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High Blood Pressure (Hypertension)

High blood pressure (hypertension) happens when the force on the walls of blood vessels from the blood within them is more than normal. This means the heart has to work harder and the blood vessels are under more strain, making it a major risk factor for heart disease, [stroke](#) and other serious conditions.

Blood pressure is literally the pressure in your blood vessels, specifically your arteries - the blood vessels that carry blood away from your heart to your organs, providing them with oxygen. High blood pressure (hypertension) is not a disease or illness. But it does put you more at risk of conditions such as strokes and [heart attacks](#).

How do I know if it's high?

Unless your blood pressure is super-high, you won't know unless it is measured. If blood pressure is very high, it can give you symptoms such as headaches. But usually you only know it's 'up' because it has been checked. So who should be checked? Healthy adults should have a blood pressure check at least every five years from the age of 40. It will be checked regularly at a younger age in conditions such as diabetes mellitus, pregnancy or kidney diseases. It will be checked more frequently (every 6-12 months) as you get older, if you have had high or borderline readings in the past, or if you have diabetes.

You can read more about [symptoms of high blood pressure](#).

How is it checked?

A blood pressure machine (sphygmomanometer) is used. A cuff is placed around your upper arm and is then tightened by pumping air into the cuff. It is then gradually let down (deflated) while the pressure readings are taken. This is usually done two or three times over a few minutes. You'll find your blood pressure tends to bob up and down so it's usually checked a few times before any treatment is considered. If you get consistently high readings, you may be asked to have this done with a special machine which measures blood pressure regularly over a 24-hour period.

Learn more about having your blood pressure checked in the [diagnosis section](#).

Making sense of the numbers

There are two numbers to blood pressure, a top number and a bottom number. Both are important. Ideally, for most people, you want your top number to be 140 or less, and you want your bottom number to be no more than 90. Your doctor may want your blood pressure lower if you have other medical conditions.

Read more about [what the numbers represent](#), and [what levels need treatment in the diagnosis section](#).

Why is mine high?

Most of the time, nobody knows. It is very common, and some people are just prone to it. In some cases there is a specific cause or risk factor. You can read about the [cause of high blood pressure](#).

Why does it matter?

With your blood vessels and heart under strain due to increased pressure, you are more at risk of all sorts of serious health problems, such as heart attacks, strokes, kidney damage and eye damage. If your blood pressure is reduced, by lifestyle changes and/or medicines, then you can reduce your risks of all these conditions. Fairly obviously, this improves your chances of living with good health into a ripe old age. Read more about the [health risks associated with high blood pressure in the symptoms section](#).

Can I get my blood pressure down without taking medication?

Sometimes there is quite a bit you can do with lifestyle changes, and in some people this may help them to avoid medication. In particular, the following help:

- Losing weight if you are overweight.
- Reducing the salt you have in your food.
- Taking regular exercise.

Stopping smoking doesn't reduce your blood pressure as such, but smoking and high blood pressure put you at risk of the same conditions. So if you can quit smoking, you'll reduce your risk of strokes, heart attacks, etc.

Read more about [lifestyle treatments for high blood pressure](#).

What if I need pills?

There are hosts of different medicines for high blood pressure. They work in various different ways. Your doctor will advise on the best one for you. If it doesn't work, or you get side-effects, there are plenty of other options. The idea is to get you on one or more pills which suit you, and which control your blood pressure. Once you and your doctor have cracked it, you'll need to keep taking your medication long term to make sure you stay protected. Your blood pressure will be checked regularly and medication adjusted if need be.

Read more about [medication for high blood pressure](#).

Does having high blood pressure give you any symptoms?

Very rarely. Usually it's only picked up if blood pressure is checked routinely, or as part of checks for another medical problem. Occasionally if it is very high, you can get headaches. Even more occasionally, some people feel a bit dizzy, or their vision can be affected.

Other than the blood pressure reading being high, there isn't usually anything for the doctor to find on examination either. If blood pressure has been high for some time, or very high, there can be changes in the blood vessels at the back of the eye.

If there are no high blood pressure symptoms, why is it a problem?

High blood pressure (hypertension) is a risk factor for developing serious health problems sometime in the future. If you have high blood pressure, over the years it may do some damage to your blood vessels (arteries) and put a strain on your heart. In general, the higher your blood pressure, the greater the health risk.

Cardiovascular disease is the biggest risk from having high blood pressure. Cardiovascular diseases are diseases of the heart (cardiac muscle) or blood vessels (vasculature). This usually means diseases of the heart or blood vessels that are caused by atheroma. Patches of atheroma are like small fatty lumps that develop within the inside lining of blood vessels (arteries). Atheroma is also known as atherosclerosis and hardening of the arteries.

Cardiovascular diseases that can be caused by atheroma include:

- Angina.
- Heart attack.
- Stroke.
- Transient ischaemic attack (TIA).
- Peripheral arterial disease.

High blood pressure is just one of several possible risk factors for developing a cardiovascular disease. Others include smoking, having high cholesterol and being overweight.

Reducing high blood pressure means you are less likely to have a stroke or a heart attack and more likely to live longer.

Other health conditions which you would be more prone to if high blood pressure is not treated include:

- Problems with your eyesight (retinopathy).
- **Aortic aneurysm.**
- **Heart failure.**
- **Chronic kidney disease.**

How is blood pressure measured?

Blood pressure is measured in millimetres of mercury (mm Hg).

Clinic/GP surgery blood pressure readings: these are readings taken by a doctor or nurse in a clinic or GP surgery, using a standard blood pressure machine.

Home blood pressure readings: these are readings taken by a person whilst seated and at rest at home, using a standard blood pressure machine. You need to take readings twice a day for a week. This will give 14 top and 14 bottom readings. Add the top readings together and divide by 14. Then do the same for the bottom readings. This gives you an average reading. It's normal for your blood pressure to fluctuate, so a single raised reading isn't a cause for concern unless it's extremely high.

Ambulatory blood pressure readings: these are readings taken at regular intervals whilst you go about your normal activities. A small machine that is attached to your arm takes and records the readings, usually over a 24-hour period.

As a rule, an average of the ambulatory blood pressure readings gives the most true account of your usual blood pressure. Home blood pressure readings are a good substitute if an ambulatory machine is not available. Ambulatory and home readings are often a bit lower than clinic or GP surgery readings. Sometimes they are a lot lower. This is because people are often much more relaxed and less stressed at home than in a formal clinic or surgery situation.

What is high blood pressure?

High blood pressure (hypertension) is a blood pressure that is 140/90 mm Hg or above each time it is taken at the GP surgery (or home or ambulatory readings where the average is more than 135/85 mm Hg). That is, it is sustained at this level. High blood pressure can also be:

- Just a high systolic pressure - for example, 170/70 mm Hg.
- Just a high diastolic pressure - for example, 120/104 mm Hg.
- Or both - for example, 170/110 mm Hg.

However, it is not quite as simple as this. Depending on various factors, the level at which blood pressure is considered high enough to be treated with medication can vary from person to person.

Blood pressure of 140/90 mm Hg or above (or average home/ambulatory readings 135/85 mm Hg or above)

If your blood pressure is always in this range you will normally be offered treatment to bring the pressure down, particularly if you have:

- A high risk of developing cardiovascular diseases (see below); **or**
- An existing cardiovascular disease (see below); **or**

- Diabetes; **or**
- Damage to the heart or kidney (end-organ damage) due to high blood pressure.

Blood pressure of 160/100 mm Hg or above (or home/ambulatory readings 150/95 mm Hg or above)

If your blood pressure is always in this range, you will almost certainly be advised to have treatment to bring it down.

Blood pressure between 130/80 mm Hg and 140/90 mm Hg

For most people this level is fine. However, current UK guidelines suggest that this level is too high for certain groups of people. Treatment to lower your blood pressure if it is 130/80 mm Hg or higher may be considered if you:

- Have developed a complication of diabetes, especially kidney problems.
- Have had a serious cardiovascular event such as a heart attack, transient ischaemic attack (TIA) or stroke.
- Have certain ongoing (chronic) kidney diseases.

What is blood pressure?

Blood pressure is the pressure of blood in your blood vessels (arteries), measured in millimetres of mercury (mm Hg). Your blood pressure is recorded as two figures - for example, 150/95 mm Hg. You may hear this said as '150 over 95'.

- **The top (first) number is the systolic pressure.** This is the pressure in the arteries when the heart contracts.
- **The bottom (second) number is the diastolic pressure.** This is the pressure in the arteries when the heart rests between each heartbeat.

In the UK, over one quarter of adults have high blood pressure. It becomes more common the older we become. Up until the age of 65 years it is more common in men than in women. However, after the age of 65 years it is more common in women. As the population as a whole is living longer, high blood pressure is becoming more common.

High blood pressure is uncommon under the age of 40 years. Between the ages of 45-54 years, about a third of men and a quarter of women have high blood pressure. Over the age of 75 years, about two thirds of men and more than three quarters of women have high blood pressure.

What causes high blood pressure?

The cause of high blood pressure (hypertension) is not known in most cases

This is called essential hypertension. The pressure in the blood vessels (arteries) depends on how hard the heart pumps and on how much resistance there is in the arteries. It is thought that slight narrowing of the arteries increases the resistance to blood flow, which increases the blood pressure. The cause of the slight narrowing of the arteries is not clear. Various factors probably contribute.

In some cases, high blood pressure is caused by other conditions

It is then called secondary hypertension. For example, certain kidney or hormone problems can cause high blood pressure. In some cases, medication taken for other conditions can cause blood pressure to rise.

Risk factors for high blood pressure

High blood pressure is more common in people:

- With diabetes. This is the case in both **type 1** and **type 2 diabetes**. However, it is even more common in those with type 2 diabetes.
- From African-Caribbean origin.

- From the Indian subcontinent.
- With a family history of high blood pressure.
- With certain lifestyle factors. That is, those who:
 - Are overweight.
 - Eat a lot of salt.
 - Don't take enough exercise.
 - Drink a lot of alcohol.
 - Have a lot of stress.

How is high blood pressure diagnosed?

A one-off blood pressure reading that is high does not mean that you have high blood pressure (hypertension). Your blood pressure varies throughout the day. It may be high for a short time if you are anxious, stressed, or have just been exercising.

You have high blood pressure if you have several blood pressure readings that are high, taken on different occasions, and when you are relaxed.

Observation period

If one reading is found to be high, it is usual for your doctor or nurse to advise a time of observation. This means several blood pressure checks at intervals over time. The length of the observation period varies depending on the initial reading and whether you have other health risk factors.

For example, say a first reading was mildly high at 145/89 mm Hg. If you are otherwise well then a period of several weeks of observation may be advised. This may involve several blood pressure measurements over the following few weeks. You may be given a machine to monitor blood pressure while you are going about doing your everyday activities (ambulatory monitoring). You may be given (or asked to buy) a machine to measure your blood pressure at home (home monitoring). One reason this may be advised is because some people become anxious in medical clinics. This can cause the blood pressure to rise. (This is often called white coat hypertension.) Home or ambulatory monitoring of blood pressure may show that the blood pressure is normal when you are relaxed.

The observation period is also a good time to change any lifestyle factors that can reduce blood pressure. If the blood pressure readings remain high after an observation period then medication may be advised, depending on your risk factors.

However, if you have diabetes, or have recently had a heart attack or stroke, you may be advised to have blood pressure checks fairly often over the following week or so. Also, treatment with medication is usually considered at an earlier stage if the readings remain high.

Do I need any further tests?

If you are diagnosed as having high blood pressure (hypertension) then you are likely to be examined by your doctor and have some routine tests which include:

- A **urine test** to check if you have protein or blood in your urine.
- A blood test to check that your **kidneys are working normally** and to check your **cholesterol level** and **sugar (glucose) level**.
- A heart tracing, called an **electrocardiogram (ECG)**.

The purpose of the examination and tests is to:

- Rule out (or diagnose) a secondary cause of high blood pressure, such as kidney disease.
- Check to see if the high blood pressure has affected the heart.
- Check for other risk factors such as a high cholesterol level or diabetes.

How can lifestyle changes help lower blood pressure?

Lose weight if you are overweight

Losing some excess weight can make a big difference. Blood pressure will fall as each excess kilogram is lost. Losing excess weight has other health benefits too.

Regular physical activity

If possible, aim to do some physical activity on five or more days of the week, for at least 30 minutes. For example, brisk walking, swimming, cycling, dancing, etc. Regular physical activity can lower blood pressure in addition to giving other health benefits. If you previously did little physical activity and you change to doing regular physical activity five times a week, it can reduce your systolic blood pressure. You should seek medical advice before undertaking exercise if you have high blood pressure.

Eat a healthy diet

Briefly, this means:

- AT LEAST five portions, or ideally 7-9 portions, of a **variety** of fruit and vegetables per day.
- A THIRD OF MOST MEALS should be starch-based foods (such as cereals, wholegrain bread, potatoes, rice, pasta), plus fruit and vegetables.
- NOT MUCH fatty food such as fatty meats, cheeses, full-cream milk, fried food, butter, etc. Use low-fat, mono-unsaturated or polyunsaturated spreads.
- INCLUDE 2-3 portions of fish per week. At least one of these should be 'oily' such as herring, mackerel, sardines, kippers, pilchards, salmon, or **fresh** (not tinned) tuna.
- If you eat meat it is best to EAT LEAN MEAT, or eat poultry such as chicken (without the skin, which is full of saturated fat!).
- If you do fry, choose a VEGETABLE OIL such as rapeseed or olive oil.
- LIMIT SALT in your diet (see below).
- USE WHOLEGRAIN versions of starchy foods (such as rice and pasta).

A healthy diet provides benefits in different ways. For example, it can lower cholesterol, help control your weight, and provide plenty of vitamins, fibre and other nutrients which help to prevent certain diseases. Some aspects of a healthy diet also directly affect blood pressure. For example, if you have a poor diet and change to a diet which is low-fat, low-salt and high in fruit and vegetables, it can significantly lower systolic blood pressure.

Have a low salt intake

The amount of salt that we eat can have a major effect on our blood pressure. Public Health England says excess salt is one of the most important risk factors for high blood pressure we can change. Government guidelines recommend that we should have no more than 5-6 grams of salt per day. On average, we eat just over 8 grams a day. About 3/4 of the salt we eat comes from processed food, where it's often not obvious - for instance, packet soups and sauces and even breakfast cereals can be high in salt. Tips on how to reduce salt include:

- Use herbs and spices rather than salt to flavour food.
- Limit the amount of salt used in cooking. Do not add salt to food at the table.
- Choose foods labelled 'no added salt'.
- Avoid processed foods as much as possible
- if you want the flavour of salt, consider using a reduced sodium salt alternative. It's the sodium in salt that puts your blood pressure up, and using a version where some of the sodium has been replaced with potassium may lower blood pressure

Drink alcohol in moderation

Too much alcohol can be harmful and can lead to an increase in blood pressure. You should not drink more than the recommended amount. Currently the maximum recommended amount for men and women is no more than 14 units of alcohol per week. Units should be spread out through the week and there should be at least two alcohol-free days a week. Pregnant women should not drink at all. One unit is in about half a pint of normal-strength beer, or two thirds of a small glass of wine, or one single pub measure of spirits.

Cutting back on heavy drinking improves health in various ways. It can also have a direct effect on blood pressure. For example, if you are drinking heavily, cutting back to the recommended limits can lower a high systolic blood pressure.

Smoking and high blood pressure

Smoking does not directly affect the level of your blood pressure. However, smoking greatly adds to your health risk if you already have high blood pressure (hypertension). You should make every effort to **stop smoking**. If you smoke and are having difficulty in stopping, see your practice nurse for help and advice.

What are the medication treatment options for high blood pressure?

When is medication treatment started for high blood pressure (hypertension)?

Medication to lower blood pressure is usually advised for:

- All people who have a blood pressure that remains at 160/100 mm Hg or above after a trial of any relevant lifestyle changes.
- People with a blood pressure that remains at 140/90 mm Hg or above after a trial of any relevant lifestyle changes AND who have:
 - Diabetes; **or**
 - An existing cardiovascular disease; **or**
 - A 2 in 10 risk or more of developing a cardiovascular disease within the following 10 years (as described above).
- People with a blood pressure of 130/80 mm Hg or more who have certain diseases. For example, people who have certain complications from diabetes, people who have had a recent heart attack, stroke or transient ischaemic attack (TIA) - sometimes called a mini-stroke. Also, some people with certain ongoing (chronic) kidney diseases.

What is the target blood pressure to aim for?

If you are taking medication to lower high blood pressure:

- For most people who are otherwise well, the target is to reduce blood pressure to below 140/90 mm Hg. If you are checking your blood pressure at home, the aim is for the average to be below 135/85 mm Hg.
- If you are aged 80 years or more, the target is usually to reduce blood pressure to below 150/90 mm Hg. If you are checking your blood pressure at home, the aim is for the average to be below 145/85 mm Hg. However, there is now increasing focus on looking at your 'biological' age (whether you're in better shape than most people for the same age) so if you're very healthy, your doctor may aim for a lower target.
- In some people, the target is to get the blood pressure to an even lower level. This generally applies to people who have diseases where very good blood pressure control is important. This includes:
 - People who have a cardiovascular disease.
 - People with diabetes.
 - People who have a chronic kidney disease.

You will be advised of your blood pressure target level by your GP or practice nurse.

What medicines are used to lower blood pressure?

There are several medicines that can lower blood pressure. The one chosen depends on such things as:

- Whether you have other medical problems.
- Whether you take other medication.
- Possible side-effects of the medicine.
- Your age.
- Your ethnic origin.

Some medicines work well in some people and not so well in others. One or two medicines may be tried before one is found to suit.

One medicine reduces high blood pressure to the target level in less than half of cases. It is common to need two or more different medicines to reduce high blood pressure to a target level. In about a third of cases, three medicines or more are needed to get blood pressure to the target level. In some cases, despite treatment, the target level is not reached. However, although to reach a target level is ideal, you will benefit from any reduction in blood pressure.

See separate leaflet called [Medicines for High Blood Pressure](#) for more details.

How long is medication needed for?

In most cases, medication is needed for life. However, in **some** people whose blood pressure has been well controlled for three years or more, medication **may** be able to be stopped. In particular, this may be possible for people who have made significant changes to lifestyle (such as having lost a lot of weight, or stopped heavy drinking, etc). Your doctor can advise you.

If you stop medication, you should have regular blood pressure checks. In some cases the blood pressure remains normal. However, in others it starts to rise again. If this happens, medication can then be started again.

Further reading & references

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