

## Patient information from the BMJ Group

# Varicose veins

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## Varicose veins

Many people have varicose veins. Varicose veins don't usually cause any serious problems, but they can ache and cause other symptoms such as itching and throbbing. And you may not like the way they look.

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

## What are varicose veins?

Varicose veins are veins that are swollen because blood isn't flowing through them properly. Varicose veins are very common. If you have varicose veins on your legs, you can usually see them bulging and blue through your skin. Varicose veins don't often cause any serious problems. But they can make your legs ache, and many people are unhappy with how they look.

Varicose veins won't usually go away on their own. But if they're causing you problems, there are treatments that can help your legs look and feel much better. Some treatments have side effects, so you need to consider the pros and cons when deciding which treatment is right for you.

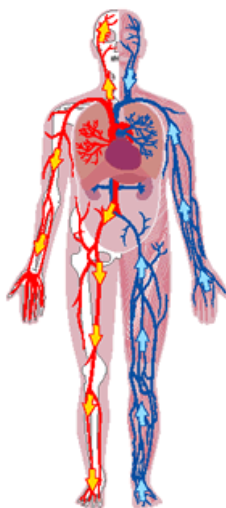
## Key points for people with varicose veins

- Lots of people get varicose veins.
- You get varicose veins when the valves in some veins don't work properly. So blood collects in these veins instead of flowing up your leg.
- Varicose veins will slowly get worse if they aren't treated.
- You can have varicose veins removed by surgery or you can have injections that make the veins disappear. Doctors usually use injections for smaller varicose veins and to get rid of any remaining veins after you've had surgery.

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- Your varicose veins can come back after you've had treatment and you may get new ones. Having surgery seems to keep people's legs free of varicose veins for longer than injections, but surgery may have more risks.
- There are some things you can try yourself to help with symptoms such as aching and swelling. You could try eating a healthy diet, doing some exercise, or keeping your feet raised when you're resting. To read more, see [Self-help for varicose veins](#).

## You and your veins



Arteries (in red) carry blood away from your heart. Veins (in blue) carry blood to your heart.

**Veins** are the tubes (or blood vessels) that carry blood to your heart. Other tubes called **arteries** carry blood from your heart to all round your body.

Blood enters your veins once it has distributed oxygen and food to cells in your body. The blood in your veins looks blue through your skin because it doesn't have oxygen in it.

Veins are stretchy. Usually, they expand and tighten to let different amounts of blood pass through them. The walls of veins have a smooth inner lining.

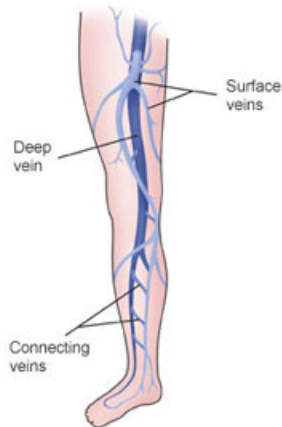
You have three sets of veins in your legs: deep veins, surface veins, and connecting veins. Once your blood has delivered oxygen and food to the cells in your legs, it collects in your surface veins. Then the blood flows through your connecting veins into your deep veins and goes back to your heart. <sup>[1]</sup>

### Deep veins

Deep veins are the largest veins. You can't see them because they run deep within and between the muscles inside your legs.

# Varicose veins

## Surface veins



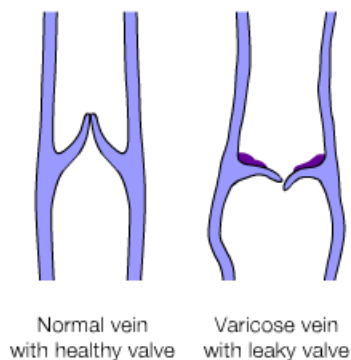
Surface veins are just under your skin and join up with your deep veins through connecting veins.

Surface veins are just under your skin. You can probably see them, especially when your legs get hot (for example, when the weather's warm or you've just had a bath). These are the veins that may become varicose. You have two main surface veins in each leg. One runs the full length of your inside leg from your ankle to your groin. The other surface vein runs up the back of your leg from your ankle to just past your knee. Blood flows from these veins into deep veins via the connecting veins.

## Connecting veins

Connecting veins are small veins that join your surface veins to your deep veins. There are lots of them.

## Valves



If the valves in your veins don't work properly, you may get varicose veins.

Most veins have a system of valves that help push blood back to your heart. This is because, except for when you are lying down, the blood from the lower half of your body has to flow back towards your heart against gravity.

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One-way valves in the walls of your veins make sure blood flows only towards your heart. When blood flows through a valve, the valve closes to stop the blood flowing backwards.

The muscles in your legs also help pump blood up towards your heart. When you stand, walk, or make other movements, your muscles tighten and squeeze blood in the veins upwards, against gravity.

### What happens with varicose veins

You get varicose veins when the **valves** that normally keep blood flowing up through your legs don't work properly. This means that blood flows back down the vein instead of getting pushed up towards your heart. Blood then pools in the vein, which makes the vein bulge.



Varicose veins bulge under the skin, looking lumpy and twisted.

Doctors don't really know why your valves stop working properly. It may start with a weakness in the valve or a weakness in the wall of the vein. If the wall is weak, your vein overstretches. This means the valve can't close properly. [\[2\]](#) [\[3\]](#) [\[4\]](#) [\[5\]](#)

The most common places where valves stop working properly are:

- Behind your knee, where a shorter surface vein meets a deep vein
- In any of the small veins connecting surface veins to deep veins
- In your groin, where a main surface vein meets a deep vein. If a valve goes wrong here, the varicose vein is likely to be worse than if a valve doesn't work somewhere else.

Varicose veins affect your surface veins. This is why you can see them through your skin. The surface veins usually affected are the two main ones (see above). Varicose

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veins often appear on the backs of your calves, or on the inside of your leg, anywhere from your groin to your ankle.

Varicose veins appear mainly on your legs. But you can have similar problems with bulging veins in and around your anus where they form **haemorrhoids**. If you're a man you may also get varicose veins in your **scrotum**. This is the pouch that hangs behind your penis and holds your testicles. Doctors call varicose veins in your scrotum a [varicocele](#). Here, we only look at treatments for varicose veins in your legs.

### Are they dangerous?

Varicose veins don't look nice, but:

- They don't often cause serious health problems
- They don't stop blood getting back to your heart.

There are many veins that take blood from the surface of your legs to the deeper veins. So if one vein doesn't work properly, lots of other veins can bring the blood back to your heart. <sup>[2]</sup>

A few people get varicose veins as a result of problems in their deep veins. See [More serious problems in your veins](#).

### Varicose veins: why me?

Certain things make it more likely that you'll have varicose veins. These are called **risk factors**.

You may be more likely to have varicose veins if you're a woman and you are pregnant or overweight. Your family history also may be important, but researchers aren't sure.

Keep in mind that even if you have a risk factor, that doesn't mean you will get varicose veins.

Researchers aren't certain why some men are more likely to get varicose veins.

### Pregnancy

About 4 in 100 to 6 in 100 pregnant women get varicose veins. <sup>[6]</sup> And many women get varicose veins for the first time when they're pregnant. If you're pregnant and you already have varicose veins, these veins may get worse as your pregnancy continues.

There are probably lots of reasons for this.

- Your enlarged womb and your baby (particularly your baby's head during the later stages of pregnancy) put pressure on the veins in your **pelvis**. This makes it more difficult for blood to get from your legs to your heart.

## Varicose veins

- Changes in **hormones** during pregnancy may make the walls of your veins more likely to stretch.
- The amount of blood in your body increases during pregnancy. This puts more pressure on the veins in your legs.

If you've had two or more pregnancies, you're more likely to get varicose veins than women who have had just one. <sup>[6]</sup> <sup>[7]</sup>

Varicose veins do tend to go down and may even disappear after your baby is born. <sup>[8]</sup> If you're pregnant, there are things you can do that may help your varicose veins. To read more, see [Self-help for varicose veins](#) .

### Being overweight

If you are overweight or **obese** , you are more likely to get varicose veins than people who are a healthy weight. <sup>[6]</sup> <sup>[9]</sup>

You can find out whether you are overweight or obese by working out your body mass index (or BMI for short). Your BMI is a single number that's worked out from your height and weight. You can [work out your own BMI](#) .

This table shows what the different BMI scores mean.

BMI	What it means
Less than 18.5	Underweight
18.5 to 24.9	Healthy weight
25 to 29.9	Overweight
30 or more	Obese

One study found that women who were overweight were more likely to get varicose veins than women who were lighter. <sup>[7]</sup> Over a two-year period, nearly 8 in 100 women who were overweight got varicose veins compared with only 6 in 100 women at a healthy weight.

The same study also found that overweight or obese men had a higher chance of getting varicose veins than men at a healthy weight. But this difference in risk was small, and may have been just due to chance.

### Other possible risk factors

#### Family history

You may be more likely to get varicose veins if one or both of your parents have them, although we don't know for certain. <sup>[10]</sup> One study found that: <sup>[11]</sup>

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- If both your parents have varicose veins, you have a 90 in 100 chance of getting them
- If one of your parents has varicose veins, you have a 25 in 100 chance of getting them if you're a man, and a 65 in 100 chance if you're a woman
- If neither of your parents has varicose veins, you still have a 20 in 100 chance of getting them.

The following things also have been linked to varicose veins.

- Crossing your legs a lot.
- Standing up a lot. Standing a lot may be a risk factor for getting varicose veins. One study showed that people who have to stand or walk a lot at work are more likely to need treatment for varicose veins. <sup>[12]</sup>
- Sitting down a lot.
- Being constipated often. Straining to pass bowel movements has been linked to getting varicose veins.
- Being tall. <sup>[6]</sup> <sup>[9]</sup>
- Wearing tight underwear.
- Having a deep vein thrombosis. This happens when a blood clot forms in a deep vein in your leg. Deep vein thrombosis can be dangerous. People who're more likely to get this type of blood clot may also have a bigger chance of getting varicose veins. <sup>[13]</sup> But if you have varicose veins, it doesn't mean you're more likely to get a deep vein thrombosis.

One study found that women who were taking hormone replacement therapy (HRT) were less likely to get varicose veins. <sup>[9]</sup>

### What are the symptoms of varicose veins?

If you have varicose veins, you will be able to see them. They will bulge beneath your skin, looking lumpy and twisted. They may also ache and throb.

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## How they look



Varicose veins bulge under the skin, looking lumpy and twisted.

Varicose veins look like twisted cords that run along your leg. There may be bulges in the vein, and these can stick out from the surface of your skin. The place where blood is pooling in the vein often looks and feels lumpy.

Varicose is the Greek word for 'grape-like', which is how varicose veins often appear.

If you have varicose veins, you may be unhappy with the way they look. The most common complaint people make about varicose veins is their appearance.<sup>[14]</sup> You may avoid wearing certain clothes or doing activities like swimming and other sports where your legs are showing.

Not all veins that show through your skin are varicose veins. Some people just have more visible veins than other people do. But if a vein feels lumpy, it's more likely to be a varicose vein.

In some people, you can't see their varicose veins. This might happen if you are **obese** or if you tend to get a lot of swelling in your legs.<sup>[14]</sup>

You may have small clusters of veins on your skin that you can see but not feel. These are called **spider** or **thread veins**.<sup>[14]</sup> They tend to appear as fairly small patches on the legs or face and can be red or blue. They don't bulge underneath the surface of the skin like varicose veins do.<sup>[15]</sup>

Spider or thread veins are harmless. You get them when the walls of the small veins just beneath the surface of the skin get overstretched.<sup>[15]</sup> Because they are filled with more blood than usual, these veins become visible.<sup>[15]</sup> Sometimes they ache.



# Varicose veins

## How they feel

You may not have any other problems with your varicose veins, apart from the fact you can see them. But some people say their legs feel uncomfortable. Your legs may feel: <sup>[2]</sup>

- Achy (some people get quite severe aching and this can be made worse by standing for a long time)
- Swollen
- Cramped
- Heavy, tense, or tired
- Restless
- Itchy
- Tingly.

You also may get a throbbing feeling in your legs.

You may not have all these symptoms at once. Hot weather and standing for long periods of time can make your veins more uncomfortable and may also make them look worse.

Lots of people get aching in their lower legs. This isn't always caused by varicose veins. The symptoms may be from a problem in a deeper vein or may be caused by tired muscles. So treatment to get rid of the veins may not get rid of the aches. <sup>[16]</sup>

If you're a woman, your varicose veins may hurt more before your period. This happens to about one third of women who have varicose veins. <sup>[17]</sup> This is probably because of changes in **hormones** during this time, which can affect the stretchiness of the veins. Also, some women say their varicose veins feel worse after having sex. <sup>[17]</sup>

The symptoms of varicose veins do not get worse quickly. It happens gradually over time, usually over many years. There are things you can try to relieve the symptoms of varicose veins. To read more, see [Self-help for varicose veins](#) .

## How do doctors diagnose varicose veins?

Most varicose veins don't cause medical problems. But you may decide to go to your doctor because your veins are hurting or you're unhappy with how they look.

Your doctor will ask you questions and may do some tests to find out the following:

- Whether you have varicose veins

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- Which veins are affected and how badly
- Whether the veins are likely to cause other problems
- Whether the varicose veins are due to a problem in your deep veins. (See [More serious problems in your veins](#) .)

But bear in mind that most people's varicose veins are not caused by problems in their deep veins. A visit to the doctor and an examination may be all that you'll need to be diagnosed.

### Examining your legs

Your doctor will look at the pattern of veins in your legs, usually with you standing up. They may press the veins you are concerned about to see whether they are lumpy.

There are other simple tests that you might have done. These tests can help your doctor find out which of the valves in your veins are not working properly and where the blood is pooling.

- Your doctor may check that your ankle joints are moving well. These need to be working properly to help your calf muscles pump blood upwards. <sup>[17]</sup>
- Your doctor may look at your abdomen to check for any problems that might stop your blood flowing upwards. If you have this type of problem, the pressure of blood in your legs builds up and the valves in the veins may leak, causing blood to pool.
- Your doctor may also look for changes to the skin near your varicose veins. You might, for example, have an itchy rash. Skin changes like this could put you at risk of open sores on your skin (ulcers). <sup>[2]</sup>
- Your doctor may also look for signs that you may have a problem in your deeper veins, such as brown patches on the skin. <sup>[17]</sup>
- You might be asked to lie down with one leg raised. The doctor will wrap a cuff around your upper thigh to briefly reduce the blood flow in your leg. You'll be asked to stand and then the cuff will be taken off. The faulty area of the vein is the part that bulges. <sup>[17]</sup> But this test isn't used much any more.

### Questions your doctor may ask

Your doctor may ask you if you have **diabetes** . This condition can make problems with blood flow more likely.

Your doctor will also want to know if you or anyone in your close family has ever had **deep vein thrombosis** (DVT). This is when a **blood clot** forms in one of your deep veins.

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It might signal more serious problems. Also, if you've had a clot in the past, you may have a higher risk of getting another clot if you have [surgery for varicose veins](#).<sup>[2]</sup>

If you are a woman, your doctor may also check to see if you are taking the contraceptive pill or [hormone replacement therapy \(HRT\)](#). Women on the pill or taking HRT may have a higher chance of having DVT if they have surgery for varicose veins.<sup>[2]</sup>

Your doctor may also ask these questions about your symptoms:

- How long have your veins been giving you problems?
- What sort of discomfort, if any, do your veins cause? Is the discomfort worse when you stand, exercise, or do anything else?
- Do you worry about how your veins look?
- Do these veins come and go, or are they there all the time?

### Seeing a specialist

Your GP may decide you need to see a doctor specialising in varicose veins. A specialist can do tests to find out more about your veins and may also talk to you about what treatments you could have.

Not everyone with varicose veins gets referred to a specialist. It depends on how bad your veins are and what problems they are giving you. If your varicose veins do not cause you any problems apart from their appearance, your GP may not think you need to see a specialist.

The National Institute for Health and Care Excellence (NICE), the government body that advises doctors about which treatments should be available on the NHS, has published guidance on when people with varicose veins should be sent to a specialist.<sup>[21]</sup> To learn more, see [Seeing a specialist](#).

### Further tests

There are some other tests that specialists use to find out more about your varicose veins. They are called **Doppler ultrasound**, **duplex ultrasound**, and **venogram**. To learn more, see [Tests for varicose veins](#).

### How common are varicose veins?

Varicose veins are very common.

- In the UK, up to 33 in 100 adults under 65 have some signs of varicose veins.<sup>[18]</sup>
- Varicose veins seem to be more common in women than men. Between 20 and 30 in 100 women get varicose veins, compared with between 10 and 30 in 100 men.

## Varicose veins

<sup>[13]</sup> A study in Scotland found that men were slightly more likely than women to have varicose veins in the main surface veins of their legs. <sup>[18]</sup> To learn more about the types of veins, see [What are varicose veins?](#)

- Older people are more likely to have varicose veins than younger people. But you can still get varicose veins when you are young. Around 20 in 100 women in their 30s have varicose veins, but only 3 in 100 men of the same age do. <sup>[13]</sup>

### What treatments work for varicose veins?

Varicose veins don't often cause any serious problems. But they can make your legs ache and cause other symptoms. Also, many people are unhappy with how they look.

Varicose veins don't usually go away on their own. If they are causing you problems, treatments can help your legs look and feel much better. Treatments have side effects, though, so you need to weigh up the pros and cons when deciding what's best for you.

### Key points about treating varicose veins

- Surgery to get rid of your varicose veins can make your legs look better and help symptoms such as aching and heaviness. But it does have risks.
- Injections to get rid of smaller varicose veins may make your legs look better and help symptoms such as aching. But there isn't enough research to say how well injections work or how long any improvements last. Also, these injections can discolour your skin.
- There hasn't been any good research to tell us whether wearing support stockings can help swelling and aching legs and stop your varicose veins getting worse.
- Radiofrequency ablation is a newer treatment that may work as well as surgery in the short term. But there hasn't been much good-quality research on how long the results last.
- Laser treatment is a newer treatment that may work as well as surgery in the short term. But there hasn't been much good-quality research on how long the results last.
- Your varicose veins can come back after treatment or you may get new ones. This is more likely to happen if you have injections than if you have surgery. Many people who have injections need more treatment within five years.
- Not everyone with varicose veins will be offered treatment by the NHS. If your veins aren't giving you too much trouble, your doctor may simply give you advice about how best to keep symptoms at bay, such as keeping your legs up and, if necessary, losing weight. To learn more, see [Self-help for varicose veins](#) .

## Varicose veins

- There are national guidelines on when patients with varicose veins should be sent to a specialist for more tests and possible treatment. To find out more, read [Seeing a specialist](#) .

Which treatments work best? We've looked at the best research and put the treatments into two categories: treatments that are likely to work and treatments that need further study.

### Treatment Group 1

#### Treatments for varicose veins

The information here covers treatments for varicose veins that occur in the **surface veins** of your legs. It doesn't cover treatments for serious problems in **deep veins** (see [More serious problems in your veins](#) ) or for problems that are caused by varicose veins, such as leg ulcers (see [What will happen to me?](#) ).

And we haven't looked at treatments for **thread or spider veins** (these are small red or blue veins that show through the surface of your skin but don't bulge like varicose veins).

#### Treatments that are likely to work

- [Surgery](#) : You can have surgery to remove your varicose veins. It can improve how your legs look and may help ease painful symptoms. [More ...](#)
- [Injections](#) : Injecting a chemical into a varicose vein and then bandaging it tightly blocks off the vein. This may improve the way your legs look. But injections aren't suitable for all varicose veins. [More...](#)

#### Treatments that need further study

- [Self-help for varicose veins](#) : Doctors sometimes recommend self-help methods to prevent or treat varicose veins. Your doctor might suggest you keep your feet raised when you're resting, for example. [More...](#)
- [Support stockings](#) : These are strong elastic stockings that you wear to support your varicose veins and improve the blood flow in your legs. [More...](#)
- [Radiofrequency ablation](#) : Doctors can close veins with heat (a technique called radiofrequency ablation). [More...](#)
- [Laser treatment](#) : Doctors can close veins with a laser. [More...](#)

### What will happen to me?

Without treatment, varicose veins tend to get worse over the years. But this usually happens very slowly. You may also get more varicose veins in your legs over time.

## Varicose veins

Varicose veins don't usually disappear on their own. But if you're a woman and you get varicose veins while you're pregnant, they may go away after you have your baby. <sup>[19]</sup>

### Problems related to varicose veins (complications)

Varicose veins don't often cause any serious medical problems. <sup>[20]</sup> But a few people with varicose veins do get complications. This is much more likely to happen if you have problems in your deep veins. See [More serious problems in your veins](#) .

We've listed the complications you might get if you have varicose veins. There are things you can try to keep some problems at bay, but there's no evidence that they work. To read more, see [Self-help for varicose veins](#) .

### Skin problems

About 6 in 100 people with varicose veins have skin problems around their veins. <sup>[13]</sup> This happens because the high pressure of blood pooling in the veins damages your skin. These skin problems include:

- Changes in skin colour (you may get brown, blotchy patches on your legs and ankles)
- A scaly, dry rash, similar to **eczema**
- Itchy skin
- Thin, papery skin that is easily bruised.

If you do have skin problems, you should:

- Take care to avoid injuries to the area
- Avoid bandages or plasters that stick to your skin
- Use plain moisturisers on dry skin
- Avoid skin products with perfume (some people have a reaction to the perfume).

### Bleeding

Knocking or bumping a varicose vein can be painful. If the bump is hard enough, the vein may bleed. The bleeding may be on your skin or under your skin, which can cause a bruise. Occasionally, the vein may bleed even without being injured.

Some people keep bleeding from their varicose veins. You have a higher chance of this if the pressure in your veins is high. This is called **severe venous hypertension** (see [More serious problems in your veins](#) ). Sometimes, but not often, this bleeding can result in severe blood loss.

## Varicose veins

You can stop most bleeding by lying down and raising your leg above the level of your heart. You then apply pressure to the injury. It's very rare for the bleeding not to stop, but if you are worried about a vein that seems to be bleeding, see your doctor. <sup>[2]</sup>

### Ulcers

An ulcer is an open sore that can form on your skin over a varicose vein. An ulcer can be painful and slow to heal. There is also the risk of it getting infected.

Ulcers are not common in people under age 60. <sup>[13]</sup> And not all ulcers on the legs are linked to varicose veins.

If you have an ulcer, see your doctor at once. You'll need to have it dressed with special bandages and you should keep your leg up when sitting.

### Inflammation

You may get small **clots** in the blood that pools in your varicose veins, especially after bumping your vein. This can make the vein painful and **inflamed**. Doctors call this **thrombophlebitis**. It is a common problem related to varicose veins. The area around your vein may feel tender, red, and hot. You may also feel feverish and unwell.

If you think your vein is inflamed, see your doctor. You may need treatment to dissolve the clot or to prevent a new clot forming. Your doctor may also prescribe painkillers and **antibiotics** if there is an infection. And you may need medicine to help reduce the inflammation.

This type of clot, unlike one in a deep vein, is unlikely to travel anywhere else in the body and cause problems. It is uncomfortable rather than dangerous. <sup>[20]</sup>

### Am I at risk of deep vein thrombosis?

Many people worry they will get **deep vein thrombosis** (DVT for short) because of their varicose veins. DVT is when you get a blood clot in a vein in one of your legs. Part of the clot can break off, travel in the blood, and block a blood vessel in your lungs or heart. This is called a **pulmonary embolism**. It is dangerous.

You can get varicose veins after having DVT. But there is no evidence from good studies that having varicose veins leads to DVT. <sup>[2]</sup>

To learn more about DVT, see [More serious problems in your veins](#).

### Questions to ask your doctor

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

Here are some questions that you might want to ask.

- Which veins in my legs are causing the problem? Where are they?

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- Will my varicose veins get worse?
- What might have caused my varicose veins?
- Will my varicose veins cause medical problems? How likely is this?
- Are my deep veins healthy?
- Do I need to see a specialist?
- What treatment choices do I have?
- Will treatment make my varicose veins go away?
- Will treatment ease my tired, aching legs?
- Will my veins come back after treatment? How likely is this? How soon will they come back?
- Will I get other varicose veins?
- What are the risks of [injections](#) for varicose veins?
- What are the risks of [surgery](#) ?
- If I choose surgery, how will the doctor do the operation?
- Will it hurt?
- Will I need to take time off work?

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## Treatments:

### Surgery

In this section

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[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

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

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



## Varicose veins

### Does it work?

Yes. If you have varicose veins, having surgery to remove them will probably make your legs look much better and help symptoms like aches, heaviness, cramps, and itching.

Bear in mind that your varicose veins may come back after surgery, and you may get new ones. This is less likely to happen after surgery than after [injections](#) . But surgery has more risks than injections.

### What is it?

If you have this treatment, your varicose veins will be removed in an operation. Your doctor may recommend that you have an operation if you have large varicose veins or veins that are causing problems, such as pain or sores on your legs (ulcers). We've prepared some extra information for people thinking of having surgery. To read more, see [Surgery to remove varicose veins](#).

There are several different ways to remove varicose veins.

#### Tying off and stripping the vein

This is the most common operation. It involves tying off and stripping the main surface vein that runs up the inside of your leg. Doctors call this operation **ligation and stripping**.

During this operation, doctors make one cut along the crease in your **groin** , and one cut lower down your leg, usually on the inside of your knee. If you're having the whole vein removed, the lower cut is made at your ankle. Doctors then tie off (**ligate**) the main surface vein that runs from your ankle to your thigh. This cuts off its blood supply. Then the vein is pulled out through the lower cut (**stripped**).

The surgeon will usually remove only the part of the vein between your groin and your knee. Sometimes, the whole vein is taken out from between your groin to your ankle. But that doesn't happen so often. Alternatively, the surgeon may tie off your vein but not remove it. The vein is left in your leg, but it doesn't bulge because blood can't flow through it.

Sometimes, the surgeon doesn't pull out the vein through a cut that is lower down your leg. Instead, the surgeon makes only one cut at the top of your leg and removes the vein through that cut. This is called **inversion stripping**, because as the vein comes out it turns inside out (inverts). Because there is only one cut with this operation, it should be less painful than the standard operation to tie off and strip your vein. And, if you have inversion stripping, you should recover more quickly.

#### Making small cuts along your leg

When there are many varicose veins to remove, doctors can make lots of tiny cuts along your leg where the veins are. They then use a hook to pull out bits of your veins through your skin. Doctors call this **avulsion**. It's often combined with tying off and stripping the main vein.

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## Sucking out small veins

Doctors call this operation **transilluminated powered phlebectomy**. If you have this operation, a surgeon will use an electric device to suck small bits of vein out of your leg. The surgeon also uses a light that goes under your skin to see the veins that need to be removed. Sucking out small veins is sometimes used instead of pulling out varicose veins with a hook (called avulsion), as it needs fewer cuts.

The National Institute for Health and Care Excellence (NICE), the government body that decides which treatments should be available on the NHS, says that there hasn't been enough research to say how safe this technique is or how well it works.<sup>[27]</sup> If a doctor wants to do this procedure, he or she should make sure you understand exactly what will happen during it. You should also be told that doctors still aren't certain how safe it is. You should agree to have transilluminated powered phlebectomy only after you have discussed these things with a doctor.

During any of these operations to remove varicose veins, you can either have a **general anaesthetic** or a **local anaesthetic**.

Most people go home the same day after surgery for varicose veins. But you will need to take some time off work and avoid any strenuous activities or sport for several weeks. You should be able to drive again after about one week to 10 days.<sup>[26]</sup>

## How can it help?

Having surgery can get rid of your varicose veins.

- Surgery is likely to improve the way your legs look.<sup>[28]</sup>
- Surgery is likely to help any symptoms you have, such as aching, heavy, and tired legs.<sup>[28]</sup>

Some research has shown that if your varicose veins are removed by stripping, there is less chance of them coming back than if you have them tied off but not removed.<sup>[29]</sup> But not all studies show this difference.<sup>[30]</sup>

Your varicose veins are less likely to come back if you have surgery rather than having [injections](#).<sup>[28] [31]</sup>

## Which type of surgery is best?

Studies on surgery for varicose veins have all shown different things, so we can't say for certain whether one type of surgery works better than another one. Here's what we found out from the studies:<sup>[29] [32] [33] [34] [35]</sup>

- Some of the studies looked at two particular treatments. One treatment was an operation that pulled some veins out through a hole at the ankle, after the vein had

## Varicose veins

been tied off at the top of the leg (**ligation and stripping**), as well as pulling smaller veins out through small cuts on the leg (**avulsion**). The other treatment was an operation that just used avulsion. Researchers found that varicose veins were less likely to come back after the operation that uses both techniques. But the operation that uses both techniques may be more painful

- Taking a vein out through a cut at the top of your leg (**inversion stripping**) may be less painful than standard ligation and stripping, which uses two cuts
- Sucking out small veins with an electronic device (**powered phlebectomy**) may work as well as pulling the veins out with a hook. But you're more likely to get pain and bruising after the operation that uses the electronic device than if you'd had the operation that uses the hook.

We don't know whether having your varicose veins removed will lower your chances of getting problems such as ulcers (these are open sores that can form on the skin over your varicose vein).

How well a treatment works may depend on where the faulty valve is in your vein. But there are no good studies looking at whether surgery works better for certain types of varicose veins. This makes it hard to decide whether surgery or a different treatment is best for your veins.

### Is surgery better than injections for treating varicose veins?

Here's what the research tells us about how having surgery compares with having [injections](#) to get rid of your varicose veins.

- Surgery seems to work for longer than injections do. <sup>[26] [28] [29] [31] [32]</sup>
- One study found that about 66 in 100 people who had surgery to remove the main surface vein in their leg were still free of varicose veins five years later. About 50 in 100 people who had injections with the standard dose were free of varicose veins five years later. <sup>[28]</sup>
- Two studies found that doctors and patients thought that people's varicose veins looked better after having surgery than after having injections. The improvement lasted at least three years. <sup>[36] [37]</sup>
- Another study found that about 90 in 100 people who had small varicose veins pulled out through cuts along their legs (called avulsion) were free of varicose veins after two years. But only about 66 in 100 people who had injections were free of varicose veins after two years. <sup>[29]</sup>

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- A more recent study found that, although surgery worked better than injections, people who had foam injections had less pain and got back to normal life quicker than people who had surgery.<sup>[38]</sup>
- But a large summary of studies, called a **systematic review**, said that there just isn't enough good evidence about foam injections to say how well they work.<sup>[39]</sup>

### Is surgery better than radiofrequency ablation or laser treatment?

These treatments are still quite new, but studies show that [radiofrequency ablation and laser treatment](#) work as well as surgery for getting rid of varicose veins, and they cause less pain. People also got back to normal life quicker with the new treatments than with surgery. And you don't need a general anaesthetic with radiofrequency ablation or laser treatment.<sup>[39]</sup> <sup>[40]</sup>

We don't know for certain whether varicose veins might be more likely to come back after these treatments than after surgery. One big summary of studies (a **systematic review**) found varicose veins may be less likely to come back, especially in the long term, after radiofrequency ablation or laser treatment.<sup>[41]</sup> But more research on these newer treatments is still needed.<sup>[39]</sup>

### How does it work?

Depending on the technique used, surgery works because it:

- Removes your varicose veins completely
- Ties off the veins, so blood can no longer flow through them. The veins are still there but no longer bulging and twisted.

Either way, your blood flows through different veins. To learn more about how blood moves through your veins, see [What are varicose veins?](#)

### Can it be harmful?

Yes. Like any operation, surgery for varicose veins has some risks. It's important to bear these in mind when deciding whether to have this treatment. It's hard to say exactly how often problems happen because there's hasn't been much research on this.

Anaesthetics can have side effects. These are more likely with a general anaesthetic. You may have an **allergic reaction** to the anaesthetic or get breathing problems or heart problems. These problems are serious but rare. If you have any allergies, you must tell your doctor. Also, if you have a medical condition, such as a heart problem, or have had a blood clot, then surgery may be more risky for you.

## Varicose veins

Recovering from surgery can be painful. You may find it uncomfortable to move around for the first few days. You may have some tenderness and discomfort for several weeks. <sup>[26]</sup>

One study showed that people had less pain and bruising after the operation if their surgeon had used a local anaesthetic to numb the area where the vein had been, after taking it out. <sup>[42]</sup>

You might not be able to work for a while after the operation.

It's normal for the cuts in your leg to feel bruised and sore, and they will leave small scars. But there can also be other problems.

- Numb patches on your legs. This can happen if nerves are damaged when your veins are removed. The numbness often goes away after a few weeks or months. <sup>[26]</sup> Sometimes the numbness is permanent, but most people say it doesn't bother them. <sup>[43]</sup> You may be more likely to have nerve damage if the section of vein below your knee is taken out. So if you have your vein stripped to the knee rather than the ankle, you may be at less risk of numbness. To find out about the different ways veins are removed, see Surgery to remove varicose veins.
- Infection in the cuts. This can cause the area around your wounds to hurt, and the skin may be hot and red. If this happens, you will need **antibiotics**. One study found that this happened to 4 in 100 people who have surgery. <sup>[43]</sup>
- Heavy bleeding (during or soon after the operation). Heavy bleeding inside your leg can lead to a painful swelling called a **haematoma**. If this happens, you might need more surgery, or a **blood transfusion**.
- Hard, tender lumps of tissue. These sometimes appear near the cuts from the surgery or along the line of the removed veins. They often go away after several weeks.
- Fluid build-up in your groin near the cut. This can form a lump. Fluid can also leak out of the cut, which can feel wet and uncomfortable. If this happens, you might need to have the fluid drained off.
- Brown stains. Stains may appear on your skin where the veins were removed.
- Inflammation. The area around the vein may hurt and feel tender, and the skin may be hot and red.
- Patches of tiny red veins. These may appear on the skin's surface. This is called **matting**. The problem is uncommon and may be less likely with injections than with surgery that pulls out small veins through cuts made along your leg (**avulsion**). In one study, nobody who had injections had matting after two years, compared with about 6 in 100 people who had veins removed through small cuts. <sup>[25]</sup>

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- Scars can occasionally stay red and thicken, but this is rare and didn't happen in any of the studies we looked at.

### More serious problems

Serious problems are possible, but are **very rare**. They may not have happened to any of the people your surgeon has treated.

- A blood clot can develop in the deep veins of your leg. Doctors call this **deep vein thrombosis** (DVT). A **clot** in your leg or **pelvis** can travel in your bloodstream to your lungs.<sup>[43]</sup> Doctors call this a **pulmonary embolism** and it is dangerous. But it is also very rare. If you have a high risk of getting blood clots, you may be given blood-thinning drugs.
- If the big nerve that runs down the back of your thigh is damaged, it can make your foot floppy and weak. Doctors call this **foot drop**. In a study of 600 people, only one person got foot drop.<sup>[43]</sup>
- Very rarely, surgery goes wrong and damages deeper veins. This may make your problems with blood flow worse and lead to more surgery.<sup>[43]</sup> <sup>[44]</sup>
- There is a very small chance that you could die from surgery to remove varicose veins. The chance is less than 1 in 1,000.<sup>[26]</sup>

### How good is the research on surgery?

There's some good research on having surgery for varicose veins. But there are still some things we don't know.

- There haven't been good-quality studies that have looked at whether having surgery works better for certain types of varicose veins. This makes it hard to decide whether surgery or another type of treatment is best for your veins.
- We didn't find any good-quality studies that compared having surgery with doing nothing or wearing [support stockings](#) .

### Comparing different types of surgery

We found several studies comparing different ways to remove varicose veins.<sup>[30]</sup> <sup>[45]</sup>  
<sup>[46]</sup> <sup>[47]</sup> <sup>[48]</sup> <sup>[49]</sup> <sup>[50]</sup>

There hasn't been enough research to say what is the best method of removing varicose veins, or the best way to strip veins.

## Comparing surgery with injections

Several reasonably good-quality studies compared having surgery with having [injections](#) .<sup>[51]</sup> <sup>[52]</sup> Overall, these studies showed that surgery was better at getting rid of varicose veins than having injections.

## Comparing surgery with radiofrequency ablation and laser treatments

Not much good-quality research has been done yet on [radiofrequency ablation and laser treatment](#) . But studies so far show that these newer treatments may work as well as surgery for getting rid of varicose veins, and cause less pain.<sup>[53]</sup> <sup>[54]</sup> <sup>[55]</sup> <sup>[39]</sup>

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## Injections

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[What are they?](#)

[How can they help?](#)

[How do they work?](#)

[Can they be harmful?](#)

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

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

### Do they work?

Having injections into your varicose veins may make them disappear. Injections may also help with your symptoms such as aching.

Injections can have side effects. Your skin may look discoloured afterwards. This can take a while to go away.

Injections may not work as well as [surgery](#) for varicose veins. Varicose veins are more likely to come back after injections than after surgery.

### What are they?

Injections close a varicose vein so blood can't flow through it. Other healthy veins will take over, so your blood will still flow normally.

### Liquid injections

Your doctor injects a liquid chemical into each varicose vein. The chemical damages the lining of the vein and causes it to collapse inwards. A scar forms inside. This blocks off the vein, and the vein fades within a few weeks. You don't need a painkiller to numb the area where you're getting the injection. See [More about injections for varicose veins](#) .

Doctors call treatment with injections **sclerotherapy**.

In the UK, doctors use two chemicals for these injections:

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- Ethanolamine oleate
- Sodium tetradecyl sulfate (brand name Fibro-Vein).

Injections tend to be used to treat veins that are left after surgery and to get rid of smaller veins (called thread veins). Injections might also be an option if you can't have surgery.

### Foam injections

One newer type of injection is now sometimes being used. It involves mixing the chemical to close the vein with air and a chemical that froths to make a foam injection. Foam spreads more rapidly and widely through the veins than liquid.<sup>[25]</sup> The injections need to be done while using an [ultrasound](#) scan to make sure the foam doesn't get into a deep vein.<sup>[56]</sup>

The National Institute for Health and Care Excellence (NICE) is the organisation that advises the government about treatments. NICE says that ultrasound-guided foam injections for varicose veins should be available on the NHS. Evidence shows that foam injections work about as well as liquid injections or surgery to strip out the veins, in the short term. But there hasn't been much research to show how long the effects last. And there hasn't been much research to show how safe it is in the long term, and whether there are any long-lasting side effects. Your doctor should discuss all the risks and benefits with you before giving you this type of injection.<sup>[57]</sup>

You can talk to your doctor about how they plan to inject your varicose veins.

### How can they help?

Injections are likely to help get rid of aching, and your legs will probably look better.

Injections don't work as well as [surgery](#), but surgery is likely to be more painful.

Here's what we know from the research:

- Most people say their legs look better after injections. Their varicose veins virtually disappear.<sup>[58]</sup>
- Injections may help relieve the aching in your legs. But we don't know whether they help with symptoms such as itchiness and heaviness.<sup>[59]</sup>
- There's not much research comparing the different types of chemicals used in injections. But some research suggests different types of chemicals work equally well.<sup>[58]</sup>
- A study compared six treatments for varicose veins, including foam injections and regular injections. The study involved more than 800 people with different sizes of



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varicose veins. Having foam injections worked as well as having the usual injections. Also, having low-dose injections worked as well as having high-dose injections. <sup>[25]</sup>

- For both foam and the usual type of injections, about 40 to 50 in 100 people had new varicose veins after five years. About 50 to 60 in 100 people had new varicose veins after 10 years. <sup>[25]</sup>
- How successful your injections are depends a lot on how much experience your doctor has with this treatment. <sup>[1]</sup>
- Injections seem to work better than stockings at helping symptoms and improving the way legs look. <sup>[24]</sup>
- If you have injections, your varicose veins may come back eventually. You may need more treatment if they do. This is more likely after injections than after surgery. <sup>[25] [28] [60] [31] [61]</sup> One study found that about 40 to 50 in 100 people who have surgery get new veins within five years, compared with 50 in 100 people who have injections. <sup>[25]</sup>
- You'll probably have less pain and bruising with injections than you would after [surgery](#). <sup>[62]</sup>

We still don't know:

- Whether injections work best for certain types of varicose veins, such as smaller rather than larger veins
- Whether injections will prevent problems such as ulcers (an ulcer is an open sore, which can form on the part of your skin over a varicose vein).

### How do they work?

Usually veins carry blood upwards through the legs to the heart. They have one-way valves in them that keep blood flowing in the right direction.

In varicose veins, the valves don't work properly. So blood slips backwards into the vein. This causes the vein to bulge. To learn more, see [What are varicose veins?](#)

The chemicals that are injected into varicose veins destroy the lining inside of the vein. This causes a scar, so the vein becomes blocked. This stops the blood pooling in the vein, so there isn't any swelling or lumpiness. <sup>[63]</sup>

### Can they be harmful?

It's difficult to say whether injections can be harmful. There is little research on the side effects or risks of injections, especially for injections using newer methods. We did find one summary of 69 studies (called a **systematic review**) that found serious side effects from injections with foam were rare. <sup>[61]</sup>

Some people say the injections hurt, giving them a burning feeling. You may also have an itchy rash with swollen circles at the spot where the needle went in. About 33 in 100 people do, but it doesn't last. <sup>[58]</sup>

One small study found that injections had the following drawbacks. <sup>[58]</sup>

- Bruising (where blood leaks out of the vein and underneath the skin). The study found that about 70 in 100 people get this. The bruising does not last and will start to fade within a few days. <sup>[58]</sup>
- Blood clots. The same study found that about 40 in 100 people get **blood clots** in the vein being injected. <sup>[58]</sup> These clots are not dangerous, but they may affect how the vein looks.
- Inflammation. The vein may hurt and feel tender, and the skin around it may become hot and red. This will get better with time. <sup>[58]</sup> You're just as likely to get inflammation after foam injections as you are after liquid injections. <sup>[64]</sup>
- Patches of tiny red veins on the surface of the skin (called matting). In one study, this affected 10 in 100 people. <sup>[58]</sup> Matting tends to be more common in people with fair skin. It's also more likely to happen to people whose skin becomes **inflamed** after the injections. Matting can be permanent in some people, but it's hard to know how likely it is to happen to you. There's not enough research on this. <sup>[1]</sup>
- Reddish-brown stains on the surface of the skin (called hyperpigmentation). Between 50 and 66 in 100 people get this. <sup>[58]</sup> It is temporary in most people, but it may take a few months and sometimes years to go away completely. Special treatment with lasers may help the patches to fade, but we haven't looked at the research on this. <sup>[1]</sup>

It's possible for you to get open sores on your leg (called ulcers) after injections, but this doesn't happen often. <sup>[63]</sup> It's also possible to have an **allergic reaction** to the solution injected into the vein. But this is rare. Only 1 in 100 people get a reaction. <sup>[58]</sup>

The different types of chemicals used in injections don't seem to cause different side effects. <sup>[58]</sup>

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After you have the injections, you wear pressure bandages for at least a couple of weeks to reduce your chances of blood clots and swelling. (To learn more, see [More about injections for varicose veins](#) .) But these bandages can cause problems. In one small study, 20 in 100 people had leg cramps, and around 10 in 100 people had blistering. <sup>[28]</sup>

### How good is the research on injections?

There hasn't been much research on having injections for varicose veins.

#### Comparing injections with stockings or self-help

We found one summary of the research (called a [systematic review](#) ) that looked at studies on having injections. <sup>[65]</sup> The researchers found one good-quality study that compared having injections (containing the chemical sodium tetradecyl sulfate) with wearing [support stockings](#) . The women who'd had injections were much happier about their symptoms and the appearance of their legs than the women who'd worn stockings.

#### Comparing different chemicals used in injections

We found a study that compared two chemicals used in injections: sodium tetradecyl sulfate and polidocanol. <sup>[58]</sup> (Only sodium tetradecyl sulfate is used in the UK.) People's veins looked much better after the injections, and both chemicals worked just as well.

#### Comparing foam injections with the usual injections

We found a study that compared six treatments for varicose veins, including foam injections and regular injections. <sup>[25]</sup> The study involved more than 800 people with different sizes of varicose veins.

- The study found that having foam injections worked as well as having the usual injections. Also, having low-dose injections worked as well as having high-dose injections.
- However, a large summary of evidence, called a [systematic review](#) , found that there is still not enough research to say how well foam injections work. <sup>[66]</sup>

#### Comparing injections with surgery

There are several reasonably good studies that compare [surgery](#) with injections. <sup>[65]</sup>  
<sup>[67]</sup> <sup>[52]</sup> <sup>[38]</sup> <sup>[40]</sup>

Overall:

- Surgery was better than injections at getting rid of varicose veins.

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## Support stockings

# Varicose veins

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

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

## Do they work?

We don't know for certain. There hasn't been much research. Wearing support stockings or tights might mean you get less pain. But we don't know if they help with other symptoms such as swelling or itching. And we don't know if they stop your varicose veins getting worse.

To work properly, the stockings have to be the right size and fit. If they are too tight in one part of the leg, particularly at the top, they could do more harm than good.

## What are they?

Support stockings are stockings or tights made of strong elastic. You wear them on your legs through the day and take them off at night. Doctors sometimes call them **compression stockings**.

The stockings press against your varicose veins to stop them bulging. The stockings are tighter at the bottom of your leg than at the top. This helps the blood flow up your legs. Support stockings can help with aching and improving the appearance of your legs. But they won't get rid of your varicose veins.

Your doctor may advise you to try wearing support stockings if you have veins that are aching or swollen.<sup>[2]</sup> They may also advise you to try wearing these stockings if your veins aren't bad enough for you to have [surgery](#).<sup>[14]</sup>

You may want to try these stockings or tights if your varicose veins are not too bad. Some people don't like how these stockings look, but you can get them in different colours and you may be able to wear your own stockings or tights over them. Bear in mind that they are more expensive than ordinary stockings and tights.

It's important to wear stockings specially designed for varicose veins. Ordinary elastic leg supports, such as support tights, apply pressure evenly up the leg and will be extra tight at the top where your leg is thickest. This could make your symptoms worse.<sup>[20]</sup>

You can buy support stockings for varicose veins at most pharmacies, but you need a prescription from your doctor for some types. Some pharmacies have specially trained staff who can help fit you with support stockings.

To learn more, see [Things to know about support stockings](#) .

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### How can they help?

Support stockings won't cure your varicose veins. They might help with pain and other symptoms, although it's hard to say for certain. A lot of the research isn't very good. A summary of three studies (called a [systematic review](#) ) found the following:<sup>[68]</sup>

- One study found that support stockings reduced pain for people who had varicose veins. The study also said that stockings might help with feelings of heaviness, cramps, and swelling
- Another study looked at pregnant women. Stockings helped with symptoms like pain, but didn't stop the women getting new varicose veins
- A third study found that stockings didn't help, but it may have been too small to give reliable results.

But a larger systematic review, this time of seven studies, found that the studies weren't done very well.<sup>[69]</sup> The review found that the evidence wasn't good enough to be able to say how well support stockings worked. So we really need better research.

Stockings don't seem to work as well as [injections](#) at helping symptoms and improving the way people's legs look.<sup>[24]</sup>

We also don't know whether wearing these stockings will stop your varicose veins getting worse or lower your chances of problems such as leg ulcers. An ulcer is an open sore, which can form on the skin over a varicose vein. To learn more, see [What will happen to me?](#) actual

### How do they work?

If you have varicose veins, it means blood is pooling in veins near the surface of your skin, causing them to bulge and swell. This blood should be going back into the deeper veins of your leg and on to your heart. To learn more, see [What are varicose veins?](#)

Support stockings gently, but firmly, squeeze the blood back into the deep veins. The stockings are tighter at the bottom of your leg than at the top. This design encourages blood to flow upwards in your leg (against gravity).

### Can they be harmful?

It's unlikely that wearing support stockings is harmful, but there aren't any studies that look at this.

- The tight stockings might make your legs a bit hot and sweaty and may sometimes rub your skin and cause it to blister.

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- Some people get a skin reaction to the materials used for the stockings, especially latex. Ask your pharmacist or doctor about support stockings that are latex-free.
- These stockings can also be quite hard to put on if they are very high-strength (larger veins often call for higher-strength stockings).

Before you start wearing stockings, your doctor should listen to the flow of blood through the arteries in your legs. Your arteries are the blood vessels that carry blood from your heart to the rest of your body. If there is a problem with blood getting to your legs through your arteries, then support stockings may make this problem worse.

### How good is the research on support stockings?

There has been very little research on using support stockings for varicose veins. This means we can't be certain if they will ease your symptoms (such as aching legs) or lower your chances of having other problems (like bleeding or open sores on the skin over your veins).

A review of the research found seven individual studies on support stockings for varicose veins.<sup>[69]</sup> Most of the studies compared different stockings with each other, so it's hard to say whether stockings work better than not wearing them. Also, the studies weren't done very well, making it hard to trust the results. The review found that there isn't enough evidence to say if stockings work well.

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## Radiofrequency ablation

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

This information is for people who have varicose veins. It tells you about radiofrequency ablation treatment used for varicose veins. It is based on the best and most up-to-date research.

### Does it work?

Probably. This is a newer treatment for varicose veins. There hasn't been enough good research to say for certain how well it works in the longer term, but studies so far are promising.

### What is it?

Surgery is the only way to get rid of varicose veins completely. But it's a big operation and there are risks. Surgeons have been looking at other ways to treat varicose veins that may be easier and quicker than traditional surgery. One of these ways is closing the vein with heat.

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In this method, your surgeon puts a thin instrument into your vein. The instrument produces energy, which heats and seals off your vein. This is called **radiofrequency ablation**. Surgeons usually use this method for larger varicose veins.

If you're having treatment for a varicose vein in your leg, your surgeon will: <sup>[70]</sup>

- Give you a **local anaesthetic** to numb the area, so you'll be awake but you won't feel any pain
- Make a small cut above or below your knee, depending on the area being treated
- Put the heating device into your vein or thread it through a very thin tube (called a catheter) and then into your vein
- Heat the device and pull it back slowly through your vein.

The heated device seals your vein while your surgeon pulls it out.

The National Institute for Health and Care Excellence (NICE) is the government organisation that advises doctors about treatments. NICE says that radiofrequency ablation is safe enough and works well enough for use in the NHS. But we don't know the long-term effects of this treatment. You should talk to your doctor about the risks and benefits of having this treatment. <sup>[71]</sup> <sup>[72]</sup>

### How can it help?

Radiofrequency ablation seems to work as well as having **surgery** to strip out varicose veins. A large summary of studies, called a **systematic review**, found that both treatments worked well in nearly everyone who had them. <sup>[66]</sup>

Radiofrequency ablation may be less painful than having veins stripped out by surgery. People also get back to normal more quickly after this treatment than people who have surgery. <sup>[66]</sup>

But we don't know whether veins are more likely to come back after this treatment than after surgery. We need longer and bigger studies to tell.

Studies have found that radiofrequency ablation and laser treatment work about as well as each other, but that radiofrequency ablation may cause less pain and bruising. <sup>[73]</sup>  
<sup>[74]</sup>

### How does it work?

Usually veins carry blood upwards through your legs to your heart. They have one-way valves in them that keep blood flowing in the right direction.

In varicose veins, the valves don't work properly. So blood slips backwards into the vein, causing your vein to bulge. To learn more, see [What are varicose veins?](#)

## Varicose veins

Closing up your varicose vein with heat means blood can no longer flow through that vein, and it flows through your other veins instead. So blood no longer pools in your varicose veins, causing them to bulge.

### Can it be harmful?

Radiofrequency ablation does sometimes have side effects.

About 6 or 7 in 100 people who have radiofrequency ablation get burns.<sup>[72]</sup> But as doctors get better at using this technique, burns should become less of a problem.

Some people get an unusual feeling in their legs after having radiofrequency ablation.<sup>[72]</sup>

About 2 or 3 in 100 people get **inflammation** (swelling) in the vein.<sup>[72]</sup> Doctors call this **phlebitis**. If you have phlebitis, your veins can become swollen. They feel hard and warm, and look red. The area can feel sore.

More serious problems, such as having clots in your veins ( **deep vein thrombosis** ) or a blockage in your lungs ( **pulmonary embolism** ), happen in less than 1 in 100 people.<sup>[72]</sup>

### How good is the research on radiofrequency ablation?

There haven't been many good studies into radiofrequency ablation for closing off varicose veins.

### Comparing radiofrequency ablation with surgery

A summary of five studies, called a **systematic review** , found that this treatment worked just as well as surgery. Both treatments worked well in nearly everyone in the study.<sup>[66]</sup>

But we still need more research to show whether varicose veins are more likely to come back after radiofrequency ablation.

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## Self-help for varicose veins

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on self-help for varicose veins?](#)

This information is for people who have varicose veins. It tells you about the self-help methods that some people use. It is based on the best and most up-to-date research.

### Does it work?

We don't know, but self-help might be worth trying if you have varicose veins.



## Varicose veins

Doctors often suggest losing weight (if you're overweight), getting regular exercise, avoiding standing for too long, and keeping your feet up when possible. But there isn't any research to tell us if these things really work.

### What is it?

Doctors often recommend self-help methods for preventing or treating varicose veins. Your doctor might suggest you try the following.

- Maintain a healthy weight, so that the veins in your legs aren't under too much pressure.
- Do regular exercise (such as walking or running).
- Eat a balanced diet. It should contain enough fibre to stop you getting constipated. Foods high in fibre include fresh fruit and vegetables, and foods with whole grains like bran.
- Avoid long periods of sitting or standing. If you have to stand, shift your weight from one leg to the other every few minutes.
- When possible, rest with your feet up (above the level of your heart). You could lie down with your legs resting on three or four pillows, for example.
- Consider wearing [support stockings](#).<sup>[20]</sup> These may help with aching and swelling.
- Avoid clothing that is tight around your waist, groin, or legs. This type of clothing can make your symptoms worse. (Support stockings are tight around your legs, but they are designed to help your blood to flow upwards.)
- Some doctors advise not crossing your legs when sitting, as this may affect your blood flow.
- Stop smoking. Smoking damages blood vessels, so might be linked to varicose veins.

### How can it help?

There hasn't been much good research looking at self-help for treating varicose veins. So, we can't say if works or not.

### How does it work?

We don't know whether self-help works for varicose veins or not. But the idea behind most self-help methods is to improve your blood flow and muscle tone.

### Can it be harmful?

There isn't any research looking at whether self-help for varicose veins could have side effects. However, you're unlikely to get any problems. Things like eating a healthy diet and getting some exercise are good for your health overall.

### How good is the research on self-help for varicose veins?

We didn't find any good research looking at self-help for varicose veins. So, we can't say whether it works or not. Doctors often say that self-help methods are worth trying.

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## Laser treatment

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on laser treatment for varicose veins?](#)

This information is for people who have varicose veins. It tells you about laser treatment used for varicose veins. It is based on the best and most up-to-date research.

### Does it work?

Probably. This is a newer treatment for varicose veins. There hasn't been enough good research to say for certain how well it works in the longer term, but studies so far are promising.

### What is it?

Surgery is the only way to get rid of varicose veins completely. But it's a big operation and there are risks. Surgeons have been looking at other ways to treat varicose veins that may be easier and quicker than traditional surgery. One of these ways is closing the vein with heat.

In this method, doctors use a laser to seal off veins.

If you're having treatment for a varicose vein in your leg, your doctor will:

- Give you a local anaesthetic to numb the area, so you'll be awake but you won't feel any pain
- Thread a thin tube (called a catheter) through a small hole in your skin into your vein
- Place a laser in the tube, so that the intense light from the laser heats your vein and makes it close up
- Slowly remove the laser, sealing off your vein as the laser comes out.

## Varicose veins

Laser treatment is quick. It takes just 90 seconds to treat a 30-centimetre (12-inch) length of vein. <sup>[71]</sup>

The National Institute for Health and Care Excellence (NICE) is the government organisation that advises doctors about treatments. NICE says that laser treatment is safe enough and works well enough for use in the NHS. But we don't know the long-term effects of this treatment. You should talk to your doctor about the risks and benefits of having this treatment. <sup>[71]</sup> <sup>[72]</sup>

### How can it help?

Laser treatment may work as well as surgery, and cause less pain and bruising. People also get back to normal more quickly after this treatment than people who have surgery. <sup>[39]</sup> <sup>[75]</sup> <sup>[53]</sup> <sup>[54]</sup> <sup>[55]</sup>

One good-quality study looked at 240 people who had either surgery, laser treatment, or foam injections to treat varicose veins. After one year: <sup>[40]</sup>

- About 89 in 100 people who had surgery didn't have varicose veins any more
- About 88 in 100 people who had laser treatment didn't have varicose veins any more
- About 72 in 100 people who had foam injections didn't have varicose veins any more.

But we don't know whether veins are more likely to come back after this treatment than after surgery. We need longer and bigger studies to tell. <sup>[39]</sup>

Studies have found that radiofrequency ablation and laser treatment work about as well as each other, but that radiofrequency ablation may cause less pain and bruising. <sup>[73]</sup>  
<sup>[74]</sup>

### How does it work?

Usually veins carry blood upwards through your legs to your heart. They have one-way valves in them that keep blood flowing in the right direction.

In varicose veins, the valves don't work properly. So blood slips backwards into the vein, causing your vein to bulge. To learn more, see [What are varicose veins?](#)

Closing up your varicose vein with a laser means blood can no longer flow through that vein, and it flows through your other veins instead. So blood no longer pools in your varicose veins, causing them to bulge.

### Can it be harmful?

You're likely to get some pain and bruising after having laser treatment.<sup>[71]</sup> But this will go away after a few weeks. Some people also get inflammation after having laser treatment.<sup>[71]</sup> It's also possible to have loss of feeling, burns, and damage to other veins, although these problems aren't likely.

Compared with radiofrequency ablation, laser treatment might give you more pain and bruising in the first couple of weeks afterwards.<sup>[76]</sup> But there doesn't seem to be a difference in the longer term.

### How good is the research on laser treatment for varicose veins?

There haven't been many good studies into laser treatment for closing off varicose veins.

#### Comparing laser treatment with surgery

A summary of five studies, called a systematic review, found that this treatment worked just as well as surgery. Both treatments worked well in nearly everyone in the study.<sup>[39]</sup>

The study didn't last long enough to show whether varicose veins are more likely to come back after laser treatment or surgery.

#### Comparing laser treatment with foam injections

There isn't really enough good research on foam injections. One systematic review found that there needed to be more good studies before we can decide how well they work.<sup>[39]</sup>

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### Further informations:

#### More serious problems in your veins

A few people get varicose veins as a result of more serious problems.

We haven't covered treatments for these conditions in our varicose veins section here. But if you go to your doctor with varicose veins, they may do some tests to find out whether you have any of these problems.

#### Deep vein thrombosis

This happens when a **blood clot** forms in a deep vein in your leg. This is serious, as the clot can travel to your heart or lungs and block the blood flow.

If you have a clot in a deep vein, you usually get pain, swelling, warmth, and redness in the affected leg. See your doctor at once if you have any of these symptoms.

**Deep vein thrombosis** can also lead to varicose veins. But most people with varicose veins are not at risk of getting these serious blood clots.

## Varicose veins

### Venous hypertension

This is where the pressure of blood travelling through the veins in your legs is higher than normal. This can lead to problems such as:

- Varicose veins
- Discoloured skin
- Open sores on your skin (ulcers).

Doctors sometimes call this condition **chronic venous insufficiency**.

Having varicose veins can also lead to venous hypertension. However, there is no evidence that treating normal varicose veins prevents this condition or reduces the chances of getting the discoloured skin or ulcers that you can get with it.

### Seeing a specialist

The National Institute for Health and Care Excellence (NICE), the government organisation that advises doctors about NHS treatments, says that, in general, patients with varicose veins do not need treatment. However, you should be referred to a specialist if:

- Your varicose veins are bleeding because the skin has broken down (you should see a specialist immediately, within one day)
- Your varicose veins have bled in the past and may bleed again (you should see a specialist urgently, within two weeks)
- You have an ulcer that is getting worse or more painful, despite treatment (you should see a specialist soon)
- You have an ulcer or other skin changes that could benefit from surgery (you should be given a routine appointment)
- You have thrombophlebitis that keeps coming back. This is a condition where the tissue around the varicose vein becomes inflamed and painful (you should be given a routine appointment)
- You have symptoms from your varicose veins that cause you problems, or you and your doctor feel that the size or extent of your veins is affecting your quality of life.

[14]

### Tests for varicose veins

If you're referred to a specialist, they may use a **Doppler ultrasound**, a **duplex ultrasound**, or a **venogram test** to find out more about your veins.

#### Doppler ultrasound

A Doppler ultrasound is a type of **scan** that can help your doctor tell how well the valves in your veins are working. <sup>[22]</sup>

- You stand up during the test while your doctor gently squeezes various veins.
- Your doctor puts a special handheld device against your skin. It sends out **soundwaves** that bounce off the blood as it flows in your veins. The soundwaves are at such a high frequency that you can't hear them.
- The echo of the soundwaves lets your doctor 'listen' to the way the blood is flowing and pinpoint any problems.

The test doesn't hurt and there are no side effects.

#### Duplex ultrasound

Not all clinics have duplex ultrasound. <sup>[2]</sup>

- Like the Doppler ultrasound, the duplex ultrasound also uses soundwaves but it gives pictures of the blood vessels and the direction blood is flowing. <sup>[22]</sup>
- It allows your doctor to see exactly what is going on in the deep and surface veins and shows any blood flowing back down the veins.
- A duplex scan takes longer than a Doppler scan: about 30 minutes per leg. It is painless and has no side effects.

#### Venogram

A venogram is an **X-ray** of your veins. <sup>[23]</sup> You might have this test if an ultrasound scan did not give a clear picture of your veins.

- For this test a dye is injected into a vein in your foot. The dye coats the insides of your veins in your leg.
- An X-ray is then taken of your leg. This shows up the veins in your calf and thigh very clearly.
- Your doctor will be able to see whether there's any damage to the veins in your leg.

### More about injections for varicose veins

Injections for varicose veins use chemicals to make the vein walls swell, so the vein is blocked. This stops blood flowing back into the vein. The vein eventually turns into scar tissue.

Before you have injections for varicose veins, your doctor will probably do tests to pinpoint where the problems are in your veins. Tests can help find any leaky valves that are allowing blood to flow backwards and pool in your veins. To read more about these tests, see [Tests for varicose veins](#) .

Once your doctor knows where the problem is, they can do the injections. Here's how they usually work.

- Your doctor may ask you to stand up before inserting the needle so that they can easily see your bulging vein. Once the needle is in place, you may be asked to lie down with your leg up.
- You may have more than one injection in different parts of your leg, depending on how bad and widespread the varicose veins are. Sometimes people return for more injections one or two weeks after their first visit.
- After the injections, the walls of each vein are pressed firmly together to stop the blood flowing into the vein and clotting.<sup>[1]</sup> Doctors normally use a dressing such as a piece of foam rubber that is held in place by a stocking or bandage.
- After the injections, you will need to wear a dressing made of foam (or a similar material) and an elastic support stocking or bandage. This stops the vein swelling and reduces your chances of getting a blood clot .<sup>[17] [24]</sup>
- Many doctors recommend wearing the bandage for at least a couple of weeks, but different doctors recommend different things. If you had big varicose veins, you may need to wear the bandage for longer. In one study, people with veins that were wider than 3 millimetres (about one eighth of an inch) wore their bandage for three weeks.<sup>[25]</sup>
- You can walk around after having injections, but it's best to avoid doing anything strenuous like jogging or aerobics for the first day or two.
- You may get some irritation at the site of the injections, either at the time of injection or over the next few hours.
- If you have injections to block off a vein, you shouldn't worry about your blood flow. There are lots of other veins that can carry the blood back to your heart.<sup>[2]</sup>

## Varicose veins

- Your doctor will normally tell you to walk briskly for at least 20 minutes after having your injections. <sup>[26]</sup>
- Most doctors advise you to remain as active as you can while wearing the bandages or stockings. <sup>[26]</sup>

### Things to know about support stockings

If you have varicose veins, support stockings may ease some of your symptoms, such as aching legs.

There are two types of support stockings for varicose veins.

- If you have varicose veins in your lower leg, you can wear short stockings that cover your leg from your ankle to your knee.
- If your varicose veins are in your upper leg (along the front of your thigh for instance), you can wear the longer type of stockings. These cover your whole leg. <sup>[20]</sup> Some have open toes and some have closed toes.

All support stockings for varicose veins are tighter at the ankle than at the top. This means they apply more pressure at the bottom of your leg, which helps to squeeze blood upwards towards your heart.

Here are some tips on using support stockings for varicose veins.

- Support stockings come in different sizes, and some are more elastic than others. Larger, more uncomfortable veins need tighter stockings. Your doctor or pharmacist can help you get the right size and fit.
- It's best to put the stockings on in the morning before you get out of bed. This is because your varicose veins are least likely to be full of blood and swollen after you've been lying down. As soon as you stand up, the blood pools in these veins. This makes it harder for the stockings to keep your veins from bulging.
- The stockings gradually get less elastic the more you wash them, so you'll need to get new ones every few months.

Some people find that their legs feel better if they wear support stockings and look better when they take them off. However, there is no good-quality research to show that stockings help with symptoms or improve the way your legs look.

#### Glossary:



# Varicose veins

## **groin**

Your groin is the top, inside part of your thighs.

## **haemorrhoids**

Haemorrhoids are swollen veins in the anus. Sometimes you can see or feel them and sometimes they are inside the anus. Haemorrhoids can hurt and bleed. They usually happen when you strain a lot to pass a stool.

## **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.

## **pelvis**

Your pelvis is the area between your hips.

## **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.

## **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.

## **hormone replacement therapy**

Hormone replacement therapy (also called HRT) is given to women after the menopause to replace the oestrogen (the main female hormone) that is no longer made by their ovaries. It can be given either as oestrogen alone or as a combination of oestrogen and progesterone (another female hormone). It is useful to treat menopausal symptoms such as hot flushes, and to prevent brittle bone disease (osteoporosis). But there are concerns that it may increase the risk of breast cancer, heart attacks and strokes.

## **eczema**

Eczema is a very itchy rash. It may be dark and bumpy and release fluid. Scratching makes it worse. You can get eczema anywhere on your body, but it is most common on the wrists, the insides of the elbows and the backs of the knees. If you have asthma or allergies you are more likely to get eczema than someone who doesn't have these conditions.

## **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.

## **thrombophlebitis**

When you have thrombophlebitis, the wall of one of your veins is inflamed. This can happen when a blood clot (a thrombus) lodges inside the vein. The area around the vein can become swollen, red and painful.

## **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.

## **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).

## **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.

## **general anaesthetic**

You may have a type of medicine called a general anaesthetic when you have surgery. It is given to make you unconscious so you don't feel pain when you have surgery.

# Varicose veins

## local anaesthetic

A local anaesthetic is a painkiller that's used to numb one part of your body. You usually get local anaesthetics as injections.

## 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.

## allergic reaction

You have an allergic reaction when your immune system overreacts to a substance that is normally harmless. You can be allergic to particles in the air you are breathing, like pollen (which causes hay fever) or to chemicals on your skin, like detergents (which can cause a rash). People can also have an allergic reaction to drugs, like penicillin.

## blood transfusion

If you've lost too much blood from your body, you may need a blood transfusion to replace it. People with diseases of their blood, like sickle cell anaemia, sometimes need blood transfusions to replace blood that doesn't work properly.

## 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.

## 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.

## fibre

Fibre is all the parts of food that the body can't absorb. This is why foods that are high in fibre make you have more bowel movements. When your body can't absorb something, it leaves your body in your stools. Foods high in fibre include wholemeal bread and cereals, root vegetables and fruits.

## constipated

When you're constipated, you have difficulty passing stools (faeces). Your bowel movements may be dry and hard. You may have fewer bowel movements than usual, and it may be a strain when you try to go.

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