



Coronary angioplasty

This is when a tiny balloon is used to stretch a narrowed blood vessel in your heart

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This information is based on *Clinical Evidence*, the *British Medical Journal's* worldwide survey of the best, most up-to-date medical research, used by doctors everywhere.

You can find out more about your condition and your treatment choices at NHS Direct Online (www.nhsdirect.nhs.uk).

This information tells you about an operation to widen the blood vessels in your heart. It explains how the operation is done, how it can help, what the risks are and what to expect afterwards.

The benefits and risks described here are based on research studies and may be different in your hospital. You may want to talk about this with the doctors and nurses treating you.

What is coronary angioplasty?

If you have coronary angioplasty, a doctor will use a tiny balloon to open a narrowed blood vessel in your heart. The aim is to stop or reduce chest pain, lower your chance of a heart attack and help you to live longer.

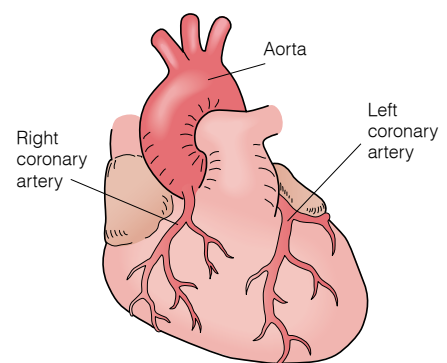
Why do I need coronary angioplasty?

If the blood vessels to your heart have been narrowed by heart disease, you may need coronary angioplasty to widen them.

Your heart is a muscle about the size of a fist. It has its own blood vessels called **coronary arteries**. These arteries bring the heart muscle the oxygen it needs to keep pumping blood round your body.

If you have heart disease, the insides of your arteries get coated with fatty patches. Over the years, these patches make parts of your arteries furred up and narrow. This makes it harder for blood to get through them. If this happens in your heart, you may get pain in your chest. This pain is called **angina**, and it happens because your heart isn't getting enough oxygen. You may only get angina when you exercise, because that's when your heart needs more oxygen. But you can also get it when you're not doing anything. If one of the arteries in your heart gets completely blocked, you can have a heart attack.

To find out if angioplasty will help, you need a test called an **angiogram**. This is an X-ray that shows up any narrow parts in your arteries. A doctor will thread a thin, hollow tube into an artery in your groin or arm. Dye is put through the tube and flows through your bloodstream to your heart,



showing up any narrow parts in the arteries there. You can sometimes have angioplasty at the same time as the test if you agree with your doctors beforehand.

Doctors may suggest angioplasty if:

- You still get chest pain even though you are taking tablets for angina
- The X-ray shows a narrow part in the arteries in your heart and your doctor thinks it's causing your chest pain
- Your doctor thinks the narrowing can be opened up by angioplasty (short, straight narrow parts are easiest to open up)
- You have had bypass surgery on your heart but an artery has furred up again.

If you do have angioplasty, you'll still need to take tablets. If you're overweight, you may need to lose weight. If you smoke, you should do everything you can to stop. Smoking makes any treatment less likely to work.

If you decide to have angioplasty, the research says the best results come from doctors who do a lot of these operations.¹ The hospital should have two trained doctors doing 500 angioplasties a year.



What happens during coronary angioplasty?

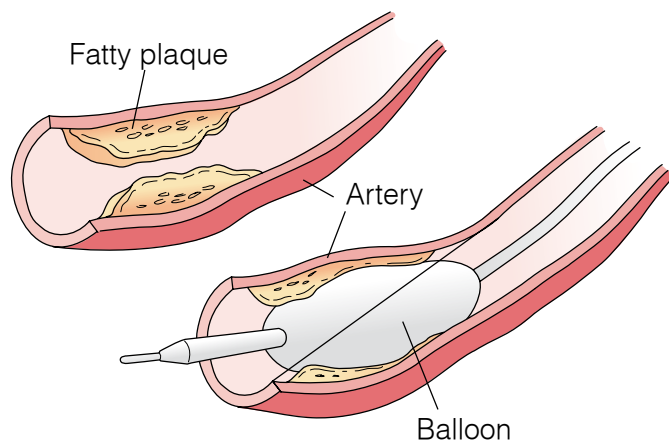
If you're having angioplasty on just one part of an artery, the operation will usually take about 30 minutes. But more complicated operations may take over an hour.

Angioplasty is usually carried out in a room called a **catheterisation room**, with X-ray equipment to take a picture of your arteries. You will lie on an X-ray table, on your back. The doctor will put a needle into a vein in your arm in case you need painkillers or a sedative to calm you. You will be put on a

heart monitor. Sterile sheets will be put over your body, like in an operating theatre. The doctor usually wears an operating gown, gloves and mask.

Angioplasty is usually done through the big artery in your groin. Your doctor will give you a local anaesthetic to make your skin numb. You shouldn't feel any pain. The doctor will then make a small cut in your skin and thread a thin tube (called a **catheter**), with a tiny balloon on it, into your artery. The doctor will check on the X-ray screen that the tube is in the right place, and gently push it up to the arteries in your heart.

When the catheter gets to the narrow part in your artery, the doctor blows up the balloon, squashing the fatty patches on the inside walls of the artery. Sometimes this has to be done a few times before it works and widens the artery. Usually the catheter also carries a short hollow tube made of stainless steel (called a **stent**). This opens out as the balloon is blown up and is left inside your artery. It's like a tiny piece of scaffolding that holds the artery open. If you do have a stent, the doctor will give you drugs to stop blood clots forming around it.



The doctor will check that the artery has been widened enough to allow blood to flow through more easily. This is done by injecting dye into the catheter to see how well it flows through the artery. Once blood is flowing well, the balloon is let down and taken out.²

When the catheter is taken out, a nurse may press down over the cut to stop any bleeding.

Will coronary angioplasty be painful?

You won't be able to feel the catheter as it goes through your arteries. But you may get chest pain when the balloon is blown up because it can stop the

blood flow in your artery for a few seconds. The pain should go away when the balloon is let down. If you feel pain during angioplasty, you should ask for painkillers.

You may also feel your heart miss a beat or make an extra beat while the catheter is in the artery in your heart. There is no need to worry about this. It's perfectly normal.

When the dye is put through the catheter, some people feel warm and uncomfortable. This should wear off quickly.

How can coronary angioplasty help me?

For 9 in 10 people, angioplasty will widen the narrowing in their artery.¹

Having angioplasty can:

- Reduce the chest pain you get³
- Mean you don't need to take as many drugs for your angina
- Stop you feeling as breathless³
- Help you walk further and go upstairs more easily⁴
- Reduce your risk of having a heart attack, even if you're over 75^{4 5}
- Generally make you feel better. You may be more able to go out and see friends or have hobbies.¹

If you've had a heart attack, then having angioplasty can:

- Increase your chances of surviving by about 30 percent more than drug treatment⁶
- Reduce your chances of having another heart attack.⁷

If you also have a stent put in:

- Your artery is less likely to narrow again^{8 9}
- You're less likely to need another angioplasty operation.^{8 9}

If your artery was totally blocked, a stent may help you live longer.¹⁰ But an angioplasty without a stent can work just as well for most people.⁸

What are the risks of coronary angioplasty?

All operations have risks. Problems can happen straight away or in the longer term. They are more likely to happen if you are older and have other illnesses such as diabetes or heart failure. But the main thing affecting risk is where the narrowing is in your artery and how bad it is.

Problems that can happen straight away

Some minor side effects can happen during or straight after angioplasty. You may:

- Get **chest pain** during the operation
- **Bleed** slightly more than you would expect at the place where doctors put in the catheter. This is because you are given drugs to stop your blood clotting during angioplasty, which can make you bleed more. This can give you a big bruise
- Get an **infection** where the needle went in.

More serious problems can happen, but they are rare.

- Some people get an **allergic reaction** to the dye used in angioplasty. If you have any allergies you must tell your doctor.
- Angioplasty may not manage to open up the narrow part of your artery. The narrowing may be too long or too tight.
- Angioplasty may block the blood flow through the artery. This can give you a heart attack. Between 3 and 4 in 100 people who have angioplasty have a heart attack during or just after the operation. If the blockage is bad, you may need emergency open heart surgery to bypass the block. About 2 in 100 people need this.¹¹ Guidelines say that there should be a major heart surgery department within 30 minutes' journey by road in case this happens.
- You may have a **stroke** if you're having angioplasty just after a **heart**

attack. About 1 in 1,000 people have a stroke after angioplasty.¹² But angioplasty is much safer than drug treatment if you've had a heart attack. About 1 in 100 people who have drug treatment have this kind of stroke.⁶

- You can get **serious bleeding** after angioplasty. You may need a blood transfusion. This happens to around 1 in 200 people who have angioplasty. It can cause death, but this is rare.¹³
- There is a risk of **death**. About 1 in 100 people die during angioplasty.¹¹

If you also have a **stent** put into your artery to keep it open, there are some other problems that may happen:

- You can get a **blood clot** (thrombosis) where the stent is. This happens to less than 1 in 100 people¹⁴
- You are more likely to **bleed** than if you have angioplasty on its own. This happens to less than 3 in 100 people.¹⁵

Problems that can happen later

- You may need **further angioplasty** because your arteries have furred up again. About a third of people who have angioplasty need to have it again three to six months later. But having a stent left in the artery reduces this risk by half.¹⁶ If you have another angioplasty, it may not work so well.¹⁷
- You may need **another operation** to open up arteries. The operation that you usually have if angioplasty doesn't work is a **coronary artery bypass**. This is a more serious operation than angioplasty, but it works well. Of people who have angioplasty, between 2 in 100 and 7 in 100 end up having a coronary artery bypass.^{5 11}

What if I choose not to have coronary angioplasty?

It depends on how bad the narrowing of your arteries is. The studies show that if you don't have angioplasty:

- Your angina will probably get worse. Every year, about 5 in 100 people with angina have a heart attack or die from heart disease¹¹

- You will be less likely to see improvements in how far you can walk or how well you can climb up stairs
- You may be more likely to need coronary artery bypass surgery within three years.¹

What other treatments are there?

The treatments you will be offered for angina depend on how bad your chest pain is, how fit you are and what the X-ray of the arteries in your heart shows.

Many drugs work well for angina.

- You might be prescribed a **calcium channel blocker** (which increases blood flow to the heart), a **beta-blocker** (which makes the heart work less hard so it needs less oxygen) or a **nitrate** (which temporarily widens the arteries and helps more blood to flow through them). But these drugs don't remove the cause of the angina: the blocked artery. If your angina is moderate or severe, angioplasty works better than drugs. Your general health and vitality is likely to be better after an operation. You'll probably feel less breathless and be able to walk further. But you'll probably survive as long if you have medical treatment.^{18 19}
- After a heart attack you may be given drugs that break up clots in your blood and get the blood flowing to your heart again. They're called **thrombolytics**. The side effects of these drugs can be more dangerous than the problems linked to angioplasty. The research shows you're less likely to die, have another heart attack or stroke if you have the operation.²⁰
- **Aspirin** and drugs called statins can help prevent another heart attack. Aspirin works to stop clots forming and blocking arteries. **Statins** reduce the amount of cholesterol in the blood. We don't know if statins



work better than angioplasty because studies haven't compared these treatments.^{21 22}

If more than one of the arteries in your heart or the main part of the left artery is narrowed, you may need an operation called a **coronary artery bypass graft (CABG)**. It takes a healthy vein from another part of your body (such as your leg) to take over the job of a narrowed heart artery. This operation may work slightly better than angioplasty at relieving angina.¹⁶ You're also less likely to need another operation later on after bypass surgery.^{16 19} And slightly fewer people may die within five years after a coronary bypass.¹⁶ But it is a much more serious operation and there is a greater risk of dying while it is being carried out.

What can I expect after coronary angioplasty?

You may need to stay in hospital overnight. Your blood pressure and heart rate will be checked every four hours. If the catheter has been taken out immediately after the operation, a special plaster called a **collagen plug** may be used to cover the cut and stop any bleeding. If the catheter is removed later, a nurse will press down on the cut for about 20 minutes to help stop the bleeding.

You should be able to leave hospital the next day. Arrange to be collected as you shouldn't drive for a week after the operation.

Going home

After angioplasty many people feel better than they have done for years. You may find you can do more things without getting breathless or feeling pain in your chest. But take your time to recover from the operation. You shouldn't lift anything heavy for the first few days. And don't try to do too much in the first week. After that you should be able to drive a car. But if you drive a vehicle for which you need a special licence (such as a lorry or mini-bus) you need to wait six weeks and have some tests to check your fitness.

You can have sex after your angioplasty as soon as you feel you are ready. You may feel anxious, but sex doesn't put any more strain on your heart than climbing a couple of flights of stairs.

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