



British Heart
Foundation

Coronary angioplasty helped me to keep active

Malcolm Jackson

**FIGHT
FOR EVERY
HEARTBEAT**

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ABOUT THE BRITISH HEART FOUNDATION

As the nation's heart charity, we have been funding cutting-edge research that has made a big difference to people's lives.

But the landscape of cardiovascular disease is changing. More people survive a heart attack than ever before, and that means more people are now living with long-term heart conditions and need our help.

Our research is powered by your support. Every pound raised, every minute of your time and every donation to our shops will help make a difference to people's lives.

If you would like to make a donation, please:

- call our donation hotline on **0300 330 3322**
- visit **[bhf.org.uk/donate](https://www.bhf.org.uk/donate)** or
- post it to us at BHF Customer Services, Lyndon Place, 2096 Coventry Road, Birmingham B26 3YU.

For more information, see **[bhf.org.uk](https://www.bhf.org.uk)**

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This booklet is for people with coronary heart disease who have been advised to have a treatment called coronary angioplasty.

The reason you may need to have this treatment is that the inside of one or more of your coronary arteries has become narrowed. The coronary arteries are the arteries on the surface of the heart that supply your heart muscle with blood and oxygen. This narrowing may be giving you symptoms called angina. A coronary angioplasty is a procedure which widens the narrowing so that your blood can flow through the artery more easily. This improves the blood supply to your heart and can help to relieve your angina. (We explain more about this on page 13.)

Coronary angioplasty was first used in the UK in 1980, and has developed rapidly since then. Over 90,000 coronary angioplasties are now done each year in the UK.

A coronary angioplasty is sometimes called:

- **PCI**, which stands for percutaneous coronary intervention
- **balloon angioplasty**, or

- **coronary stent implantation**.

This booklet explains:

- who needs to have a coronary angioplasty
- what happens in a coronary angioplasty
- how successful it is, and
- what you can do to help yourself after having the angioplasty.

On the next page, we describe what heart and circulatory disease is, as this will help you understand why you need a coronary angioplasty.

This booklet does not replace the advice your doctor or cardiologist (heart specialist) may give you, but it should help you to understand what they tell you.

Is this the right booklet for you?

When a coronary angioplasty is done as an emergency treatment during a heart attack, it is called a **primary angioplasty** or **primary PCI**. If you had a primary angioplasty, our booklet *Heart Attack* has more information about this.

WHAT IS HEART AND CIRCULATORY DISEASE?

Heart and circulatory disease means all diseases of the heart and circulation. It includes **coronary heart disease** (which can cause **angina** and **heart attacks**), and **stroke**.

Heart and circulatory disease is one of the most common causes of death in the UK and is the cause of around one in every four deaths each year.

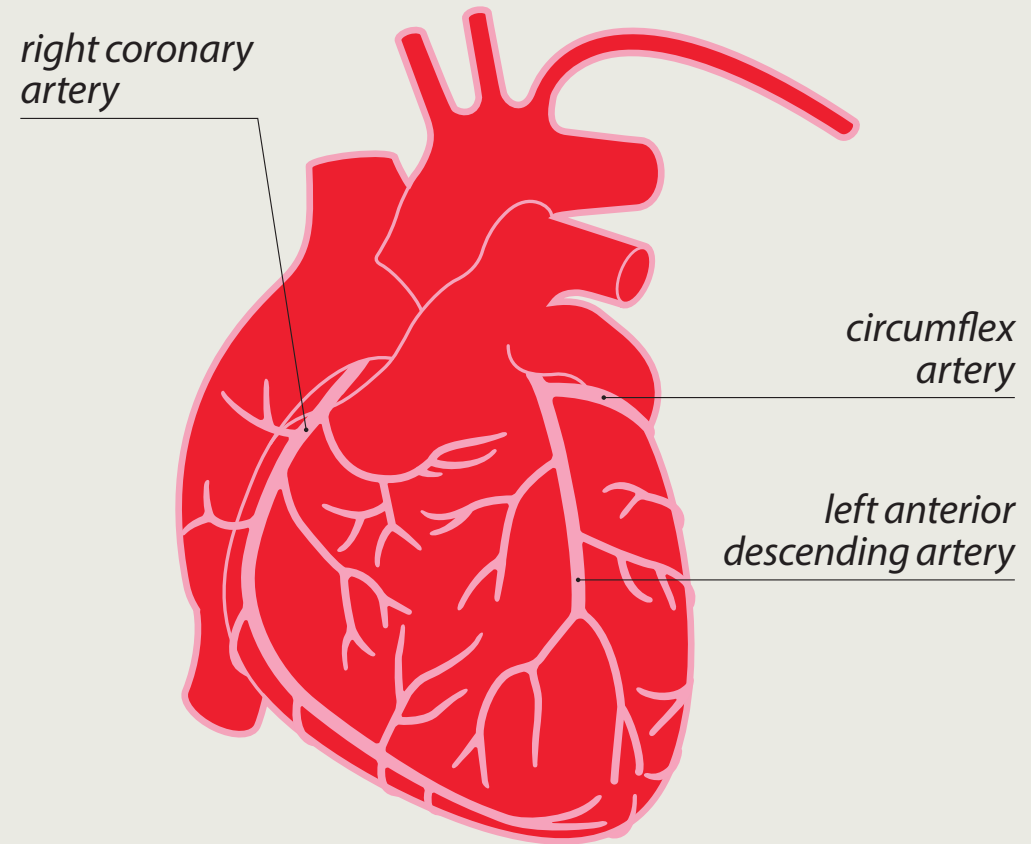
How the heart works

Your heart is a muscle that pumps blood around your body, delivering oxygen and other nutrients to all your cells.

Your heart muscle needs its own supply of oxygen and nutrients so that it can pump blood around your body. Your heart gets its blood supply from the **coronary arteries**, which are on the outside of your heart.

The heart

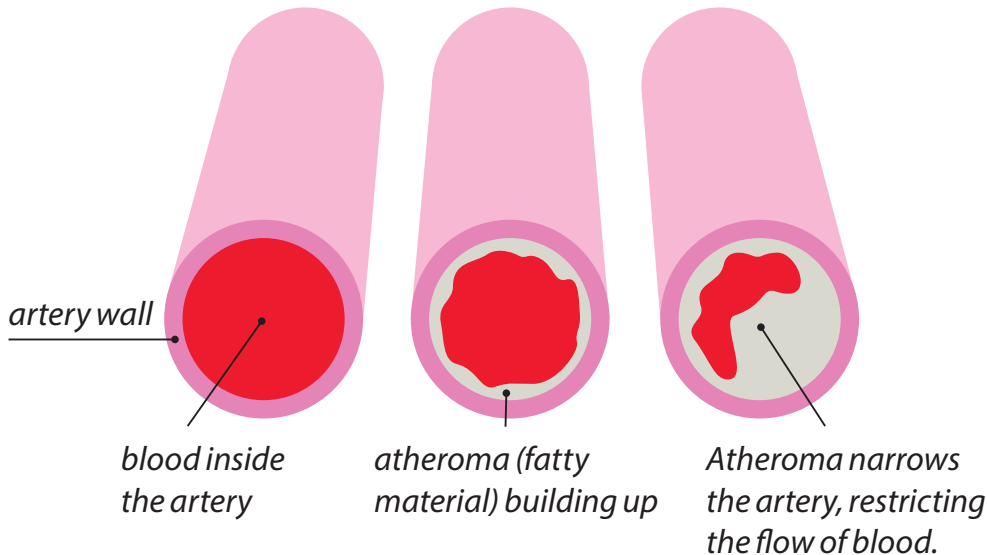
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Coronary heart disease

Your coronary arteries play a vital role in keeping your heart healthy. But in some people, the coronary arteries can become narrowed because fatty deposits, called **atheroma**, have built up within the artery walls. (See the diagram below.) This process is called **atherosclerosis** and it is what causes **coronary heart disease**. Coronary heart disease is sometimes called **ischaemic heart disease**.

How atheroma builds up



The artery may become so narrow that it's not able to deliver enough blood and oxygen to your heart at times when your heart needs more than usual – such as when you're being physically active. You may feel discomfort, tightness or pain in your chest. This is called **angina**.

The cause of a heart attack is nearly always coronary heart disease. The fatty area of atheroma in the artery wall is called a **plaque**. If a plaque cracks, a blood clot forms to try to repair the damaged artery wall. This blood clot can block your coronary artery, causing part of your heart muscle to be starved of blood.

If this happens, the affected part of your heart muscle will begin to die, because it is not getting any oxygen. This is a **heart attack**.

For information on the symptoms of a heart attack, and what to do if you think someone is having a heart attack, see page 44.



For more information about heart attacks, see our booklet **Heart attack**.

Many people live with **stable angina**. This is when the symptoms of angina don't vary much (because the pattern of narrowings in the coronary arteries is not changing), and when the angina can be controlled using medicines. Most people with stable angina can live a normal or good-quality life for many years.

Unstable angina is when the angina happens more frequently or even when you are just resting. This can happen when there is a change in the narrowings in your coronary arteries.

If it is difficult to control your angina symptoms with medicines, or if your angina is unstable, you may be advised to have treatment to improve the blood supply to your heart. This treatment, along with taking certain medicines, can control your angina symptoms more effectively and improve your quality of life.

There are two main types of treatment:

- **Coronary angioplasty with a stent.** This treatment widens the narrowings in the coronary arteries.

- **Coronary artery bypass surgery.** This involves bypassing the narrowings in the coronary arteries.

This booklet is all about coronary angioplasty. For more information about having coronary artery bypass surgery, see our booklet *Heart surgery*.

Deciding what treatment you need

Before the cardiologist decides what treatment to advise for you, they will ask you to have a test called a **coronary angiogram**. This is sometimes called **cardiac catheterisation**. It allows the doctor to see where there are narrowings inside your coronary arteries, and how severe the narrowing is.

An angiogram test can help decide the best treatment for you. Nearly four out of every ten people who have a coronary angiogram go on to have an angioplasty. Of those who don't go on to have an angioplasty, some may need to have coronary artery bypass surgery, and some will just need to continue taking their medicines. Others won't need any treatment if the angiogram has shown that they don't have coronary heart disease.

Often, the cardiologist will do a coronary angioplasty during the same procedure, just after your coronary angiogram. Or, you may be asked to return a few weeks later for the coronary angioplasty.



For more information on tests for the heart, see:

- our leaflet **Angiogram – Your quick guide**
- our booklet **Tests**, or
- our DVD **The road ahead – Your guide to heart tests and treatments**.

See page 54 for details of how to get these.

Coronary angioplasty is a technique that squashes the atheroma (fatty deposits) flatter against the walls of the coronary artery. This makes the inside of the artery wider and allows the blood to flow through it more easily. We explain what happens in more detail on page 13.

Coronary angioplasty can be done:

- as a treatment that is planned beforehand
- as an urgent treatment, or
- as an emergency treatment.

As a planned treatment

Many people have a coronary angioplasty as a treatment that's planned in advance. This is usually because their medicines aren't controlling their angina symptoms well enough.

You can have an angioplasty treatment more than once on the same artery if another narrowing develops there later, or on a different coronary artery if a new narrowing has developed. An angioplasty can also be done if you've already had coronary artery bypass surgery but your angina has come back

or got worse. This may happen either because one of the grafts has become narrowed or blocked, or because you've developed new narrowings in other arteries.

As an urgent treatment

Coronary angioplasty is also used as an urgent treatment for some people who develop unstable symptoms because they have an acute coronary syndrome. **Acute coronary syndrome** includes heart attacks and unstable angina. The technique involved in an urgent coronary angioplasty is the same as for a planned coronary angioplasty, but you may need to take different medicines.

As an emergency treatment

During some heart attacks, angioplasty is the recommended emergency treatment to re-open the blocked coronary artery as soon as possible after the start of a heart attack. This can help to limit the damage to the heart muscle as much as possible. When an angioplasty is used in this way, it is called a **primary angioplasty**. For more information on this, see our booklet *Heart attack*.

WHAT HAPPENS WHEN YOU HAVE A CORONARY ANGIOPLASTY?

You will be asked not to have anything to eat or drink for a few hours before your coronary angioplasty.

The procedure takes place in a special X-ray room at a hospital called a cardiac catheterisation laboratory (or 'cath lab' for short). You will be asked to lie down on an X-ray table and you'll be given a local anaesthetic in your groin or your wrist to numb the area. If you are particularly nervous, the doctors and nurses can give you some sedative medicines to help you relax.

A small incision (cut) is then made either in your groin or wrist, and a catheter (a fine, flexible, hollow tube) with a small, deflated balloon at its tip is inserted into an artery in your groin or wrist. It is then passed up towards your heart and into the coronary artery.

Some 'radio-opaque' dye is injected into the catheter. This flows into your coronary arteries and makes them show up on an X-ray. The cardiologist can then see exactly where there are narrowings, and how severe they are.

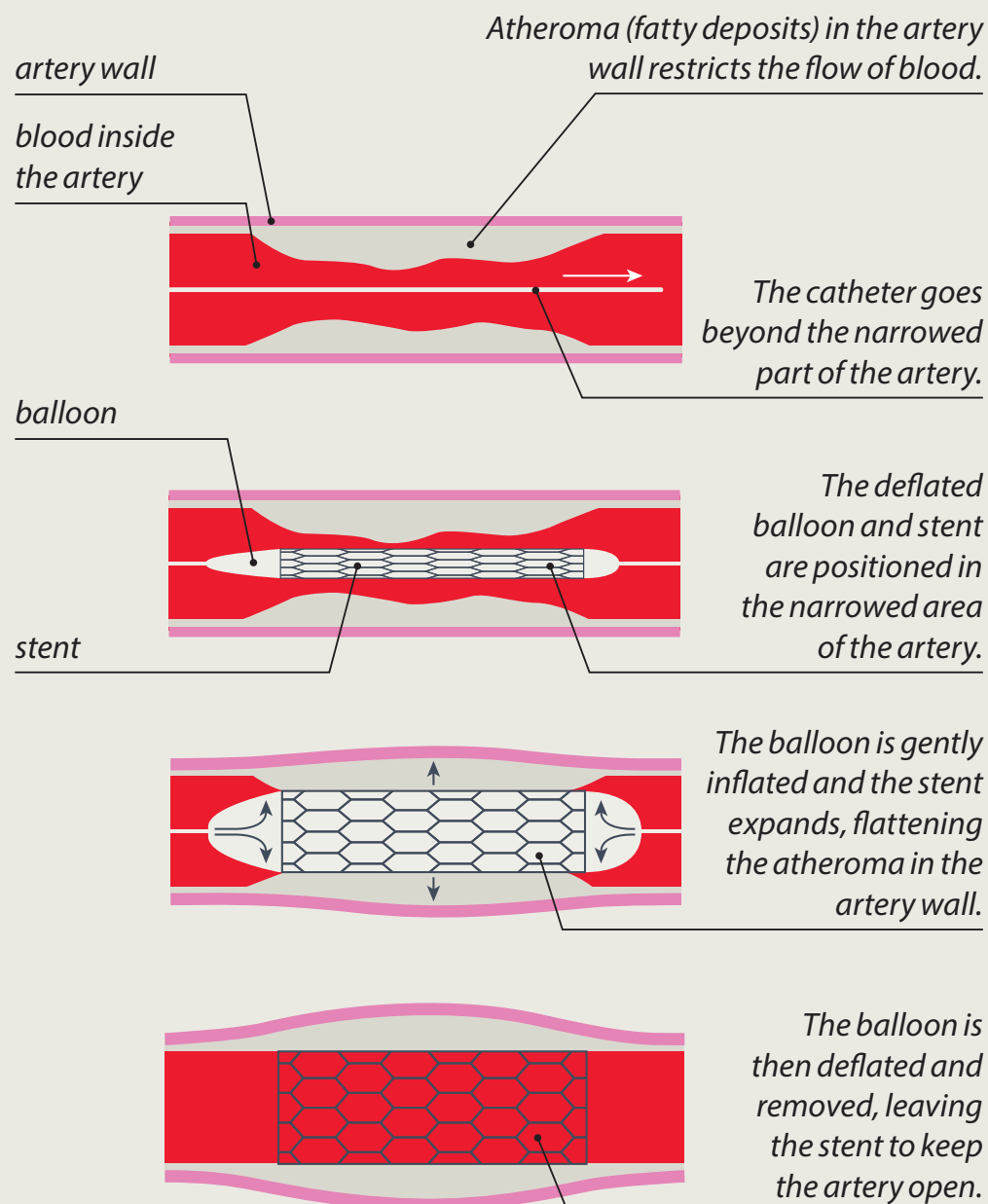
Once the cardiologist has identified a narrowing that needs to be treated, the balloon is then gently inflated, so that it squashes any atheroma (fatty tissue) flatter against the inside wall of the artery. This widens the artery so that the blood can flow through it more freely to your heart muscle. See the diagram on the next page.

In almost all coronary angioplasties, a **stent** is then inserted in the widened artery. A stent is a small metal mesh tube which acts as a scaffold. The stent is already in position on the deflated balloon. When the balloon is inflated, the stent expands and presses against the artery wall. When the balloon is deflated, the catheter is removed, leaving the expanded stent in place inside the coronary artery, to help keep the artery open. We explain more about the different types of stents on page 17.



To see a short video about having a coronary angioplasty, see our website [bhf.org.uk/angioplasty](https://www.bhf.org.uk/angioplasty)

Coronary angioplasty with a stent



Over 90,000 coronary angioplasties are done each year in the UK.

How long will the coronary angioplasty take?

How long a coronary angioplasty takes depends on how many narrowings need to be treated. Most angioplasties take between one and two hours.

Will I feel anything?

Some people may feel angina during this procedure. If you experience any symptoms or if you feel unwell, tell the team.

Medicines

Before and during the coronary angioplasty you will be given medicines – some to swallow and some through a vein – to help stop your blood from forming clots.

For information on the medicines you will need to take after your angioplasty, see page 21.

Types of stents

Stents are used in most coronary angioplasties. The two main types that are currently used are:

- **drug-eluting stents, and**
- **bare-metal stents.**

Drug-eluting stents are coated with a medicine which reduces the risk of the artery becoming narrow again after the angioplasty. Most people have this type of stent.

Bare-metal stents are more suitable in certain circumstances.

There are national guidelines to advise cardiologists about which type of stent it is best to use. These guidelines will help to decide which type of stent you will be given.

You may need to have more than one stent.

This could be because:

- the narrowing is too long for one stent
- you have narrowings in different places in the same artery, or
- you have narrowings in more than one artery.

A new type of stent, called a **bio-absorbable stent** is currently being developed. These stents are made from a material which, over time, becomes absorbed by the body, allowing the artery to 're-form' and work like a normal artery. At the moment they are undergoing research and are not being used routinely.

New techniques

At some centres, cardiologists are using the following new techniques during the angioplasty procedure, to help them decide how best to treat you. They take just a few minutes and provide the doctors with extra information about the narrowings inside your arteries.

Intravascular ultrasound (IVUS) uses sound waves to look inside the artery. A small sound probe, attached to the tip of the catheter, measures the sound waves reflecting off the artery. This provides pictures of the artery walls, and shows in more detail where the plaque is and how much there is. IVUS is often used to decide exactly where a stent should be placed, or to make sure the stent is placed in the correct position.

A small number of centres use a technique called **optical coherence tomography (OCT)**, where a tiny camera at the tip of the catheter provides detailed images of the artery.

Sometimes the doctors use a technique called **fractional flow reserve (FFR)** to test the flow of blood in your arteries.

Reactions to the dye

It's normal to get a warm, flushing feeling when the radio-opaque dye is injected during a coronary angioplasty. This lasts only a short time.

A small number of people may have an allergic reaction to the dye. It's rare to have a serious reaction. However, if you've ever had any test that uses radio-opaque dye and you've had an allergic reaction to it, no matter how small, tell the cardiologist and nurse before you have your angioplasty.

Radiation

Having a coronary angioplasty means that you are exposed to a small amount of radiation. However, if you've been told that you need an angioplasty, the benefits of having the procedure are likely to be greater than the risks from the radiation. For more information about radiation, see our booklet *Tests*.

After the angioplasty

After the angioplasty, the catheter is removed, and a nurse or cardiologist will apply pressure over the area where it was inserted (the puncture site) for a short while, to stop any bleeding.

Over the next few hours, a nurse will regularly check your blood pressure and heart rate, the pulses in your feet or arm, and the puncture site.

If the puncture site was in your arm, you will normally be able to sit up soon after the angioplasty. If it was in your groin, you will usually have to stay in bed lying on your back for a few hours afterwards. However, a special sealing device for the puncture site is often used. This can allow you to sit up and get out of bed more quickly.

In the first few hours after the angioplasty, you may get a little chest discomfort that feels like angina. If this happens, tell your doctor or nurse about it.

Medicines

After you've had the angioplasty, you will be given **anti-platelet medicines**, including **aspirin** (unless you are allergic to it), and another drug such as **clopidogrel**, **ticagrelor** or **prasugrel**. These medicines reduce the risk of clots forming inside the stent and blocking the coronary artery.

Most people will be advised to take clopidogrel, ticagrelor or prasugrel for up to a year after their

angioplasty. Some people may have to take these medicines for longer. You'll also need to take aspirin for the rest of your life. Don't suddenly stop taking your medicines without speaking to your doctor first.

Going home

Many people who have a planned coronary angioplasty can go home on the same day, especially if the puncture site was in the arm rather than the groin. Others usually go home the next day. When you are making your plans for going home, try to arrange for someone to stay at home with you for the first night.

If you have had an angioplasty as an urgent or emergency treatment for acute coronary syndrome or a heart attack, how long you'll need to stay in hospital will depend on your initial condition and diagnosis, and on how quickly you recover.

Before you leave the hospital, the team will talk to you about what you can and cannot do when you get home. They will also tell you about what medicines you need to take and when your follow-up appointment will be.

While you're in hospital, a member of the cardiac rehabilitation team may visit you. They will talk to you about your recovery and how to get back to your usual activities, and offer advice on how you can improve your diet and lifestyle. They'll also give you information on how to join a cardiac rehabilitation programme after you go home. See page 29.

MALCOLM'S STORY

Malcolm had always been fit and active, so it was a shock to find out he needed an angioplasty.

“Around ten years ago I played football regularly, I cycled a lot, and went on 10–15 mile walks. When I was 49, I started getting chest pain when I exercised. I had various tests and they found one of my coronary arteries was nearly completely blocked.

I had to have an angioplasty and three stents fitted. It was scary, but I felt very well looked after. The team of specialists were all brilliant. They explained what they needed to do, and all the risks and benefits.

I get angina from time to time now. Another angiogram last year showed that some of my smaller arteries are also narrowed, but they're too small to stent. My angina does limit what I can do, but the angioplasty I had means that I'm still able to walk and ride my bike regularly.”



When you get home, keep an eye on the area where the catheter was inserted. You can expect to have some bruising and tenderness. But contact your GP if you get any new swelling, or if the bruising becomes very widespread, or if the area becomes hard and painful. If your leg or arm changes colour, or becomes numb or cool to touch, get medical attention straight away. In very rare cases, there may be significant bleeding from the artery. If this happens, apply firm pressure and call 999.

You may feel tired after having your coronary angioplasty, but most people find that they're back to normal within a few days. Gradually increase your activity to get back to what you were able to do before the angioplasty. But avoid doing any strenuous or demanding activities, like heavy lifting, for at least a week, or longer if your doctor says so.

If you were suffering from frequent angina before the angioplasty, you may be able to do more than you were doing before.

If you've had a heart attack, it will take longer for you to recover and you'll need to avoid strenuous or demanding activities for longer.

For information on what to do if you get chest pain, see page 42.

Driving

If you have a car or motorcycle licence

If you have an ordinary driving licence to drive a car or motorcycle, you should not drive for at least one week after having a successful angioplasty. However, if you've also had a heart attack, the time needed before you can start driving again depends on the nature of your heart attack. Most people will need to avoid driving for at least four weeks, but some people may be allowed to drive after a week. Check this with your doctor or cardiac rehab team.

To find out if you need to tell the DVLA about your heart condition or about a treatment you have had for it, visit www.gov.uk/health-conditions-and-driving. Or call the DVLA on 0300 790 6806, or write to them at DVLA, Swansea SA99 1TU.

If you have a bus, coach or lorry licence

If you have one of these licences, you should not drive for at least six weeks after your angioplasty. You will

need to have further tests before you can drive a bus, coach or lorry again.

You will need to tell the DVLA about your condition and check with them whether you can continue to drive. Their contact details are on page 27.

Telling your motor insurance company about your heart condition

Whatever sort of driving licence you have, you need to tell your motor insurance company that you have a heart condition and about any treatment that you have had for it. If you don't, your insurance may not be valid.

Returning to work

If you have had an angioplasty that was planned in advance, and there were no complications, you may be able to return to work within a few days, depending on the type of work you do. If you had an angioplasty as an urgent treatment for acute coronary syndrome, it's likely that you will need to wait longer than this before going back to work. If you have had a heart attack, you may need to take a few weeks off work, or longer if you have a manual job.

Talk to your cardiologist or cardiac rehabilitation team about when you are able to go back to work.

Cardiac rehabilitation programme

You should be invited to go to a cardiac rehabilitation programme which you can start a short while after you get home from hospital. This is a programme of exercise and information sessions that will help you to get back to everyday life as quickly as possible and keep your heart healthy, helping to tackle the risk factors of future cardiac events like a heart attack.

Will I have to avoid any equipment or machinery because of my stents?

People who have stents can use machines that have metal-detection devices – such as those used in airport security systems – as these devices don't affect the stents.

The stents are not affected by MRI scans. (An MRI scan is a medical test that shows pictures of your internal organs.)



For more information, see our booklets:

- **Returning to work, and**
- **Cardiac rehabilitation.**

Many people find that, after a coronary angioplasty, their angina symptoms are relieved and their quality of life improves.

For most people, angioplasty improves the blood flow through the treated artery. Many people find that, after an angioplasty, their angina symptoms are relieved, they are able to do more, and their quality of life improves.

A small number of people may have complications. The risk of this happening depends on your overall health and your individual heart condition. Very occasionally there are serious problems with the coronary artery that is being treated. If surgery is needed to repair this, a cardiac surgeon will need to do emergency **coronary artery bypass surgery**. Emergency surgery is needed in less than 1 in every 1,000 people who have a coronary angioplasty.

There is also a small risk that you may have a heart attack or stroke, or die, during the angioplasty. If you have a planned angioplasty and are therefore in a stable condition when you have the angioplasty, the risk of this happening to you is less than 1 in 100. The risks may be slightly lower or higher depending on your individual condition. Your doctor will discuss with you the benefits of you having an angioplasty, and the risks.

If you have an angioplasty but it does not widen

the narrowed artery successfully, your doctor may recommend that you continue taking your current medicines or start taking some new ones. Or, they may recommend that you have coronary artery bypass surgery. However, you may not need to have the surgery immediately.

Sometimes the artery where the stent has been inserted becomes narrowed again, and causes angina symptoms to return. This is called **in-stent restenosis**. If this does happen, it usually happens in the first six months after the angioplasty, when the artery wall is reacting to having the stent inserted. It happens because too many cells divide at the site of the angioplasty to help repair it, causing a re-narrowing of the artery. If this happens, not enough blood can flow through the artery.

To reduce the risk of in-stent restenosis, drug-eluting stents are increasingly used. However, there is also a small risk of **in-stent thrombosis** (a blood clot forming in the stent) from both drug-eluting and bare-metal stents. This is why you will need to take anti-platelet medicines after your angioplasty, whichever type of stent you have.

Your coronary angiogram test may show that nothing needs to be done – either because you don't have coronary heart disease, or because the affected artery is not narrowed enough to treat it with angioplasty.

However, if it shows that your angina is caused by one or more narrowings in the coronary arteries, your cardiologist will decide whether:

- your symptoms can be improved by a coronary angioplasty, or
- coronary artery bypass surgery is the best treatment for you.

With the advances in angioplasty techniques, many people are able to get relief from their symptoms by having an angioplasty. But sometimes a bypass may be a preferred option for you, as your team might feel that it will give you a better long-term outlook.

Even if you've had an angioplasty in the past, you may need to have bypass surgery later on. Also, if you've had a bypass operation and your symptoms return, you may need an angioplasty either to the bypass graft that you already have, or to one of your other coronary arteries.

HINA'S STORY

Hina Shah had a heart attack when she was 36. A few months later she went for a planned angioplasty.

“The angioplasty was uncomfortable, but it all went well. Because I was awake, I was aware of the staff buzzing around me – it was a strange experience. Afterwards I went into a recovery area and stayed overnight on a ward. The care was excellent, but I found it exhausting being in hospital.

When I went home, I felt really tired and was quite tender. But gradually I returned to my normal activities and after about two weeks I went back to work. Since then everything has been fine.

I know how important it is to look after my health. I walk for an hour most days and I do Zumba and yoga regularly. I now realise how precious life is and I live a better and fuller life than before. I'm more conscious of not taking on too much and petty things don't bother me as much. Life is too short!”



There's a lot you can do, both before and after your angioplasty, to help keep your heart healthy.

After an angioplasty, many people stay symptom-free for a long time. But this depends on you taking your medicines as prescribed and living a healthy lifestyle.

Remember that angioplasty does not cure the atherosclerosis – the build-up of fatty material – in your coronary arteries. It will improve the blood flow to your heart, but you will still have coronary heart disease. Coronary heart disease can get worse over time, your arteries may narrow again and your angina symptoms may return. So it is very important to do everything you can to help your heart and its arteries. The best way to slow down the progression of your coronary heart disease, help prevent angina, and reduce the chances of a heart attack is to live a healthy lifestyle and take your medicines as prescribed. We explain more about this on the next few pages.

If you smoke – stop

We cannot say strongly enough how bad smoking is for you, particularly for your heart. Stopping smoking is the single most important thing you can do to improve your heart health.

Talk to your doctor or practice nurse for information, advice and support to help you stop smoking – such as practical tips on how to stop, joining a stop-smoking group, nicotine-replacement products, or medicines.

For more information and help on stopping smoking, see our booklet *Stop smoking*. Or call one of the following helplines or visit the websites. They all offer practical help for people who want to stop smoking.

- **Quitline** 0800 002200
www.quit.org.uk
- **NHS Smoking Helpline** 0300 123 1044
www.smokefree.nhs.uk
- **www.nosmokingday.org.uk** – This website also has a forum where you can swap tips with fellow quitters.

Eat a healthy diet

Eating a healthy, balanced diet can help to protect your heart.

- Eat at least five portions of a variety of **fruit and vegetables** a day.
- Cut down on **saturated fats**. These are found mostly in foods from animal sources such as fatty meat, and high-fat dairy products such as butter, ghee, cheese and cream.
- Replace saturated fat with small amounts of **unsaturated fats** such as olive, rapeseed, sunflower oils and their spreads, as well as oily fish and some nuts and seeds.
- Eat less **salt**. Don't add salt when you are cooking or eating. Use alternatives such as herbs and spices to flavour your food. And look at food labels to help you choose foods that are lower in salt.

Watch your weight

If you are overweight when you are referred for an angioplasty, your doctor or nurse will give you advice on how to lose weight. This will reduce your risk of having heart problems in the future.

You can also get advice about losing weight and keeping to a healthy body shape if you go on a cardiac rehabilitation programme (see page 29).

Watch your cholesterol level

Because you have coronary heart disease, it's important that you keep your cholesterol level low. Your doctor will probably advise you to take a medicine called a **statin**, to help lower your cholesterol level and protect your heart.

Watch your blood pressure

Because you have coronary heart disease, it's important that you keep your blood pressure under control. Doing this will help to reduce your risk of further heart problems. Your doctor or nurse will monitor your blood pressure. Lifestyle changes – such as doing regular physical activity, keeping to a healthy weight, and cutting down on salt and alcohol – will all help. If your blood pressure is still high, your doctor may prescribe medicines to help reduce it.



For more information, see our booklets **Eating well**, **Facts not fads: Your simple guide to healthy weight loss**, **Reducing your blood cholesterol** and **Blood pressure**.

Keep physically active

Try to keep as physically active as you can. Choose activities that you know you will enjoy and do regularly. After your angioplasty, don't try to push yourself too hard at first. Build up your activity gradually. You can ask your doctor or cardiac rehabilitation team about how much activity you should be doing (see page 29).

Once you've recovered from your angioplasty, try to build up to at least **150 minutes (2½ hours) of moderate-intensity physical activity a week, in bouts of 10 minutes or more.**

'Moderate-intensity' means any activity that makes you feel warmer and breathe harder, and makes your heart beat faster than usual. These activities include brisk walking, cycling or swimming.

Take your medicines as prescribed

If you've had an angioplasty, your doctor will have given you certain medicines that will help reduce the risk of having a heart attack and slow down the progression of your coronary heart disease. These medicines may include aspirin, clopidogrel,

ticagrelor or prasugrel, beta-blockers, statins, and ACE inhibitors (or an ARB).

It's important to take these medicines as prescribed, as they help protect your heart. But don't stop taking any of them without first checking with your doctor.

Air pollution

It is important to be aware that being exposed to high levels of air pollution can make existing heart conditions worse. The level of air pollution varies from day to day, depending on the weather and season. Pollution levels are classed as low, moderate, high or very high.

If you have a heart condition, you may want to avoid spending long periods of time in places where there are high levels of air pollution. For example, avoid walking on or near busy roads. For most people, the benefits of exercising outdoors outweigh the risks associated with air pollution, but it is good to be aware of the potential risk.



For more information, see our booklets:

- **Cardiac rehabilitation,**
- **Get active, stay active, and**
- **Medicines for your heart.**

WHAT TO DO IF YOU GET CHEST PAIN

This information is for people who already have coronary heart disease and who are taking GTN (glyceryl trinitrate) spray or tablets for their angina symptoms.

As you already have coronary heart disease, you may get chest pain or discomfort from time to time. Sometimes this will be angina, which you will be able to manage at home with your GTN. However, it could also be a symptom of a heart attack.

IF YOU GET CHEST PAIN...

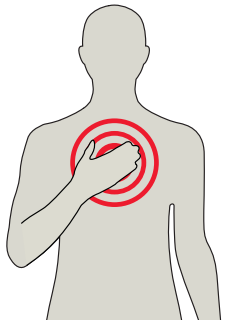
- 1** Stop what you are doing.
- 2** Sit down and rest.
- 3** Use your GTN spray or tablets. Take the GTN as your doctor or nurse has told you. The pain should go away within five minutes. If it doesn't, take your GTN again.
- 4** If the pain has not gone away within five minutes of taking the second dose of GTN, call 999 immediately.
- 5** Chew an adult aspirin tablet (300mg) if there is one easily available, unless you're allergic to aspirin or have been told not to take it. If you don't have an aspirin next to you, or if you don't know if you're allergic to aspirin, just stay resting until the ambulance arrives.

If you have symptoms that do not match the ones we have described but you think that you are having a heart attack, call 999 immediately.

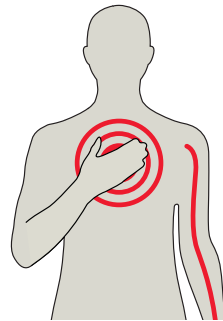
HEART ATTACK? THE SYMPTOMS ... AND WHAT TO DO

A heart attack is when a part of the heart muscle suddenly loses its blood supply. This is usually due to coronary heart disease.

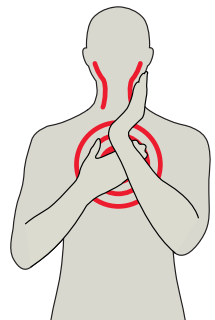
The symptoms of a heart attack



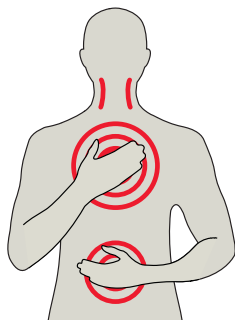
Pain or discomfort in the chest that doesn't go away.



The pain may spread to the left or right arm ...



... or may spread to the neck and jaw.



You may feel sick or short of breath.

Think quick ... act fast. Call 999 immediately.

ACT FAST...

What to do if you think someone is having a heart attack

- 1** Send someone to call 999 for an ambulance immediately.

If you are alone, go and call 999 immediately and then come straight back to the person.
- 2** Get the person to sit in a comfortable position, stay with them and keep them calm.
- 3** Give the person an adult aspirin tablet (300mg) to chew if one is easily available, unless they're allergic to aspirin or they've been told not to take it.

If you don't have an aspirin next to you, or if you don't know if the person is allergic to aspirin, just get them to stay resting until the ambulance arrives.

A **cardiac arrest** is when a person's heart stops pumping blood round their body and they become unconscious and stop breathing or stop breathing normally.

A person who is having a cardiac arrest may develop a dangerously fast heart rhythm which can be fatal. It is sometimes possible to shock the heart back into a normal heart rhythm by giving **defibrillation**. This means giving the heart an electrical shock using a defibrillator.

There are now **public access defibrillators** – or **PADs** for short – in many workplaces, shopping centres, train stations, leisure centres and village halls. It's very easy to use a PAD. The machine gives clear, spoken instructions and you don't need training to use one.

Once attached to a person in cardiac arrest, the PAD will instruct you whether or not a shock is needed and how to deliver it.

Find out where the PADs in your local area are. For more information, go to **[bhf.org.uk/defibs](https://www.bhf.org.uk/defibs)**

The most important thing you can do to help save a person's life is **CPR – cardiopulmonary resuscitation**. This, along with defibrillation, can double someone's chance of survival in some cases. We explain how to do this on the next pages.

CALL PUSH RESCUE

If someone has had a cardiac arrest, they will be unconscious, and either not breathing or not breathing normally. The person needs immediate help or they will die within minutes.

First check that it is safe to approach the person.

To find out if the person is conscious, gently shake him or her, and shout loudly, 'Are you all right?' If there is no response, the person is unconscious.

You will need to assess the person's **airway** and **breathing**.

Open the person's airway by tilting their head back and lifting their chin.



Look, listen and feel for signs of normal breathing. Only do this for up to ten seconds. Don't confuse gasps with normal breathing. If you're not sure if their breathing is normal, act as if it is not normal.

Now remember: **Call Push Rescue**

CALL...

Call for help.

If the person is unconscious and is either not breathing or not breathing normally, they are in cardiac arrest.

Call 999 immediately.

- Send someone else to call 999 for an ambulance while you start CPR.
- **Or, if you are alone with the person, call 999 before you start CPR.**



PUSH...

Push hard and fast on the centre of the chest.



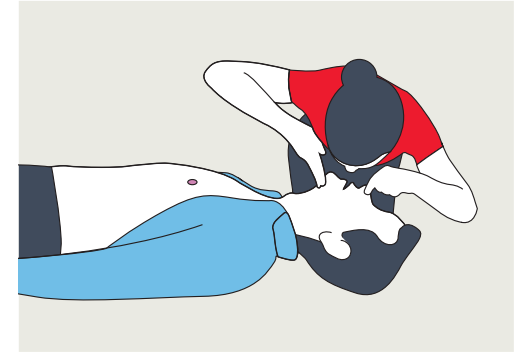
Start chest compressions.

Place the heel of one hand in the centre of the person's chest. Place the heel of your other hand on top of your first hand and interlock your fingers. Press down firmly and smoothly on the chest 30 times, so

that the chest is pressed down between five and six centimetres each time. Do this at a rate of about 100 to 120 times a minute. That's about two each second.

RESCUE...

Give rescue breaths.



After 30 compressions, open the airway again by tilting the head back and lifting the chin, and give two of your own breaths to the person. These are called rescue breaths.

To do this, pinch the soft parts of the person's nose closed. Take a normal breath, make a seal around their mouth with your mouth, and then breathe out steadily. The person's chest should rise and fall with each breath. It should take no more than five seconds to give the two rescue breaths.

Then give another 30 chest compressions and then two rescue breaths.

Keep doing the 30 chest compressions followed by two rescue breaths until:

- the ambulance crew arrives and takes over, or

- the person starts to show signs of regaining consciousness, such as coughing, opening their eyes, speaking, or moving purposefully **and** starts to breathe normally, or
- you become exhausted.

If you prefer not to give rescue breaths

If you'd rather not give rescue breaths, call 999 and then deliver **hands-only CPR**. Keep doing the chest compressions – at a rate of about 100 to 120 times a minute.

For more on this, see [bhf.org.uk/handsonly](https://www.bhf.org.uk/handsonly)



For more information about training in how to do CPR, see page 56.

British Heart Foundation website

[bhf.org.uk](https://www.bhf.org.uk)

For up-to-date information on cardiovascular disease, the BHF and its services.

Genetic Information Service

0300 456 8383

(A similar cost to 01 or 02 numbers.)

For information and support on inherited heart conditions.

Online community

community.bhf.org.uk

Share your experiences, stories, tips and ideas with other people like you in our online community.

Heart Helpline

0300 330 3311

(A similar cost to 01 or 02 numbers.)

For information and support about your heart condition and keeping your heart healthy.

Twitter

[@TheBHF](https://twitter.com/TheBHF)

Get our latest news and views directly into your Twitter feed.

Facebook

facebook.com/bhf

Join the conversation and get our latest news and updates on Facebook.

Booklets and DVDs

To order our booklets or DVDs:

- call the BHF Orderline on **0870 600 6566**
- email orderline@bhf.org.uk or
- visit bhf.org.uk/publications

You can also download many of our publications from our website. For a list of resources available from the BHF, ask for a copy of our catalogue *Take heart*.

Our resources and services are free of charge, but we rely on donations to continue our vital work. If you'd like to make a donation, please call our donation hotline on **0300 330 3322** or visit our website at bhf.org.uk/donate

Heart Information Series

This booklet is part of the *Heart Information Series*. The booklets in this series are:

- Angina
- Atrial fibrillation (AF)
- Blood pressure
- Cardiac rehabilitation
- Caring for someone with a heart condition
- Coronary angioplasty
- Diabetes and your heart
- Heart attack
- Heart failure
- Heart rhythms
- Heart surgery
- Heart transplant
- Heart valve disease
- Implantable cardioverter defibrillators (ICDs)
- Keep your heart healthy
- Living with a pacemaker
- Medicines for my heart
- Peripheral arterial disease
- Reducing your blood cholesterol
- Returning to work
- Tests

Our services

For more information about any of our services, contact the BHF on **0300 330 3322** or visit **bhf.org.uk**

Nation of Lifesavers

This BHF campaign aims to help save up to 5,000 extra lives each year by increasing knowledge of CPR (cardiopulmonary resuscitation) and how to use public access defibrillators (PADs) in an emergency. Join our Nation of Lifesavers at **bhf.org.uk/lifesavers**

- **Heartstart** is a free, two-hour course where you can learn CPR and other emergency life saving skills.
- Our **Call Push Rescue Training Kit** is available free to secondary schools and community groups, and for a small fee to workplaces. It has everything you need to learn CPR, including a training DVD.

Heart Matters

Heart Matters is the BHF's free, personalised service offering information to help you lead a heart-healthy lifestyle. Join today and enjoy the benefits, including

Heart Matters magazine and access to online tools. Call the **Heart Matters Helpline** on **0300 330 3300**, or join online at **bhf.org.uk/heartmatters**

Heart Support Groups

Local Heart Support Groups give you the chance to talk about your own experience with other heart patients and their carers. They may also include exercise classes, talks by guest speakers, and social get-togethers. To find out if there is a Heart Support Group in your area, contact the **Heart Helpline** on **0300 330 3311**.

Make yourself heard – Heart Voices

Heart Voices gives you the skills, confidence and knowledge you'll need to influence health services for the benefit of heart patients and their families across the UK. By signing up, you'll join a network of representatives that speaks out on behalf of heart patients and their carers, and get opportunities to have your say. Visit **bhf.org.uk/heartvoices** for more information and to sign up.

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HAVE YOUR SAY

We would welcome your comments to help us produce the best information for you. Why not let us know what you think? Contact us through our website [bhf.org.uk/contact](https://www.bhf.org.uk/contact). Or, write to us at:

BHF Customer Services
Lyndon Place
2096 Coventry Road
Birmingham B26 3YU.

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- **Peter Ludman**, Consultant Cardiologist, University Hospitals Birmingham NHS Foundation Trust.

THANK YOU

This booklet is part of the *Heart Information Series*. We distributed 2 million booklets from this series last year. Without your hard work and support the British Heart Foundation wouldn't be able to provide this vital information for people with heart conditions.

Donate to the fight at [bhf.org.uk/donate](https://www.bhf.org.uk/donate), or text **FIGHT** to **70080** to donate £3 to fund our life saving research.



**British Heart
Foundation**

For over 50 years our research has saved lives.

We've broken new ground, revolutionised treatments
and transformed care.

But heart and circulatory disease still kills one in four
people in the UK.

That's why we need you.

With your support, your time, your donations,
our research will beat heart disease for good.

**FIGHT
FOR EVERY
HEARTBEAT**

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