Blood pressure

BEATING HEART DISEASE TOGETHER

British Heart Foundation

About the British Heart Foundation

The British Heart Foundation (BHF) is the nation's heart charity, saving lives through pioneering research, patient care and vital information.

What you can do for us

We rely on donations of time and money to continue our life-saving work. If you would like to make a donation, please:

- call our donation hotline on **0300 330 3322**
- visit **bhf.org.uk/donate**, or
- post it to us at the address on the back cover.

If you wish to make a gift to the BHF in your will, call **0844 847 2787** or email **legacy@bhf.org.uk** and ask for our free booklet, *My generation*.

For other ways to support our work, see **bhf.org.uk/supportus**

You may find other useful information on our website at:

bhf.org.uk

Contents

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 control your blood pressure
- what you can do to help lower your blood pressure, and
- the medicines that your doctor may prescribe as treatment.

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

But I don't feel ill!

High blood pressure – also known as **hypertension** – rarely makes people feel ill. It is sometimes called a 'silent threat' because there are usually no symptoms, and it very often goes undiagnosed. Very small numbers of people with high blood pressure may get headaches, but only if their blood pressure is very high. And problems with sight, breathlessness and nose bleeds can occasionally be a sign of high blood pressure.

The only way of knowing if you have high blood pressure is to have your blood pressure measured. Your GP or nurse can measure it for you. If you have a health check (see page 17), your blood pressure will be taken as part of the check.

Why is high blood pressure harmful?

Having high blood pressure greatly increases your risk of having a heart attack or stroke.

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 and stiffer – a condition called left ventricular hypertrophy – which causes the heart to become enlarged. This can sometimes lead to heart failure – where the heart becomes less efficient at pumping blood around the body. (For more information on this, see our booklet *Living with heart failure*.)

Understanding how to manage your blood pressure allows you to take more control of your condition, and also helps prevent complications.

Why me?

You're not alone. Recent statistics show that around one in three adults in England and Scotland have high blood pressure. High blood pressure becomes increasingly more common with age in both men and women. It is estimated that in England about one in every three people who have high blood pressure don't know that

they have it. Knowing that you do have high blood pressure means that you can take the necessary steps to try and reduce it.

People of African-Caribbean and South Asian origin

Research shows that people of African-Caribbean and South Asian origin living in the UK are much more likely to have high blood pressure than the rest of the UK population. So, if you are from one of those two ethnic groups, it is particularly important that you have your blood pressure checked regularly and that it is well controlled.

If you're of South Asian origin, you need to take extra care, because South Asians living in the UK are up to six times more likely to develop type 2 diabetes than the general UK population. This is important because having diabetes further increases the risk of developing high blood pressure or angina, or of having a heart attack or a stroke. For more information on diabetes, see our booklet *Diabetes and your heart*.

What is blood pressure?

Blood pressure is the pressure of the blood in your arteries. You need a certain amount of pressure in your arteries to keep the blood flowing around your body.

Your heart pumps blood around the body through the arteries, by contracting and relaxing. The pressure of blood flowing through the arteries varies at different times in the heartbeat cycle.

- **Systolic blood pressure** is the highest level your blood pressure reaches. This is when your heart contracts and blood is forced through the arteries.
- **Diastolic blood pressure** is the lowest level your blood pressure reaches. This is when your heart relaxes between each beat.

Your blood pressure is written as two numbers – for example, 120/80mmHg. ('mmHg' is the unit used for measuring blood pressure. It stands for millimetres of mercury.) 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 15.

A sample blood pressure measurement

120mmHg / 80mmHg

Systolic pressure is the highest pressure, when the beat or contraction of the heart forces the blood around the body.

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

What is high blood pressure?

High blood pressure develops if the walls of the larger arteries lose their natural elasticity and become rigid, and if the smaller blood vessels become narrower. The higher your blood pressure, the higher your risk of health problems.

If your blood pressure is **140/90mmHg or above** when it is measured at the GP's surgery or in a blood pressure clinic, you **may** have high blood pressure. We explain more about this on page 22.

Your blood pressure target

The target for the general population is to have a blood pressure **below 140/90mmHg**.

If you have heart and circulatory disease (for example, if you have coronary heart disease or have had a stroke), or if you have diabetes or chronic kidney disease, the target is **below 130/80mmHg**.

What causes high blood pressure?

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

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

(A 'risk factor' is something that increases your chances of getting a disease.)

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

In a very small number of people, a rarer cause of high blood pressure is found, such as narrowing of the artery to a kidney, or an 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 (for example, some 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 longer than 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.

What causes low blood pressure?

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 sometimes be a side effect of medicines taken for high blood pressure, heart disease or

depression. If this happens to you, your doctor may need to adjust the dose of the medicines you are taking, or give you a different medicine. Low blood pressure can also be caused by some over-the-counter and herbal medicines.

Postural hypotension

Postural hypotension is a condition where someone may get low blood pressure after changing their body position – for example, when they stand up after sitting, bending over or lying down. This may make the person feel dizzy or light-headed. Everyone gets a small drop in their blood pressure from time to time, but in postural hypotension there is a larger fall than normal. The condition is quite common in adolescents and in older people.

To confirm a diagnosis, your doctor will take two separate blood pressure measurements – one while you are sitting and another when standing. If there was a fall in your blood pressure when you stood up, 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 are sick or have diarrhoea, as these can cause dehydration and lower your blood pressure.

If you get postural hypotension (see page 13), 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. Also, make sure that you drink enough fluids throughout the day.

Fortunately, in most people there is usually no need to treat low blood pressure.

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 electronic blood pressure monitor, which is made up of a box with a tube. The tube leads to an inflatable cuff that is wrapped around 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 the blood flow through to your lower arm is temporarily blocked. A sensor inside the cuff detects your pulse and changes the information into blood pressure readings that appear on a display screen.

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 be talking, when you have the measurement taken.

It's important that the correct cuff size is used. Using a cuff that is too small for your arm can give an artificially high blood pressure measurement. And a cuff that is too large can give too low a measurement.

Some doctors and nurses may prefer to use a traditional 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. This type of device may give a more accurate blood pressure reading for people who have a very faint pulse or an irregular pulse.

Before confirming a diagnosis of high blood pressure

If your blood pressure is 140/90mmHg or higher when measured at your GP surgery or blood pressure clinic, you will probably need to have this rechecked several times. Your doctor may suggest that you have **ambulatory blood pressure monitoring** (24-hour monitoring) or **home blood pressure monitoring** before confirming a diagnosis of high blood pressure. We explain more about these on pages 18 and 19.

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 temporarily high if you are anxious or under stress. Some people get worried about seeing their doctor, and having their blood pressure measured can make it go up. (This is known as the 'white coat syndrome' or 'white coat effect'.) Some people may feel nervous on their 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, and may suggest ambulatory monitoring or home monitoring, before deciding whether you really do have consistently high blood pressure.

Having your blood pressure measured as part of a health check

Your doctor or nurse may measure your blood pressure as part of a **health check**. A health check also includes a cholesterol test and an assessment of your lifestyle. Some health checks also check your pulse. For more information on health checks, see our booklet *Keep your heart healthy*.

Ambulatory blood pressure monitoring (24-hour monitoring)

*Also called **ABPM**.*

Ambulatory blood pressure monitoring can be used to measure your average blood pressure. This helps to determine whether you have high blood pressure.

Ambulatory blood pressure monitoring measures your blood pressure automatically, wherever you are. You will wear a blood pressure cuff that is wrapped around your arm, and is connected to a small device on a belt or strap worn on your body. The monitor usually measures your blood pressure at regular intervals – for example, twice an hour during your normal waking hours and hourly during the night. Your doctor or nurse will use a number of these measurements to work out your average blood pressure.

If you need to have this type of monitoring, your doctor or nurse will explain what you need to do. While you're wearing the monitor, you can carry on with all your usual daily activities apart from having a bath or shower, or swimming.

Home blood pressure monitoring

Also called ***HBPM.***

Your doctor may suggest home blood pressure monitoring. Home blood pressure monitoring uses a device similar to the one that the doctor or nurse uses to measure your blood pressure in the GP practice or clinic.

Your nurse or doctor will show you how to measure your blood pressure and will tell you how often you should measure it.

Using your own home blood pressure monitor

Monitoring your own blood pressure can help make you feel more in charge of your care.

You may be able to borrow a home blood pressure monitor from your GP surgery, but some people do decide to buy their own.

If you find that your blood pressure readings are always changing, it is a good idea to monitor this and also keep a diary with the measurements and a note of what you do during the day. This can help you find 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 others end up checking their blood pressure more often than is necessary. Also, if you are having difficulty using the machine, you may get inaccurate blood pressure readings.

Most home blood pressure monitors are digital devices that display a digital reading of your blood pressure. 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 55.) The Blood Pressure Association also has guidelines for measuring blood pressure at home, which you may find useful. Also, the British Hypertension Society website (www.bhsoc.org) has a list of validated blood pressure monitoring devices.

It is also important to have your machine regularly serviced and calibrated to make sure it is working properly.

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. Or, if you are working in an organisation that has an occupational health department, they will be able to check your blood pressure.

How often do I need to have my blood pressure measured?

If you are diagnosed with high blood pressure, you will need to have your blood pressure measured regularly until it is well controlled. Your doctor or nurse will tell you how often.

If your blood pressure is not found to be high, your doctor or nurse should measure it again within five years. You may need to have your blood pressure checked more regularly as you get older, or if it is close to 140/90mmHg. How often you have your blood pressure rechecked can also depend on any other medical conditions you may have, and your risk of developing heart and circulatory disease.

What do the blood pressure measurements mean?

Your blood pressure is **not considered to be high** if:

- your clinic blood pressure – that is, your blood pressure when measured at the GP practice or blood pressure clinic – is below 140/90mmHg, **or**
- your clinic blood pressure is 140/90mmHg or above but your average daytime ambulatory or home blood pressure is below 135/85mmHg.

Your blood pressure is **considered to be high** if:

- your clinic blood pressure is 140/90mmHg or above **and** your average daytime ambulatory or home blood pressure is 135/85mmHg or above.

If your blood pressure is considered to be high, your doctor will tell you about **lifestyle changes** you can make to help lower your blood pressure. We explain these on page 25. Your doctor may also offer you **medicines to lower your blood pressure**, depending on how high your blood pressure is and whether you have any other health problems. For more about medicines, see page 37.

If your blood pressure is considered to be high and you're aged under 40, or if your doctor thinks that your high

blood pressure might be caused by another problem – such as a problem with your kidneys – he or she may refer you to a specialist. This is to find out more about the possible cause of your high blood pressure and the best treatment for you.

What tests will I have?

If your doctor finds that you have high blood pressure, he or she may 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 high blood pressure, your doctor may also do some simple tests to find out more about the health of your heart and circulation. The main tests are:

- **blood tests** to find out your cholesterol and blood glucose 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, protein or sugar in your urine, and
- an **electrocardiogram** (ECG), which is a test to record the rhythm and electrical activity of your heart.

What can I do to help control my blood pressure?

The following can all help to control your blood pressure.

- Be physically active.
- If you're overweight, try losing some weight.
- Cut down on salt.
- Eat more fruit and vegetables.
- If you drink alcohol, limit the amount of alcohol you drink.
- Reduce stress.

Physical activity

Regular physical activity can help to reduce and control your blood pressure. Try and do something every day, and where possible keep the amount of time that you are inactive to a minimum.

The type of activity recommended for managing your blood pressure and improving your heart health is 'moderate-intensity activity'. This means any activity that makes you feel warm and slightly out of breath, such as brisk walking, cycling or swimming. Walking and cycling are particularly good, as you can often build them into your daily routine.

Doing some form of physical activity is better than doing nothing. Sessions of at least 10 minutes are a good way to start.

Your target is to build up to **at least 150 minutes (2½ hours) of moderate-intensity physical activity a week, in bouts of 10 minutes or more.**

One way to approach this is by aiming to do 30 minutes a day, on at least five days a week. You can also split the 30 minutes further – for example, doing two sessions of 15 minutes, or three sessions of 10 minutes. Start off slowly, and gradually build up both the intensity of the exercise and the amount of time you exercise for. Also, limit and break up the time you spend sitting still.

If your blood pressure is not well controlled, or if you have any other heart or medical conditions, check with your doctor before doing any new activity.

Check with your doctor or a health professional if you have any concerns about how much or what type of activity you can do.

Activities such as weight lifting or weight training tend to increase blood pressure, so they are often unsuitable for people who have high blood pressure. If you're unsure whether these types of activities are unsuitable for you, it is important to check with your doctor.

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, stay active.*

Weight and body shape

The number of people in England who are overweight or obese is increasing rapidly. More than one in every four adults in England are obese.

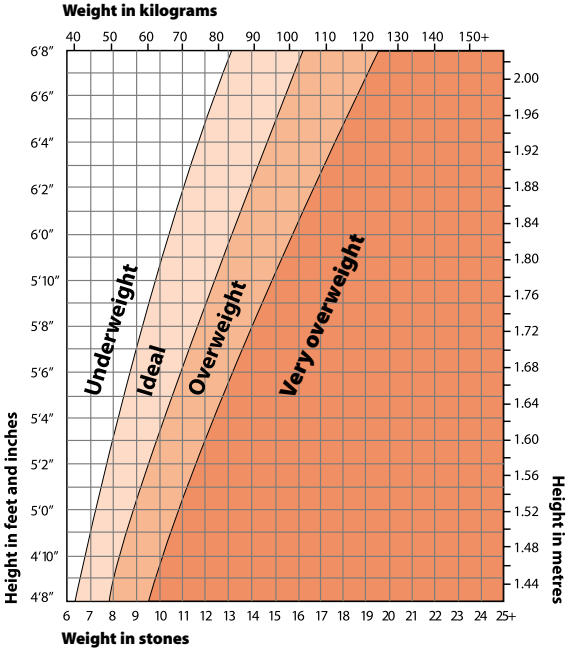
If you're overweight or obese, you have a higher risk of developing high blood pressure, high cholesterol, heart disease and diabetes.

Keeping to a healthy weight and body shape can help to protect you against high blood pressure and diabetes, and also helps to control your cholesterol level.

Your weight

For some people, losing weight is all they need to do to get their blood pressure down.

The chart on the next page is a guide for you to find out if you are an ideal weight – that is, a healthy weight for your height. If you fall into the 'Overweight' or 'Very overweight' category in the chart, your health may be at risk.



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

Are you a healthy weight?

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

Your body shape

Carrying too much weight around your middle increases your risk of developing heart disease, high blood pressure and diabetes.

To find out if your body shape is increasing your risk, measure your waist with a tape measure. Your GP or nurse may do this as part of your health check.

To measure your waist yourself, find the midpoint between the bottom of your ribs and the top of your hips. For most people this is at the level of the tummy button. Breathe out normally and measure around your waist. Try to relax, and avoid breathing in while taking your measurement. Check your measurement in the box below.

	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 (about 37 inches)	Over 102 centimetres (about 40 inches)
South Asian men		Over 90 centimetres (about 35½ inches)
Women	Over 80 centimetres (about 31½ inches)	Over 88 centimetres (about 34½ inches)
South Asian women		Over 80 centimetres (about 31½ inches)

People of South Asian origin are more likely to have a higher proportion of body fat to muscle than the rest of the UK population, and they also tend to carry this fat around their middle. So South Asians have a greater risk of developing problems such as heart disease at a lower waist size than other people in the UK.

What you can do

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

The best way to lose weight and reduce your waist size is to do the following.

- **Reduce your calorie intake.** You can do this by reducing portion sizes and cutting down on the amount of fat and sugar in your diet.
- **Increase your daily physical activity.** Physical activity helps you to burn calories, which will help you to lose weight.

For more information on how to increase the amount of physical activity you do, see page 25.

Try not to lose weight too quickly. Slow and steady weight loss – about one or two pounds (between a half and 1 kilo) a week – is healthier, and you're more likely to keep the weight off for good. Losing even a small amount of weight will benefit your health.

For more information on how to lose weight, see our booklet *So you want to lose weight … for good.* Or, if you're very overweight, see our booklet *Take control of your weight*.

Cutting down on salt

People who have a lot of salt in their diet are more likely to have high blood pressure. Salt makes your body hold onto extra water, which can increase your blood pressure. Most people eat far more salt than they need. It is recommended that adults have no more than 6 grams of salt a day – that's about one teaspoonful.

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.

What you can do

- **Cut down on processed foods that contain a lot of salt.** Three-quarters of the salt we eat is hidden in processed foods such as ready meals, packet and

canned soups, instant noodles, ketchups and sauces, sausages and burgers, and salty savoury snacks. See *Using food labels* below, 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.

Within a few weeks, your taste buds will change and you will get used to less salt and appreciate other flavours more.

For more information, see our booklets *Cut down on salt, Salt made simple,* and *Guide to food labelling.*

Using food labels

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

This is **a lot** (per 100 grams of food):	This is **a little** (per 100 grams of food):
1.5 grams of **salt** or more	0.3 grams of **salt** or less
0.6 grams of **sodium** or more	0.1 grams of **sodium** or less

Eating plenty of fruit and vegetables

Eating a healthy, balanced diet that includes plenty of fruit and vegetables each day will ensure you get a combination of vitamins and minerals to help keep you healthy, and can help to lower your blood pressure.

What you can do

Eat a wide variety of fruit and vegetables. They can be fresh, frozen, chilled, canned, dried, cooked or raw.

There is no evidence that taking vitamin tablets or supplements has the same benefits as eating fruit and vegetables.

Alcohol

If you drink alcohol, make sure you drink within the recommended limits.

- **Men** should not regularly drink **more than 3 to 4 units of alcohol a day.**
- **Women** should not regularly drink **more than 2 to 3 units of alcohol a day.**

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

1 unit of alcohol =

- a small glass (100ml) of wine (10% ABV [alcohol by volume])
- **or** half a pint (about 300ml) of normal-strength lager, cider or beer (for example, 3.5% ABV)
- **or** a pub measure (25ml) of spirits.

To work out how many units of alcohol you're drinking, use our interactive alcohol unit calculator at **bhf.org.uk/alcoholcalculator**

Avoid binge drinking, as this has been shown to increase your blood pressure over time. And have at least two alcohol-free days a week.

Moderate drinking – 1 or 2 units of alcohol a day – may offer some protection from coronary heart disease for some people. However, if you don't already drink alcohol, there is no need for you to start, as there are much healthier ways to look after your heart.

Drinking more than the recommended limit does not protect the heart and can lead to damage to the heart muscle, stroke and some cancers. Alcohol is high in calories too, so it can lead to weight gain.

Smoking

Smoking is one of the major risk factors for coronary heart disease. The nicotine in cigarettes stimulates the body to produce adrenaline, which makes the heart beat faster and temporarily raises blood pressure. There is no evidence to suggest that smoking has a long-term effect on increasing your blood pressure, but if you already have high blood pressure, smoking can cause your arteries to become narrowed much more quickly.

If you are a smoker, stopping smoking is the single most important step you can take to improve your heart health.

For information on stopping smoking, and for support if you are finding it hard to stop, contact one of these organisations:

- **Quitline**

Phone: 0800 00 22 00. Website: www.quit.org.uk.
QUIT also has helplines in different languages.

- **Smokefree**

Phone: 0800 022 4 332. Website: www.smokefree.nhs.uk

- **ASH** (Action on Smoking and Health)

Phone: 020 7739 5902. Website: www.ash.org.uk.
For more information on smoking, see our booklet *Stop smoking.*

Reducing stress

Challenges can help to keep us motivated, but when we feel unable to cope with the high demands that are placed on us, we experience stress. Feeling isolated can make you feel even more stressed.

Stressful situations can cause your blood pressure to rise, but the blood pressure usually returns to normal once the stress has gone away.

It's important to learn how to relax and deal with stress effectively, as this will 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 stress, see our booklet *Coping with stress*.

Medicines for blood pressure

There are many medicines available for reducing blood pressure.

Who needs to take medicines for blood pressure?

Your doctor will offer you medicines to lower your blood pressure, if your blood pressure is considered to be high (see page 22) and any of the following apply to you:

- if you have damage to the blood vessels in your heart, brain, kidneys or eyes
- if you have heart and circulatory disease
- if you have kidney disease
- if you have diabetes, or
- if your risk of developing heart and circulatory disease is considered to be high.

You may also be recommended medicines to lower your blood pressure if your blood pressure is consistently very high, regardless of any other problems you may have.

On page 41 we give a list of the different types of medicines used to treat high blood pressure. Most people need to take more than one type of medicine to lower their blood pressure. Research suggests that taking two

or more medicines often has a much better effect than taking just one.

If you have any questions or concerns about any of the medicines you are taking, talk to your GP, pharmacist or blood pressure specialist about it.

Keeping to a healthy lifestyle

It is important to understand that, once you are taking medicine to lower your blood pressure, you still need to make every effort to maintain a healthy lifestyle to protect your heart. Once you've been taking your medicines for a few months, your blood pressure may come down. But, if you continue to smoke or if you don't exercise enough, 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 and healthy lifestyle changes may help to lower blood pressure and their doctor may suggest having a trial period without taking any blood-pressure lowering medicines.

What happens if my blood pressure is still too high?

It may take some time for the medicines you are taking to lower your blood pressure so that is within the recommended limits. If your blood pressure still remains high after a period of time, your doctor may suggest changing the dose, or trying a different combination of medicines that might work better for you. If your blood pressure still remains high, your doctor may consider adding another medicine until you reach your target level.

Don't be worried if your doctor changes your medicines several times in order to get your blood pressure low enough.

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 or alternative medicines too.

Pregnant or breastfeeding women

If you are pregnant or trying to get pregnant, or if you're

breastfeeding, there are some medicines which you should not take. For example, you should avoid taking ACE inhibitors or angiotensin-II antagonists.

If you may become pregnant, or if you are pregnant or breastfeeding, tell your doctor or nurse. They will check whether the medicines you are taking to lower your blood pressure are still safe for you to take. You may be advised to change to another type of medicine.

If you need to take medicines to lower your blood pressure, your doctor will consider the risks to both you and your baby very carefully, and you will be given the safest one available. Generally, medicines should only be prescribed in pregnancy if the expected benefit to the mother is thought to be greater than the risk to the baby.

You should always talk to your doctor or midwife before taking any medicines – even ones you can buy over the counter without a prescription.

Medicines used to treat high blood pressure

We explain more about these medicines on pages 42.

Type of medicine	Examples of medicine
ACE inhibitors See page 42.	Enalapril Lisinopril Perindopril Ramipril
Angiotensin-II receptor antagonists See page 43.	Candesartan Irbesartan Losartan Valsartan
Calcium-channel blockers See page 43.	Amlodipine Nifedipine Lacidipine
Diuretics See page 43.	*Thiazide and thiazide-like diuretics:* Bendroflumethiazide Chlortalidone Indapamide *Loop diuretics:* Furosemide *Potassium-sparing diuretics:* Amiloride Spironolactone
Alpha-blockers See page 44.	Doxazosin Prazosin
Beta-blockers See page 44.	Atenolol Bisoprolol Metoprolol

ACE inhibitors

ACE inhibitors can reduce the activity of an enzyme called angiotensin-converting enzyme – or ACE for short. This enzyme has a powerful narrowing effect on the blood vessels, leading to an increase in blood pressure. ACE inhibitors work by making the blood vessels relax and widen, which lowers blood pressure.

ACE inhibitors are effective in treating high blood pressure and can be used either on their own or with other types of medicines used to lower blood pressure. However, if you are of black African or Caribbean origin, ACE inhibitors do not work as well, and your doctor will recommend other medicines that are best for you.

When your doctor starts you on the ACE inhibitor, it is very important that you have regular blood tests to check your kidney function and potassium levels. Your blood pressure will also need to be monitored.

A few people develop a persistent, dry, irritating cough when they take ACE inhibitors. If this happens and the cough is troublesome, you should tell your doctor who may prescribe a different medicine for you.

Angiotensin-II receptor antagonists

Also called ***angiotensin receptor blockers*** *or* ***ARBs****.*

Angiotensin-II receptor antagonists act in a similar way to ACE inhibitors, but they don't cause the persistent dry cough that ACE inhibitors can sometimes cause.

If you take angiotensin-II receptor antagonists, you will need to have regular blood tests to check the potassium levels in your blood, as well as your kidney function.

Calcium-channel blockers

Also called ***calcium antagonists.***

You need a regular flow of calcium into the cells of your heart muscle for the heart to contract normally. Calcium-channel blockers reduce the amount of calcium entering the muscle cells of the arteries, causing them to relax and widen. As a result, the blood pressure falls.

Diuretics

Diuretics act on the kidneys to increase the output of water and salt in the urine. They are commonly called 'water tablets' as they remove excess fluid from the body. Some diuretics can also make your blood vessels relax and dilate, which can lead to a fall in blood pressure.

When you first start taking diuretics, you may find that you need to pass water more regularly.

Thiazide and thiazide-like diuretics are most often used to treat high blood pressure. If you take a diuretic, your doctor will usually arrange a blood test a few weeks after you start taking the medicine, to check the potassium level in your blood.

Other medicines used for high blood pressure

Sometimes the more commonly used medicines to treat high blood pressure are not enough to control the blood pressure, or they may have unacceptable side effects. Other medicines used to control high blood pressure are **alpha-blockers** and **beta-blockers**. See our booklet *Medicines for your heart* for more information on these.

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

Your doctor will prescribe medicines for you, to help control your blood pressure. Some of the medicines may cause side effects, but these may disappear after you've been taking the medicine for just a short time.

Some side effects result from the action of the medicine. For example, if you are given too large a dose of a medicine for treating high blood pressure, your blood pressure may fall too low and you may feel faint. Other side effects are not related to the main action of the medicine – for example, skin rashes.

For more information about possible side effects of the medicines that you are taking, read the information leaflet that comes with your medicine. If you're worried about side effects, speak to your doctor or pharmacist.

What to do if you get side effects

See the next page for advice on what to do if you get side effects. If you develop any new, persistent or troublesome symptoms or problems after starting a medicine, it is important to tell your doctor about them immediately. But don't stop taking your prescribed medicines without medical advice, as this could make your condition worse.

For more information on the medicines described on pages 41 to 44, see our booklet *Medicines for your 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	If the rash is severe or widespread, report this to your doctor as soon as possible. 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 medicine, 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 medicine, 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 very few symptoms, so it should not affect your ability to drive. However, you should not drive if your medicines cause any symptoms that affect your driving ability. If this happens, discuss it with your doctor, as you may need to change your medicines to prevent the symptoms.

If you have a licence to drive a large goods vehicle (LGV) or passenger-carrying vehicle (PCV), and if you have very high blood pressure or if your medicines cause symptoms which affect your driving ability, you will need to tell the Driver and Vehicle Licensing Agency (DVLA) about your condition and check with them whether you can continue to drive. Visit www.direct.gov.uk/driverhealth. Or call the DVLA on 0300 790 6807, or write to them at DVLA, Swansea SA99 1TU. You may need to stop driving and apply to renew your licence once your high blood pressure is under control.

What about holidays?

If you have high blood pressure and want to go on holiday, you may want to discuss this with your doctor first.

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 adequate insurance cover when you go away. Some travel insurers may need to know about your medical condition. Check with them before you travel.

You can get a list of insurance companies that other people have found to be helpful to heart patients direct from the BHF website at **bhf.org.uk**. Or, to order a copy, call the Heart Helpline on **0300 330 3311** or write to us at the address on the back cover.

Women with high blood pressure

Around one in three women in England and Scotland has high blood pressure. As with men, the risk of developing high blood pressure in women increases with age. Also, African-Caribbean women living in the UK are more likely to have high blood pressure than other women in the UK.

Pregnancy

High blood pressure can develop for the first time in pregnancy – a condition called 'pregnancy-induced hypertension' or 'gestational hypertension'. This may lead to a more serious condition called pre-eclampsia.

If your doctor thinks you may have pre-eclampsia, you may need to have tests to check how your liver and kidneys are working, and you may need to go to hospital. If your blood pressure is high, you may need to take medicines during your pregnancy to help keep your blood pressure under control.

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 medical supervision.

The contraceptive pill

The pill (oral contraceptive) can sometimes 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.

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 recent research suggests 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 of a link between high blood pressure and HRT. If you are taking HRT, you should have your blood pressure checked regularly – about once every six months. If you have any concerns about possible effects of HRT on blood pressure, talk to your doctor.

How your support can help

A team at the BHF Glasgow Cardiovascular Research Centre recently identified an additional gene that regulates blood pressure. This and discoveries like it will hopefully lead to new medicines for controlling blood pressure in the future.

Over recent decades, research funded by the BHF has contributed to a substantial reduction in the number of people dying from heart attacks and strokes. But this means that more and more people are surviving to live with the often debilitating consequences of their disease, in particular heart failure. Fortunately, we can treat heart failure, but we can't cure it because the heart can't repair itself.

The next big challenge is to discover how to help the heart repair itself so that heart failure can be cured rather than treated. Visit the *Research* pages on our website **bhf.org.uk** to see how your support can make a difference.

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 similar cost to 01 and 02 numbers)

For information and support on anything heart-related.

Genetic Information Service

0300 456 8383 (a similar cost to 01 and 02 numbers)

For information and support on inherited heart conditions.

Booklets and DVDs

To order 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 a list of resources available from the BHF, ask for a copy of *Our 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.

Angina
Atrial fibrillation
Blood pressure
Cardiac rehabilitation
Caring for someone with a heart condition
Coronary angioplasty
Diabetes and your heart
Having heart surgery
Heart attack
Heart rhythms
Heart transplantation
Heart valve disease
Implantable cardioverter defibrillators (ICDs)
Keep your heart healthy
Living with heart failure
Medicines for your heart
Pacemakers
Peripheral arterial disease
Physical activity and your heart
Primary angioplasty for a heart attack
Reducing your blood cholesterol
Returning to work with a heart condition
Tests for heart conditions

My progress record

This is a personal health record for people with a heart condition. 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. You can order a copy from the BHF (see page 52), and work through it with your health professional. A short version, *My progress card,* is also available.

Heart Matters

Heart Matters is the BHF's **free**, personalised service to help you live with a healthy heart. Join today and enjoy the benefits, including *heart matters* magazine, a Heart Helpline and an online members' area with articles, recipes and lifestyle tips. You can join online at **bhf.org.uk/heartmatters** or call **0300 330 3300** (a similar cost to 01 and 02 numbers).

Emergency life-support skills

Heartstart

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

- recognise the warning signs and symptoms of a heart attack
- help someone who is choking or seriously 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: 0845 241 0989
Website: www.bpassoc.org.uk
Provides information and support for people with high blood pressure.

Understanding NICE guidance. High blood pressure
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
Phone: 0845 003 7780.

Index

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**. Or, write to us at the address on the back cover.

Acknowledgements

The British Heart Foundation would like to thank all the GPs, cardiologists and nurses who helped to develop the booklets in the *Heart Information Series,* and all the patients who commented on the text and design.

Particular thanks for their work on this booklet are due to:

- Professor Neil Poulter, Professor of Preventative Cardiovascular Medicine, National Heart and Lung Institute, Imperial College London, and
- Dr Ian Wilkinson, Reader and Honorary Consultant, Department of Clinical Pharmacology, University of Cambridge/Cambridge University Hospitals.

We are the nation's heart charity, dedicated to saving lives through pioneering research, patient care, campaigning for change and by providing vital information. But we urgently need your help. We rely on your donations of time and money to continue our life-saving work. Because together we can beat heart disease.

bhf.org.uk

Heart Helpline
0300 330 3311
bhf.org.uk

Information & support on anything heart-related. Phone lines open 9am to 5pm Monday to Friday.
Similar cost to 01 or 02 numbers.

British Heart Foundation
Greater London House
180 Hampstead Road
London NW1 7AW
T 020 7554 0000
F 020 7554 0100