(rest, ice, compression, and elevation\)](#)

#### Treatments that work

- [Moving around early, with an ankle support](#)

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

### Treatments that work, but whose harms may outweigh benefits

- [Surgery](#)

### Treatments that need further study

- [Deep heat using electrodes \(diathermy\)](#)
- [Physiotherapy](#)
- [Homeopathic cream](#)
- [Cold treatment](#)

### Treatments that are unlikely to work

- [Ultrasound](#)

### Other treatments

We haven't looked at the research on these treatments in the same detail we have for most of the treatments we cover. (To read more, see Our method.) But we've included some information because you may have heard of them or be interested in them.

- [Rubefacients \(creams that warm the skin\)](#)
- [Neuromuscular training](#)

## What will happen to me?

You're likely to make a good recovery even if the sprain is severe. But your ankle will take longer to get better if your injury is more serious.

What happens depends on how bad your sprain is. <sup>[3]</sup>

- After a mild sprain, you will probably be back to normal within three to six weeks.
- After a moderate sprain, you will probably be back to normal within two to three months.
- After a severe sprain, it can take much longer to get better. You may need eight to 12 months before you are back to normal.

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- You may be left with some pain, stiffness, and swelling, or feel unstable on your foot.

Pain is the most common long-term problem, with up to 1 in 3 people still having some pain after one year.<sup>[6]</sup> <sup>[7]</sup> If your ankle injury damaged a lot of **cartilage**, you're more likely to have problems.<sup>[6]</sup> Cartilage is the material that makes the ends of your bones smooth so that they can move easily against each other. Each time you sprain your ankle, you risk adding more damage. If your ankle pain doesn't go away, it's probably because of damage to the cartilage. You may need surgery to repair it.

Up to 1 in 3 people sprain their ankle again within three years.<sup>[7]</sup> It's important to take steps to avoid this, particularly in the first six weeks after your injury. You need to strap up your ankle so it can't twist. There's also good research that shows that wearing an ankle support for sport reduces your risk of another ankle sprain.<sup>[8]</sup>

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### Treatments:

#### **RICE (rest, ice, compression, and elevation)**

In this section

[RICE \(rest, ice, compression, and elevation\)](#)

#### **RICE (rest, ice, compression, and elevation)**

RICE is what you should do as soon as you sprain your ankle. It helps to reduce the swelling and pain.<sup>[3]</sup> The sooner you start RICE the better.

RICE stands for rest, ice, compression, and elevation. You should keep doing this for the first couple of days if you have a mild sprain. But if your sprain is more serious you may need to continue with RICE for five to seven days for the swelling to go down.

- **Rest:** You should take it easy. You should rest and protect your ankle with a bandage or support for the first 48 hours. If your sprain is more serious, you might not be able to put weight on your ankle at all for a while, and need to rest it for longer.
- **Ice:** Apply an ice pack to your ankle for up to 20 minutes at a time, four to eight times a day. A bag of frozen peas or a bag full of ice wrapped in a towel will do. Don't put ice directly on your skin.
- **Compression:** Putting on an elastic bandage can reduce swelling. You should ask your doctor or nurse what sort of compression bandage to use and how tightly to apply it. Take care not to stop the blood flow. You should loosen the bandage if the area becomes blue or painful. You should stop compression after 48 hours.
- **Elevation:** Put your injured ankle up above the level of your heart, if you can. This will help reduce swelling.

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You might also want to take something for the pain, such as aspirin, ibuprofen, or paracetamol. Aspirin and ibuprofen reduce inflammation as well as pain, so you might want to try one of these first. However, aspirin isn't usually recommended for children under 16 years old. It can cause a dangerous problem called Reye's syndrome (this condition affects the brain and the liver).

If you take ibuprofen or aspirin regularly, they can irritate your stomach or cause stomach ulcers.<sup>[9]</sup> But it shouldn't be a problem if you're only taking these drugs for three or four days.

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### Moving around early, with an ankle support

In this section

You need to take it easy for the first few days. This is part of **RICE**, which stands for [rest, ice, compression, and elevation](#). But when the worst of the pain and swelling have gone, you should start getting up and about.

If your ankle **ligaments** are torn, your ankle needs to be properly supported by an elastic bandage, an ankle support, or tape. This is to make sure you don't twist it again. Your doctor will be able to check whether you've ruptured any ligaments after five to seven days, when most of the swelling has gone.

You shouldn't move so much that it hurts a lot. Try doing a little bit more each day.

Getting moving early on with an ankle support should help you get back to normal faster than resting with your foot in a plaster cast.<sup>[10]</sup> And your ankle will probably be less swollen.<sup>[10]</sup> Your ankle is less likely to give way again in future if you use an ankle support and start moving around early on.<sup>[11]</sup> You should also have less long-term pain and stiffness and feel more stable on your feet.<sup>[12] [13]</sup>

The research shows that it doesn't seem to make much difference whether you have an elastic bandage, tape, a lace-up support, or a stiffer ankle support.<sup>[14] [15] [16] [17] [18]</sup>

But for very badly sprained ankles, putting the ankle in plaster may speed recovery.<sup>[19]</sup> We found a study of 584 people who went to accident and emergency departments with badly sprained ankles. They couldn't put any weight on their ankle for three days or more after their injury.

The study found that people who had a plaster cast below the knee had less pain and could use their ankle more, compared with people who had other forms of ankle support. The other supports used in the study were a Bledsoe boot, an Aircast brace, and a tubular bandage. However, the difference between the treatments was small, and only lasted for the first three months. After nine months, people did equally well, whatever treatment they'd had.

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You're more likely to get an allergic reaction or skin rash if you use tape rather than an elastic bandage.<sup>[20]</sup> Keeping your foot still in plaster increases your risk of **deep vein thrombosis** (getting a blood clot).<sup>[21] [22]</sup>

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### Nonsteroidal anti-inflammatory drugs (NSAIDs)

In this section

Nonsteroidal anti-inflammatory drugs (NSAIDs) are widely used painkillers that also reduce levels of inflammation. They can reduce pain and may allow you to use your ankle more when you have a sprain. You need a prescription for most NSAIDs, but some such as ibuprofen and diclofenac are available over the counter from pharmacies.

We found a summary of studies of the effects of NSAIDs (such as ibuprofen) after a sprained ankle. The summary (a **systematic review**) found strong evidence that NSAIDs reduce pain and, in the short term, help people move around on their ankle.<sup>[23]</sup>

NSAIDs can have side effects. They can upset the stomach and give you stomach pain, sickness, or **diarrhoea**. Taking them with food may reduce this problem.

They can also cause more serious effects, increasing the risk of an ulcer or bleeding in your stomach and parts of the small intestine. There are treatments that can protect your gut if you are taking NSAIDs in the long term.

Taking high doses of NSAIDs every day for a long time may increase your risk of a heart attack or stroke. But if you have a short-term sprained ankle and aren't taking them for very long, you're unlikely to have a problem. People who have heart problems should not take diclofenac.<sup>[24]</sup>

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### Surgery

In this section

An operation can repair the torn **ligaments** in your ankle. Most people won't need an operation, because having an **ankle support** and moving around works just as well.<sup>[21]</sup>

Surgery has risks. There's a chance the nerves in your foot could get damaged. There's also a risk of an infection, bleeding, or **osteoarthritis**.<sup>[22] [25] [26]</sup>

Some people still have a weak and painful ankle some time after their injury, especially after a bad sprain. If you are in pain and your ankle keeps giving way after six months, surgery to repair the torn ligaments can probably help. It's usually best to start moving around soon after this surgery rather than resting your ankle for several weeks.<sup>[27]</sup> This can help you return to work and sport sooner.

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### Deep heat using electrodes (diathermy)

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In this section

Physiotherapists sometimes use diathermy to 'deep heat' a swollen ankle with electromagnetic energy. But we don't know if this treatment really reduces swelling.<sup>[28]</sup> There hasn't been enough research to tell us.

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## Physiotherapy

In this section

Physiotherapists use a variety of treatments for ankle sprains, including heat, ultrasound, and exercises. The exercises are aimed at increasing your flexibility and the strength of your muscles.

One small study compared standard physiotherapy with physiotherapy plus a balance exercise.<sup>[29]</sup> In the balance exercise, people practised standing on one leg while pointing the other leg in front, behind, and to the side. The balance exercise seemed to help a bit more than physiotherapy alone. But there's not enough research to say whether physiotherapy alone is helpful.

It's best to ask your doctor or physiotherapist before trying exercises for a sprained ankle. If you try balancing on a sprained ankle too soon, you might cause more damage.

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## Homeopathic cream

In this section

Gently rubbing arnica cream over your sprained ankle might make it less bruised and swollen. One small study (a randomised controlled trial) looked at this homeopathic treatment for a sprained ankle. It found that arnica worked better than a dummy treatment (a placebo).<sup>[30]</sup> But this study was too small to give reliable results.

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## Cold treatment

In this section

Putting ice on your swollen ankle as part of RICE can help at first. But there's no research to say that continuing to put a cold pack on your ankle will make any difference in the long term.<sup>[28]</sup>

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## Ultrasound

In this section

Ultrasound, which uses high-frequency sound pulses, probably doesn't help ankle sprains heal.<sup>[31]</sup> It is sometimes used by physiotherapists treating severe ankle sprains, to warm up the soft tissue in the foot. But ultrasound therapy doesn't seem to make pain or swelling



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go down any quicker, or help people stand on their foot. Your ankle will be just as able to bear weight after a week if you don't have ultrasound treatment.

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### Rubefacients (creams that warm the skin)

In this section

Rubefacients are creams that irritate the skin, causing a hot sensation. You can buy them in pharmacies, and doctors sometimes prescribe them. Brand names include Deep Heat and Radian B.

We found a summary of seven small studies looking at short-term pain.<sup>[32]</sup> The summary found that rubefacient creams were no better at relieving pain than creams that contained no active ingredients ( placebos ).

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### Neuromuscular training

In this section

Neuromuscular training is popular among some athletes. It aims to focus on the individual nerves and muscles you need for a particular physical activity.

There is some evidence that neuromuscular training can reduce the instability of an ankle joint after a sprain, and reduce the risk of re-injury.<sup>[23]</sup> It is not clear what this means for people who are not athletes in training.

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### Further informations:

#### Glossary:

##### ligament

A ligament is a strong piece of tissue that connects one bone to another. For example, ligaments in your ankle connect the bones of your leg to the bones of your heel.

##### 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.

##### 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.

##### 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.

##### 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.

##### diarrhoea

Diarrhoea is when you have loose, watery stools and you need to go to the toilet far more often than usual. Doctors say you have diarrhoea if you need to go to the toilet more than three times a day.

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## physiotherapist

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

## ultrasound

Ultrasound is a tool doctors use to create images of the inside of your body. An ultrasound machine sends out high-frequency sound waves, which are directed at an area of your body. The waves reflect off parts of your body to create a picture. Ultrasound is often used to see a developing baby inside a woman's womb.

## 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.

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