

Blood pressure



BEATING HEART DISEASE TOGETHER



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About this booklet

This booklet is for people who want to know more about blood pressure. It may be particularly useful for people with high blood pressure, and for their family and friends. It explains:

- what high blood pressure (hypertension) is
- why it is so important to bring your blood pressure down to a normal level, and
- what you can do to help lower your blood pressure.

It also describes the medicines that your doctor may give you to help lower your blood pressure.

This booklet does not replace the advice your doctor or cardiologist (heart specialist) may give you based on his or her knowledge of your condition.

But I don't feel ill!

High blood pressure – also known as **hypertension** – rarely makes people feel ill. One in every three adults in the UK has high blood pressure.¹ And, about two in every three over-65s have it.²

High blood pressure can cause headaches in a very small number of people, but only if their blood pressure is very high. Problems with sight, breathlessness and nose bleeds can occasionally be a sign of high blood pressure.

However, many people who have high blood pressure don't have any symptoms at all, so it very often goes undiagnosed. **So, the only way of knowing if you have high blood pressure is to have your blood pressure measured.**

Why is high blood pressure harmful?

To put it very plainly, the higher your blood pressure, the shorter your life expectancy. People with high blood pressure run a higher risk of having a stroke or a heart attack.³

If high blood pressure is left untreated for a long time, it can lead to kidney failure and even damage your sight. It can also make the heart muscle abnormally thick (a condition called 'left ventricular hypertrophy'). This can sometimes make the pumping action of the heart less effective.

If you have high blood pressure, reducing your blood pressure can lower your risk of having problems such as a stroke or a heart attack.³ In this booklet we give information on the different ways of lowering blood pressure. Understanding how to manage your blood pressure allows you to take more control of your condition, and also helps prevent further complications.

Why me?

You're not alone. Recent statistics show that just over 3 in 10 men and just under 3 in 10 women in the UK have high blood pressure.¹ High blood pressure is more common in older people than in younger people. Among

people who are over 65, about 6 out of 10 have high blood pressure.² But those people who know that they have high blood pressure are luckier than many other people because at least they can take steps to try and reduce it. Just over half of people with high blood pressure are not being treated.¹ And it is estimated that a third of these people don't even know they have high blood pressure.¹

People of African-Caribbean and South Asian origin

High blood pressure is more common among people of African-Caribbean and South Asian origin living in the UK than it is in the general UK population.⁴ People from both of these groups need to make sure that they have their blood pressure checked regularly and that it is well controlled.

If you're of South Asian origin, you need to take particular care, because South Asians living in the UK are between three and five times more likely to have diabetes than the general UK population.⁴ This is important because having diabetes further increases the risk of developing high blood pressure and conditions such as angina, heart attack and stroke. (For more information on diabetes, see our booklet *Diabetes and your heart*.)

What is high blood pressure?

Blood pressure is the pressure of the blood in your arteries – the tubes that take the blood away from your heart to the rest of your body. You need a certain amount of pressure to keep the blood flowing. High blood pressure develops if the walls of the larger arteries lose their natural elasticity and become rigid, and the smaller blood vessels become narrower.

Your heart is a pump that beats by contracting and then relaxing. The pressure of blood flowing through the arteries varies at different times in the heartbeat cycle.

- The highest pressure, known as **systolic pressure**, is the pressure when the beat or contraction of your heart forces blood round your body.
- The lowest pressure, called **diastolic pressure**, is the pressure between heartbeats when the heart is resting.

Blood pressure is measured in millimetres of mercury (shortened to 'mmHg'). A blood-pressure reading gives two numbers. The first number is the systolic pressure and the second is the diastolic pressure. (For information on how a blood-pressure measurement is taken, see page 14.)

Your target is to have a blood pressure below 140/85mmHg (140 systolic and 85 diastolic). If you have diabetes, kidney disease, or disease of the heart and circulation, your target is below 130/80mmHg.⁵

There is no fixed dividing line between normal blood pressure and slightly raised blood pressure. However, the British Hypertension Society suggests that the ideal blood pressure is 120/80mmHg, and normal is less than 130/80mmHg.⁵

A sample blood-pressure measurement

130mmHg

Systolic pressure – the pressure when the beat or contraction of the heart forces the blood around the body.

80mmHg

Diastolic pressure – the lowest pressure, which occurs between heartbeats when the heart is resting.

What causes high blood pressure?

There is no single definite cause of high blood pressure. However, the following can all play a part:

- not doing enough physical activity
- being overweight
- having too much salt in your diet
- drinking too much alcohol, and
- not eating enough fruit and vegetables.

Genes are another factor. So, if one or both of your parents have (or had) hypertension, you have a greater chance of developing it too.

In a very small number of people, a rarer cause is found, such as narrowing of the artery to a kidney, or abnormal production of hormones from the adrenal glands. Severe kidney disease can also cause high blood pressure.

Occasionally some medicines – such as oral contraceptives and alternative remedies (such as herbal supplements) – can cause a rise in blood pressure. If you are concerned that any medicine or remedy might affect your blood pressure, ask your doctor or pharmacist about it.

What about low blood pressure?

Low blood pressure – also known as **hypotension** – is when your blood pressure is below 90/60mmHg. This does not necessarily mean that there is a problem. In fact, people with low blood pressure generally tend to live longer than those with high blood pressure, and even those with normal blood pressure too.

Signs and symptoms

Low blood pressure is sometimes discovered during a routine examination. Most people with low blood pressure don't have any noticeable symptoms. However, low blood pressure (below 90/60mmHg) can, in some rare cases, cause dizziness or even fainting.

Sometimes low blood pressure can be the result of another illness or condition. So, if you are having symptoms of dizziness, it is important that you see your doctor. If your blood-pressure reading is unusually low, your doctor should check to make sure there is not a medical cause.

Low blood pressure can also be a side effect of drug treatment for high blood pressure, heart disease or depression. If this happens to you, your doctor may need to adjust the dose of the drugs you are taking, or give you

a different drug. And low blood pressure can be caused by some over-the-counter and herbal medicines.

If you get dizzy or feel light-headed after bending over or lying down, this may be due to a condition called **postural hypotension**. This is more common in older people. To confirm a diagnosis of this condition, your doctor will first take two separate blood-pressure measurements – one while you are sitting and another when standing. The doctor will then check if there was a fall in blood pressure when you stood up. If there was, and if your doctor thinks you may have postural hypotension, he or she may refer you for further tests such as a ‘tilt table test’. For information on this test, see our booklet *Tests for heart conditions*.

How to manage low blood pressure

If you have low blood pressure, simple measures may help, such as making sure you are drinking enough. This is especially important if you become sick or have diarrhoea, as these can both lead to increased fluid loss in the body.

If you get postural hypotension (see above), there are certain things you can do to avoid the problem – such as getting out of bed slowly in the morning, and using hand rails to support yourself when you get out of the bath.

Some people find that using well-fitting support stockings can improve the symptoms of feeling faint, light-headed or dizzy. This is because the stockings can help encourage your circulation. But check with your doctor before you start using these stockings, because they're not suitable for everyone.

Fortunately, in most people there is usually no need to treat low blood pressure. Only a very small number of people need to take medication for it.

How is blood pressure measured?

Your doctor or nurse will measure your blood pressure using a sphygmomanometer (pronounced 'svig-mo-man-ometer'). This is usually a digital blood-pressure monitor, which is made up of a box with a tube leading to a cuff. The cuff is wrapped round your upper arm. At the press of a button, the cuff inflates to a certain level and then automatically deflates. While it is inflated, the cuff will feel slightly uncomfortable as no blood can get through to your lower arm. In the cuff there is a sensor which detects your pulse and changes the information into blood pressure readings which appear on a display screen. The size of the cuff is important. If the cuff is too large, it can give an artificially low reading. Larger arms will need bigger cuffs – otherwise the blood-pressure measurement will be higher than it actually is.

Before you have your blood pressure taken, you should have emptied your bladder, and rested for at least five minutes. You should be sitting down, and not talking, when you have the measurement taken.

Some doctors and nurses may prefer to use a mercury sphygmomanometer instead of the digital blood-pressure monitor described above. This works in

much the same way but the doctor or nurse inflates the cuff, using a hand pump. If someone has a very faint pulse and a digital blood-pressure monitor cannot trace it, a traditional sphygmomanometer may give a more accurate reading.

Recent guidelines suggest that, once people reach the age of 40, they should have their blood pressure checked at least every five years.⁵ However, your doctor or nurse may decide to measure it more frequently than this, depending on your age and your medical history. Your doctor or nurse may monitor your blood pressure as part of a **cardiovascular risk assessment**. See the box on the next page for more information on this.

Before confirming a diagnosis of high blood pressure, your doctor or nurse will probably check your blood pressure several times. If you are diagnosed with high blood pressure, it will need to be monitored regularly until it is controlled. Once it is well controlled, your doctor or nurse will usually measure your blood pressure every few months.

Cardiovascular risk assessment

Your doctor or nurse may want to carry out a **cardiovascular risk assessment**. This is sometimes just called a **risk assessment**. This involves:

- asking you questions about your lifestyle – for example, if you smoke, and how much physical activity you do
- asking if there is any history of heart disease in your family
- doing a blood test to measure your cholesterol
- taking your blood pressure, and
- taking your weight, height and waist measurements.

For more information on risk assessments, see our booklet *Keep your heart healthy*.

24-hour monitoring

Your doctor may use '24-hour monitoring' to measure your blood pressure. This involves strapping a recording device – about the size of a personal stereo – round your waist. The monitor is connected by a narrow tube to a cuff which is wrapped round your upper arm. The cuff inflates and deflates regularly throughout the day and night to take, and record, your blood pressure.

While you are wearing the monitor, you can carry on with all your regular daily activities apart from having a bath or shower, or swimming.

24-hour monitoring is used for several reasons, including measuring blood pressure in borderline cases, and closely monitoring the effect of drug treatment for high blood pressure.

The readings from 24-hour monitoring tend to be quite a bit lower than the measurements taken in a clinic.

Changes in blood pressure

Everyone's blood pressure varies during the day. It tends to be highest in the morning and lowest at night. Blood pressure may also become high if you are anxious or under stress. Some people get worried about seeing their doctor, and having their blood pressure taken can make it go up. Some people may feel nervous on the first visit and

their blood pressure is usually higher than at later appointments. That is why your doctor will probably want to take two or three separate measurements, or suggest 24-hour monitoring, before deciding whether you really do have consistently high blood pressure.

Home blood-pressure monitors

Some people have their blood pressure assessed by using a blood-pressure monitor at home. Many GP surgeries now loan out monitors for a week or two for people to use at home. This provides a number of readings to assess, in much the same way as 24-hour monitoring.

It might be helpful for you to measure your own blood pressure if your doctor thinks it is much higher when it is measured at the clinic than at other times (the 'white coat effect'). Also, some people like to monitor their own blood pressure as it makes them feel more in charge of their care.

If you find that your blood-pressure readings are always changing, it is a good idea to monitor this so that you can see if there is a pattern to the changes. It may be worth keeping a diary of what you do during the day. This can help you work out if you are doing anything that might cause a change in your blood pressure.

However, home blood-pressure monitors are not a good idea for everyone. Some people feel more anxious taking

their own blood pressure than having it taken by someone else. And, some people end up checking their blood pressure more often than is necessary. Also, if you are not competent at using the machine, you may get false blood-pressure readings.

Most home blood-pressure monitors are digital. They display a digital reading of your blood pressure. They are becoming more popular but some are not very reliable. If you are buying one, only buy one that is approved for use within the UK. You can ask your doctor for advice on which type of monitor to buy, or contact the Blood Pressure Association. (Their contact details are on page 54.) The Blood Pressure Association also has guidelines for measuring blood pressure at home, which you may find useful.

To get the best from your home monitor, ask your doctor or practice nurse to show you how to use it, and how to read and record the results.

Other places where you can have your blood pressure checked

Some local pharmacies offer blood-pressure checks for a small fee. Or, if you are working in an organisation that has an occupational health department, they will be able to check your blood pressure too.

What tests will I have?

If your doctor finds that you have high blood pressure, he or she might do some other tests too.

The doctor will probably examine your chest and then generally look for signs that show whether your circulation is healthy. This includes looking at your eyes with an ophthalmoscope to see whether the high blood pressure has affected the blood vessels at the back of your eye.

If you have hypertension, your doctor may also do simple blood and urine tests to find out more about the health of your heart and circulation. The main tests are:

- **blood tests** to find out your cholesterol levels and blood sugar levels, and to check whether your high blood pressure has caused any damage to your kidneys
- a **urine test** to look for signs of blood or protein in the urine, and
- an **electrocardiogram** (ECG) – a test to record the rhythm and electrical activity of your heart.

Will I have to start taking medicines straight away?

In many cases your doctor will monitor your blood pressure for a few weeks or months before deciding whether to treat it with medicines. In the meantime, you can do a lot to help your own health by looking at your lifestyle and making changes where necessary. (See the next page.)

What can I do to help control my blood pressure?

It's helpful to look at the areas of your lifestyle that can cause high blood pressure. For example:

- not doing enough physical activity
- being overweight
- having too much salt in your diet
- not eating enough fruit and vegetables, and
- drinking too much alcohol.

It's also important to look at the areas of your lifestyle that cause extra risk to your heart, such as smoking.

Keep active

Research shows that physical activity can help reduce high blood pressure and may also prevent it from developing in the first place.⁶ Regular moderate physical activity for at least 30 minutes a day can help to lower your blood pressure.⁷ Research has also found that people who do regular physical activity have half the risk of dying from coronary heart disease compared to those people who are not active.⁸

The type of activity recommended for blood pressure and the heart is moderate, rhythmic (aerobic) activity

such as brisk walking, cycling or dancing. Walking and cycling are particularly good, as you can often build them into your daily routine.

Your target is to build up to 30 minutes of moderate activity on at least five days of the week.⁸ 'Moderate activity' means any activity that makes you feel warm and slightly out of breath – for example, brisk walking. You can split the 30 minutes a day into two sessions of 15 minutes, or three sessions of 10 minutes. Start off slowly, and gradually build up how long you exercise for and how intense the exercise is.

Regular physical activity is an excellent way to help prevent and treat high blood pressure. However, blood pressure tends to rise during 'isometric' exercises such as weightlifting or weight training. So, if you have high blood pressure, check with your doctor before doing this type of activity.

If you have high blood pressure and are planning to start any new activity, it is important to check with your doctor if you are fit enough, and whether the activity is suitable for you.

If your blood pressure is not well controlled, or if you have any other heart condition, you may need to follow different advice on doing exercise than the information given above. Ask your doctor about what sort of activity

you should do, and how much. For more information on physical activity, see our booklets *Physical activity and your heart* (which includes information on exercise for people with heart conditions), and *Get active!*

Lose that weight!

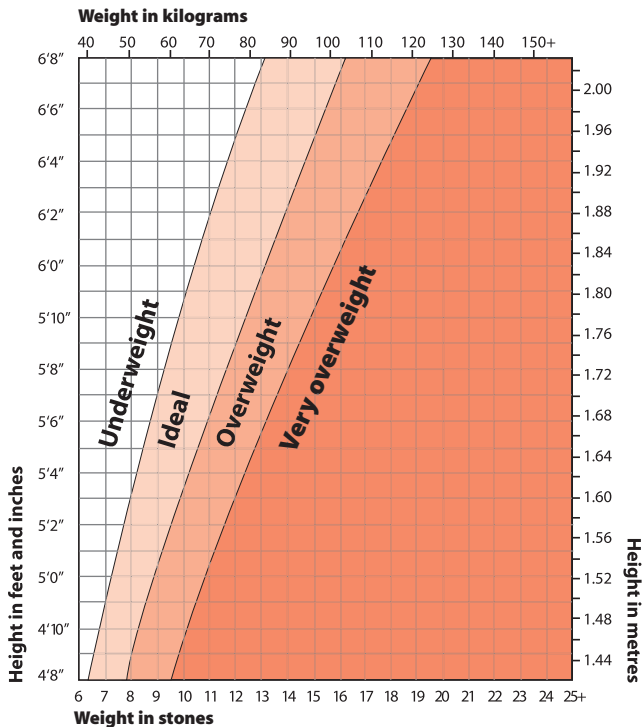
If you are overweight, shedding the pounds will help to control your blood pressure and keep your heart healthy. For some people, losing weight is all they need to do to get their blood pressure down.

If you eat a lot of fatty foods, sweet foods or sugary drinks, you are more likely to put on weight. This is because these foods are very high in calories. If you eat more calories than your body burns up, the extra calories are stored as fat, and too much fat results in putting on weight. You are even more likely to put this weight on if you are not physically active.

The chart on the next page is a guide to help you find out if you need to lose weight.

Are you a healthy weight?

Take a straight line across from your height (without shoes), and a line up or down from your weight. Put a mark where the two lines meet to find out if you need to lose weight. This is only an approximate guide.



Adapted from a height/weight chart by kind permission of the Food Standards Agency.

Your body shape

People who have too much weight around their middle have a greater risk of developing high blood pressure and heart disease. One way of finding out if your body shape is increasing your risk, is by measuring your waist with a tape measure.

To measure your waist, find the bottom of your ribs and the top of your hips. Measure around your middle at a point mid-way between these. For most people this will be at the level of the tummy button. Breathe out normally and take the measurement. Try to relax, and avoid breathing in while taking your measurement. Check your measurement in the box below.^{9,10}

	Your health is at risk if you have a waist size of:	Your health is at high risk if you have a waist size of:
Men	Over 94 centimetres (37 inches)	Over 102 centimetres (40 inches)
Women	Over 80 centimetres (32 inches)	Over 88 centimetres (35 inches)
South Asian men		Over 90 centimetres (36 inches)
South Asian women		Over 80 centimetres (32 inches)

What you can do

If your body shape means you are at risk or at high risk, or if you are overweight, it is important to make healthy lifestyle changes that would reduce or prevent any further increase in your waist size and weight. This will help to reduce your blood pressure and improve your health.

The best way to lose weight and reduce your waist size is by:

- **reducing your calorie intake, and**
- **increasing your daily physical activity.**

You can reduce your calorie intake by:

- cutting down on the amount of fat and sugar in your diet, and
- reducing your portion sizes.

Being physically active plays a very important part in losing weight, as it burns up calories. For more information on physical activity, see page 22.

For more information on how to lose weight, see our booklets *So you want to lose weight ... for good* and *Taking control of your weight*.

Cut down on salt

There is a link between having too much salt in your diet and high blood pressure.¹¹ It is the sodium in salt that contributes to high blood pressure. There is sodium in all types of salt, whether it's salt in grains, crystals or flakes.

The body needs very small amounts of salt to function properly. In the UK we eat much more salt than we need. Research suggests that, in people with high blood pressure, reducing daily salt intake helps to reduce blood pressure.¹² **The target should be to have less than 6 grams of salt a day** (about one teaspoonful), although we don't even need as much as this.¹²

What you can do

- **Cut down on processed foods that contain a lot of salt.** Three-quarters of the salt we eat is 'hidden'¹³ in foods such as ready meals, packet and canned soups, instant noodles, ketchups and sauces, sausages and burgers, and salty savoury snacks. Check the ingredients labels on foods to find out which have the least salt (or the least sodium). See *Using food labels* on the next page for how to find out how much salt a food contains.
- **Don't add salt to your food at the table.**

- **Cook without adding any salt.** Use extra pepper, herbs, garlic, spices or lemon juice to add flavour to your food instead.

You will find that, within a few weeks, your taste buds will get used to less salt. You won't like salty foods and you'll be able to appreciate other flavours more.

For more information, see our leaflet *Salt – Facts for a healthy heart*.

Using food labels

To find out if a product has 'a lot' or 'a little' salt, look at the nutrition information label. Compare the 'Per 100g' figures with the information below.¹⁴

This is a lot (per 100g of food)	This is a little (per 100g of food)
1.25g of salt or more	0.25g of salt or less
0.5g of sodium or more	0.1g of sodium or less

Eat more fruit and vegetables

There is good evidence that eating a diet that includes a wide range of fruit and vegetables is good for your heart.¹⁵ Eating plenty of fruit and vegetables each day – along with a healthy, balanced diet – can help lower your blood pressure too.¹⁶ This is because fruit and vegetables contain potassium, which may help keep blood pressure down. They're also low in salt.

Aim to eat at least five portions of a variety of fruit and vegetables each day. Different fruit and vegetables contain different combinations of vitamins and minerals, so aim to eat a variety to get the most benefit.

For more information on healthy eating, see our booklets *Eating for your heart* and *Food should be fun ... and healthy!*

Drink within the sensible limits

Heavy drinking can contribute to disorders of the heart and circulation, including high blood pressure and stroke. There is strong evidence that cutting down on alcohol is an important lifestyle change people can make to help prevent or treat high blood pressure, especially for heavy drinkers.¹⁷

Drinking within sensible limits

If you're a **man**, drink **no more than 3 to 4 units of alcohol** a day.¹⁸

If you're a **woman**, drink **no more than 2 to 3 units of alcohol** a day.¹⁸

These guidelines apply whether you drink every day, once or twice a week, or just occasionally.

Women who regularly drink more than 3 units of alcohol a day, and men who drink more than 4 units a day, are more likely to have high blood pressure. (We explain what a unit of alcohol is on the next page.)



1 unit of alcohol =

- half a pint (300ml) of normal-strength lager, cider or beer (3% to 5% alcohol by volume),
- or a pub measure (25ml) of spirits
- or a small glass (100ml) of wine (10% alcohol by volume)

There is some evidence that moderate drinking – between 1 and 2 units of alcohol a day – may offer some protection against heart disease.¹⁸ However, if you don't already drink alcohol, there is no need for you to start, as there are much healthier ways for you to look after your heart.

What about stress?

Stressful situations can cause your blood pressure to rise, but the blood pressure usually returns to normal once the stress has gone away. Relaxation and meditation may help you to avoid those short-term rises in blood pressure. Things that cause long-term stress – such as financial worries, or strain at work – may contribute to high blood pressure, but the evidence is not certain.

For more information on how to deal with stress, see our booklet *Stress and your heart*.

Smoking

Smoking is a major risk factor for coronary heart disease. (A 'risk factor' is something that increases your chances of getting the disease.) The nicotine in cigarettes stimulates the body to produce adrenaline, which makes the heart beat faster and temporarily raises blood pressure. Also, if you smoke and you also have high blood pressure, your arteries will become narrowed much more quickly.

Stopping smoking is a great lifestyle change. **If you are a smoker, stopping smoking is the single most important step you can take to improve your heart health and to live longer.**

The **BHF Smoking Helpline** on **0800 169 1900** (www.bhf.org.uk/smoking) and the **NHS Smoking Helpline** on **0800 169 0 169** (www.gosmokefree.nhs.uk) can offer information on giving up, and support for people who are finding it hard to stop. Or you can contact **QUIT** on **0800 002200** (www.quit.org.uk) for practical help in stopping. QUIT also has helplines in different languages.

For more information on smoking, see our booklets *Smoking and your heart* and *Smoking and how to give up*.

Medicines for blood pressure

There are many drugs available for reducing blood pressure. The aim is to lower the pressure gradually over several weeks or months.

Who needs to take medicines for blood pressure?

Current guidelines¹⁹ recommend the following.

- If your systolic blood pressure is regularly 160mmHg or more, and your diastolic pressure is regularly 100mmHg or more, you may need to start taking drug treatment to lower your blood pressure. This is because, if your blood pressure is at this level, it puts you at a high risk of having a heart attack or stroke.
- If your blood pressure is very often high (140/90mmHg or above), your doctor may advise you to make changes to your lifestyle, to see if this can get your blood pressure down. Lifestyle measures may be enough to avoid having to take medicines to lower your blood pressure. However, if your blood pressure stays high, you may need to start taking medicines to lower it.

- If you have cardiovascular disease (for example, if you have had a heart attack or a stroke), or if you have diabetes, you may benefit from taking medicines to help lower your blood pressure to 130/80mmHg or below, to reduce the risk of further complications.¹⁹

Which medicines will I need to take?

On page 38 we give a list of the different types of medicines used to treat high blood pressure. Most people need at least two types of medicine to lower their blood pressure enough. Research suggests that the effect of taking two or more drugs is often much better than taking just one. Guidelines now suggest the following for most people with high blood pressure.¹⁹

- If you're under 55 and not African-Caribbean, you will be given an ACE inhibitor (or an angiotensin II antagonist).
- If you're 55 or over, or if you're African-Caribbean, you will be started on a calcium channel blocker (or a diuretic).

Your doctor will probably continue with a combination of two or more of the four drugs mentioned above. However, if your blood pressure is still uncontrolled, your doctor may prescribe another drug.¹⁹

Beta-blockers are another type of medicine that is sometimes used to treat people with high blood pressure, although they're not the main drug used to treat the condition. Beta-blockers also have an important role to play in treating other heart conditions such as angina, heart failure and irregular heart beats.

If you have any questions or concerns about any of the drugs you are taking, talk to your GP or cardiologist about it.

Keeping to a healthy lifestyle

It is important to understand that, once you are taking medication, you still need to make every effort to maintain a healthy lifestyle. Once you have been taking your medicines for about a few months, your blood pressure may come down. But, if you continue to smoke and not exercise, this will continue to put your heart health at risk.

In most cases, people need to carry on taking their medicines long term. However, for a small number of people, making positive lifestyle changes may help to lower blood pressure and their doctors may suggest having a trial period without taking any medicines to lower their blood pressure.

What happens if my blood pressure is still too high?

It may take some time for the medication you are taking to start working effectively. If, after taking your medicines for some time, your blood pressure is still high, it might be possible to increase the dose, or change to a different combination of medicines that might work better for you. If your blood pressure is still too high, your doctor may consider adding another drug until you reach your target level. Blood pressure can be affected by other factors such as anxiety. So your doctor may need to give you something to help this in order to reduce your blood pressure.

Don't be worried if your doctor changes your medicines several times in order to get your blood pressure low enough. He or she may also change your medicines if they give you side effects (see page 44).

Interactions with other medicines

Medicines for high blood pressure can react with other medicines, including some that are available without a prescription. So always check with your doctor or pharmacist before you take other medicines. Tell your doctor if you are taking any herbal remedies too.

Medicines used to treat high blood pressure

Drugs used to treat high blood pressure include: ACE inhibitors, angiotensin II antagonists (sometimes called angiotensin receptor blockers), calcium channel blockers (calcium antagonists), diuretics, beta-blockers, alpha-blockers and centrally-acting drugs. We look at each of these in turn, on pages 40 to 43.

Examples of medicines for people with high blood pressure

Drugs most commonly used for treating high blood pressure	Name of drug
ACE inhibitors See page 40.	Enalapril Lisinopril Perindopril Quinapril Ramipril
Angiotensin II antagonists (angiotensin receptor blockers) See page 41.	Candesartan Irbesartan Losartan Valsartan
Calcium channel blockers (calcium antagonists) See page 41.	Nifedipine Amlodipine Diltiazem Verapamil
Diuretics See page 41.	<i>Thiazide diuretics:</i> Bendrofluzide Hydrochlorothiazide <i>Thiazide-like diuretics:</i> Choralidone Indapamide <i>Loop diuretics:</i> Bumetanide Frusemide <i>Potassium-sparing diuretics:</i> Amiloride Spironolactone

Drugs less commonly given to treat high blood pressure	Name of drug
Beta-blockers See page 42.	Atenolol Bisoprolol Metoprolol
Alpha-blockers See page 43.	Doxazosin Prazosin Terazosin
Centrally-acting drugs See page 43.	Methyldopa Moxonidine

We explain more about all these drugs on the next pages.

ACE inhibitors

These work by making the walls of the arteries relax and widen. They are particularly effective in treating high blood pressure when used with a diuretic. In young people with high blood pressure they are often used on their own.

ACE stands for 'angiotensin converting enzyme'. ACE inhibitors help to prevent an inactive substance in the blood called angiotensin I from converting into the very potent angiotensin II. Angiotensin II plays an important role in maintaining blood pressure.

Angiotensin II antagonists (angiotensin receptor blockers)

These drugs act in a similar way to ACE inhibitors, but don't cause the persistent dry cough that ACE inhibitors can sometimes cause. So they are a useful alternative to ACE inhibitors.

Calcium channel blockers (calcium antagonists)

There are different types of calcium channel blockers. They all cause the arteries to relax, but some also have an effect on the heart rate. Calcium channel blockers are most often used to treat high blood pressure in older people or in people of African-Caribbean origin. (They can also be used to treat angina in people who cannot take beta-blockers.)

Diuretics

These are often known as 'water pills'. They work on the kidneys, helping them to pass more salt and water into the urine. This triggers hormonal reactions which lower the blood pressure.

When you first start taking diuretics, you will probably find that you need to pass water more often. If this makes your life difficult, tell your doctor.

There are four types of diuretics. These are:

- thiazide diuretics
- thiazide-like diuretics
- loop diuretics, and
- potassium-sparing diuretics.

Of these four types, thiazide diuretics are the drugs most often used to treat high blood pressure. If you take a thiazide diuretic, thiazide-like diuretic, or loop diuretic, your doctor will arrange a blood test a few weeks after you start taking the medicine, to check the potassium level in your blood.

Beta-blockers

Beta-blockers block the action of adrenaline – a hormone which makes the heart beat faster and more vigorously. Beta-blockers help to prevent the heart from beating too quickly and too forcefully at times such as when you are exercising or feeling stressed. Beta-blockers are sometimes added to other drugs to lower blood pressure further.

Important

You should not stop taking beta-blockers suddenly without medical advice. Stopping suddenly can sometimes cause problems – such as a sudden rise in

blood pressure, or an attack of angina. If you need to stop taking beta-blockers, your doctor may reduce your dose gradually.

Alpha-blockers

Alpha-blockers are sometimes used to treat people with high blood pressure. They are also useful for people with an enlarged prostate gland. The first dose of this drug can cause a sudden drop in blood pressure, so you should take it at bedtime. However, this sudden drop in blood pressure doesn't happen if you take the slow-acting version of alpha-blocker.

Centrally-acting drugs

Centrally-acting drugs – such as methyldopa and moxonidine – stimulate the brain to lower the blood pressure. They may be used with other drugs for lowering blood pressure, or your doctor may prescribe them if other drugs are not suitable for you or have failed to control your high blood pressure. Methyldopa is the safest drug for women who need to have treatment for high blood pressure during pregnancy.

If you forget to take your medicine

It can be difficult to remember to take your medicines when you have no symptoms. Luckily, missing the occasional tablet does not usually affect your blood pressure. So, if you forget to take your medicine, there's no need to take an extra one. Just take your normal dose next time.

Side effects

Most people taking medicines for high blood pressure feel perfectly well and have no side effects from the medicines.

After starting new medicines, it is only natural to think that any new symptoms must be caused by the medicines. If you do seem to have any side effects, discuss them with your doctor who will be able to tell whether or not the medicines are to blame. You can also check the box on page 45 for side effects to look out for.

For more information on the medicines described on pages 40 to 43, see our booklet *Medicines for the heart*.

Side effects to look out for

Common side effects of medicines for lowering blood pressure	Action or advice
If a rash develops soon after you start taking a new medicine	Report this to your doctor. You may have an allergy to the medicine.
If you feel light-headed or dizzy, or if you faint These effects may be particularly noticeable when you get up from bending or lying down, or if you are older.	If these side effects are severe, it may be that your tablets have reduced your blood pressure too much. Tell your doctor, who might reduce the dose of the drug, or give you a different medicine.
If you develop a dry, irritating cough	This may be a side effect of taking ACE inhibitors. Tell your doctor, who may be able to put you on a different kind of medicine.
If you feel drowsy	Tell your doctor. It may mean that you need to change your medication, or change the time of day that you are taking it.
If you have some pain around the area of your kidneys	Your doctor will do some blood tests to check that your kidneys are working properly. (If you already have problems with your kidneys, your doctor will do these blood tests regularly.)

Can I still drive?

High blood pressure has few symptoms, so it should not affect your ability to drive. However, you should not drive if your medicines cause symptoms which affect your driving ability. If this happens, ask your doctor if he or she can change your medicines to prevent the symptoms.

If you have a licence to drive a large goods vehicle (LGV) or passenger-carrying vehicle (PCV), you will need to tell the Driver and Vehicle Licensing Agency (DVLA, Swansea SA99 1TU) if you have very high blood pressure or if your medicines cause symptoms which affect your driving ability. You may need to stop driving and apply to renew your licence once your high blood pressure is under control.

What about holidays?

Always remember to take enough medicines to last the whole holiday. Carry some in your hand luggage, and keep a separate note of their names and strength in case your baggage goes missing.

Air travel does not affect blood pressure, but rushing and carrying heavy cases might. So leave plenty of time for your journey, and make sure that your cases are not too heavy and that you don't have to carry them too far.

Always make sure that you have good insurance cover when you go away. Some travel insurers may insist that you have been taking your current medication for up to three months before you travel.

If you want to know about insurance companies that other people have found to be helpful to heart patients, call the British Heart Foundation's Heart HelpLine on **0300 330 3311**.

Women with high blood pressure

Just under 3 in 10 women in the UK have high blood pressure.¹ As with men, the risk of developing hypertension in women increases with age. Also, black Caribbean, black African and Bangladeshi women living in the UK are more likely to have high blood pressure than other women in the UK.⁴

The contraceptive pill

The pill (oral contraceptive) may cause a rise in blood pressure. So, if you are taking the pill, you should have your blood pressure checked regularly – about every six months. If you have high blood pressure, your doctor may change the type of pill you take, or suggest a different form of birth control. You can get advice from your GP or family planning clinic.

Pregnancy

Women need to have their blood pressure checked regularly throughout pregnancy, whether they have high blood pressure or not. Blood pressure usually falls in the first few months of pregnancy, even in women who have been diagnosed with high blood pressure. It usually then returns to pre-pregnancy levels in the last months.

However, sometimes the pressure can become too high during these last few months.

High blood pressure can develop for the first time in pregnancy – a condition called ‘pregnancy-induced hypertension’. This may lead to a more serious condition called pre-eclampsia, which needs treatment with bed rest and drugs.

Blood pressure usually returns to normal after the pregnancy and the problem may not happen again in future pregnancies.

Even if you already have high blood pressure, you should be able to have children without too much risk to yourself or your babies. But you will need extra supervision. Some of the medicines that are used to treat high blood pressure are known to be relatively safe (such as methyldopa), but others (such as ACE inhibitors and angiotensin II antagonists) may not be suitable for pregnant women, or those planning to be pregnant.

Hormone replacement therapy (HRT)

HRT helps to prevent some symptoms of the menopause, but it should not be taken specifically to protect against coronary heart disease or strokes, because it does not offer protection against these conditions. The effect of HRT on blood pressure has not yet been fully

investigated, so there is no clear evidence on whether HRT affects blood pressure or not.²⁰ If you have any concerns about possible effects of HRT on blood pressure, talk to your doctor.

For more information

British Heart Foundation website

bhf.org.uk

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

Heart HelpLine

0300 330 3311

A local rate number.

For information and support on anything heart-related.

Booklets and DVDs

To order any of our booklets or DVDs:

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

You can also download many of our publications from our website.

For information on other BHF booklets, and on videos and DVDs, ask for a copy of the *Heart health catalogue*.

Our booklets are free of charge, but we would welcome a donation. (See page 2 for how to make a donation.)

Heart Information Series

This booklet is one of the booklets in the *Heart Information Series*. The other titles in the series are as follows.

- 1 Physical activity and your heart
- 2 Smoking and your heart
- 3 Reducing your blood cholesterol
- 4 Blood pressure
- 5 Eating for your heart
- 6 Angina
- 7 Heart attack
- 8 Living with heart failure
- 9 Tests for heart conditions
- 10 Coronary angioplasty and coronary bypass surgery
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- 12 Having heart surgery
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- 15 Pacemakers
- 16 Peripheral arterial disease
- 17 Medicines for the heart
- 18 The heart – technical terms explained
- 19 Implantable cardioverter defibrillators (ICDs)
- 20 Caring for someone with a heart condition
- 21 Returning to work with a heart condition
- 22 Diabetes and your heart
- 23 Cardiac rehabilitation
- 24 Atrial fibrillation
- 25 Keep your heart healthy

My progress record

This is a personal health record for people who are interested in keeping their heart healthy. You can use it to keep a record of important information, and to chart the progress you are making in tackling your risk factors for coronary heart disease. For example, this could include how you are getting on with reducing your blood pressure, reducing your cholesterol, losing weight or giving up smoking. It also contains information about coronary heart disease to help you make informed decisions about your health. Your nurse or doctor may be able to order a copy for you, or you can order a copy from the British Heart Foundation (see page 51), and work through it with your health professional.

Heart health magazine

Heart health is a **free magazine**, produced by the British Heart Foundation especially for people with heart conditions. The magazine, which comes out six times a year, includes updates on treatment, medicines and research and looks at issues related to living with heart conditions, like healthy eating and physical activity. It also features articles on topics such as travel, insurance and benefits. To subscribe to this free magazine, call **0300 330 3300** or order through our website at **bhf.org.uk/hearthealthmag**

Emergency life-support skills

Heartstart UK

For information about a free, two-hour course in emergency life-support skills, contact Heartstart UK at the British Heart Foundation. The course teaches you to:

- recognise the warning signs of a heart attack
- help someone who is choking or bleeding
- deal with someone who is unconscious
- know what to do if someone collapses, and
- perform cardiopulmonary resuscitation (CPR) if someone has stopped breathing and his or her heart has stopped pumping.

Other resources

Blood Pressure Association

60 Cranmer Terrace

London SW17 0QS

Phone: 020 8772 4994

Website: www.bpassoc.org.uk

Provides information and support for people with high blood pressure.

Hypertension (persistently high blood pressure) in adults. Understanding NICE guidance

This booklet, published by the National Institute for Health and Clinical Excellence (NICE), explains the care and treatment options for people with high blood pressure that should be available in the NHS in England and Wales.

Available from www.nice.org.uk or call 0207 067 5800.

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Technical terms

ACE inhibitor	A drug used to treat high blood pressure. It works by making the walls of the arteries relax.
alpha-blocker	A drug used to treat high blood pressure.
angiotensin II antagonist	A drug used to treat high blood pressure. Acts in a similar way to ACE inhibitors.
angiotensin receptor blocker	See 'angiotensin II antagonist'.
arteries	The tubes that take the blood away from the heart to the rest of the body.
beta-blocker	A drug sometimes used to treat high blood pressure. It reduces the force of the heart beat.
blood pressure	The pressure of blood in the arteries.
calcium antagonist	See 'calcium channel blocker'.
calcium channel blocker	A drug sometimes used to treat high blood pressure. It works by making the walls of the arteries relax.

cholesterol	A fatty substance mainly made in the body by the liver. Cholesterol plays a vital role in how every cell in the body works, but too much cholesterol in the blood can increase the risk of getting coronary heart disease.
coronary heart disease	When the walls of the arteries become narrowed by a gradual build-up of fatty material called atheroma.
diastolic blood pressure	The lowest pressure, which occurs between heartbeats, when the heart is resting.
digital electronic blood-pressure monitor	An instrument to measure blood pressure.
diuretic	A drug sometimes used to treat high blood pressure. It works by triggering hormone reactions that lower the blood pressure.
ECG	See 'electrocardiogram'.
electrocardiogram	A test to record the rhythm and activity of the heart. Also called 'ECG'.
heart failure	When the pumping action of the heart is not effective.
hypertension	High blood pressure.

hypotension	Low blood pressure.
left ventricular hypertrophy	When the heart muscle becomes abnormally thick and may make the pumping action of the heart less efficient.
monitor	See 'digital electronic blood-pressure monitor'.
pregnancy-induced hypertension	High blood pressure that develops for the first time in pregnancy.
sphygmomanometer	An instrument used to measure blood pressure.
systolic blood pressure	The highest pressure, which occurs when the beat or contraction of the heart forces the blood round the body.

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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 at **bhf.org.uk/contact**. Or, write to us at the address on the back cover.

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Clarity approved by
Plain English Campaign

HEART HELPLINE

For information and support on anything heart-related



0300 330 3311

local rate number



bhf.org.uk

Phone lines open 9am to 6pm Monday to Friday



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