

# High Blood Pressure (Hypertension)

If you have high blood pressure, you have an increased risk of developing heart disease, a stroke, and other serious conditions. In some cases blood pressure can be reduced by: losing weight, regular exercise, a healthy diet, drinking less alcohol, and reducing salt. If needed, medication can lower blood pressure.

## What is high blood pressure?

High blood pressure (hypertension) means that the pressure of the blood in your arteries (blood vessels) is too high. Blood pressure is recorded as two figures. For example, 140/85 mmHg. This is said as '140 over 85'. Blood pressure is measured in millimetres of mercury (mmHg).

## What do the numbers mean?

- **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.

The machine that measures blood pressure is called a sphygmomanometer. The cuff is placed around your arm and pumped up. The pressure in the cuff around your arm is then gradually reduced. A doctor or nurse listens with a stethoscope over an artery in the arm as the pressure in the cuff is lowered. They can hear typical noises when the pressure in the cuff equals your systolic and diastolic pressures. Modern electronic devices can also measure blood pressure.

## What are normal and high blood pressure values?

- **Normal** blood pressure is less than 140/90 mmHg. (Note: if you have diabetes you should aim for a level less than this. See leaflet called 'Diabetes and High Blood Pressure'.)
- **Mildly high** blood pressure is 140/90 mmHg or above, but below 160/100 mmHg. Treatment with tablets may be advised if it remains at this level, depending on whether you have other 'risk factors' (see below).
- **Moderate to severe high** blood pressure is 160/100 mmHg or above. Treatment with tablets is usually advised if your blood pressure remains at this level.

High blood pressure can be:

- just a high systolic pressure, for example, 170/70 mmHg.
- just a high diastolic pressure, for example, 130/104 mmHg.
- or both, for example, 170/110 mmHg.

## How common is high blood pressure?

In the UK, about half of people over 65, and about 1 in 4 middle aged adults, have high blood pressure. It is less common in younger adults. It is more common in people from African-Caribbean origin, and from the Indian sub-continent. Most cases are mildly high (between 140/90 and 160/100 mmHg). But, at least 1 in 20 adults have blood pressure of 160/100 mmHg or above.

## What causes high blood pressure?

### The cause is not known in most cases

It is then called 'essential hypertension'. The pressure in the blood vessels depends on how hard the heart pumps, and how much resistance there is in the arteries. 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. A variety of factors probably contribute.

(It is a bit like water in a hosepipe. The water pressure is increased if you open the tap more, but also if you make the hosepipe narrower by partially blocking the outflow with your thumb.)

### **Rarely, high blood pressure is caused by other conditions**

For example, certain kidney or hormone problems can cause high blood pressure.

## **How is high blood pressure diagnosed?**

A one-off blood pressure reading which is high does not mean that you have 'high blood pressure'. 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 are said to have 'high blood pressure' (hypertension) if you have several blood pressure readings which are high, and which are 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 if you have other health risk factors.

For example, say a first reading was mildly high at 150/94. If you are otherwise well, then a period of several months 'observation' may be advised. A blood pressure reading may be taken every few weeks or so. The observation period is also a good time to address any lifestyle factors (see below). If the blood pressure readings remain high after an 'observation period' then treatment with medication may be advised (see below).

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

## **Why is high blood pressure a problem?**

High blood pressure usually causes no symptoms. (This is why all adults should have their blood pressure checked every 3-5 years.) However, over the years, high blood pressure may do some damage to the arteries and put a strain on your heart. In general, the higher your blood pressure above normal, the greater your health risk.

**So, high blood pressure is a 'risk factor'** for developing heart disease (angina, heart attacks, heart failure), stroke, peripheral vascular disease, and kidney damage sometime in the future. Other risk factors which also increase the risk of developing these conditions are:

- smoking
- lack of exercise
- an unhealthy diet
- excess alcohol
- obesity
- high cholesterol level
- a strong family history of heart disease or stroke
- being male
- ethnic group. (Eg. Afro-Caribbeans and South Asians in the UK have an increased risk.)
- diabetes

Note: some risk factors are more 'risky' than others. For example, smoking or high blood pressure cause a greater risk to health than an unhealthy diet. Also, risk factors interact. So, if you have two

or more risk factors, your health risk is much more increased than if you just had one. For example, a male smoker who takes no exercise and has high blood pressure has quite a high risk of developing heart disease before the age of 60.

**Therefore, the benefit of lowering a high blood pressure** is a reduced risk of serious illness. For example, it is estimated that reducing a high diastolic blood pressure by 6 mmHg reduces your relative risk of having a stroke in the future by about 35-40%, and reduces your relative risk of developing heart disease by about 20-25%. Larger reductions in blood pressure provide greater benefits. (See leaflet called 'Absolute Versus Relative Risk' for an explanation of relative risk.)

## What can I do to lower high blood pressure?

### Lose weight if you are overweight

Losing some weight can make a big difference. Blood pressure can fall by up to 2.5/1.5 mmHg for each excess kilogram which is lost. Losing weight has other health benefits apart from lowering blood pressure.

### Exercise regularly

If possible, aim to do some exercise on five or more days of the week, for at least 30 minutes. For example, brisk walking, swimming, cycling, dancing, etc. Regular exercise can lower blood pressure in addition to giving other health benefits. If you previously did little exercise, and change to doing regular exercise five times a week, it can reduce systolic blood pressure by 2-10 mmHg.

### Eat a healthy diet, which means

- AT LEAST five portions of a *variety of* fruit and vegetables per day.
- THE BULK 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-, or poly-unsaturated spreads.
- INCLUDE 2-3 portions of fish per week. At least one of which should be 'oily' (such as herring, mackerel, sardines, kippers, pilchards, salmon, or *fresh* tuna).
- If you eat meat it is best to eat lean meat, or poultry such as chicken.
- If you do fry, choose a vegetable oil such as sunflower, rapeseed or olive oil.
- Try not to add salt to food, and limit foods which are salty.
  - Use herbs and spices to flavour food rather than salt.
  - Choose foods labelled 'no added salt' and try not add salt to food at the table.
  - Use fresh fish and meat rather than canned or processed.

A healthy diet provides health benefits in different ways. For example, it can lower cholesterol, help control your weight, and has 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 lower systolic blood pressure by up to 11 mmHg.

### Drink alcohol in moderation

A small amount of alcohol (1-2 units per day) may help to protect you from heart disease. One unit is in about half a pint of normal strength beer, or two thirds of a small glass of wine, or one small pub measure of spirits. However, too much alcohol can be harmful. Men should drink no more than 21 units of alcohol per week (and no more than 4 units in any one day). Women should drink no more than 14 units of alcohol per week (and no more than 3 units in any one day). 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 by up to 10 mmHg.

### Consider whether you should reduce your caffeine intake

Drinking lots of coffee (five or more cups per day) and other drinks high in caffeine such as tea and cola can cause a small increase in blood pressure.

## Smoking and cholesterol

Smoking and a high cholesterol level do not directly affect the level of your blood pressure. However, they greatly add to your health risk if you already have high blood pressure. If you smoke, you should make every effort to stop. If your cholesterol level is high, it can be treated.

## Do I need any tests?

Routine tests that are usually done if you are diagnosed as having high blood pressure 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 fine, and to check your cholesterol level and sugar (glucose) level.
- A heart tracing (an ECG).

The purpose of these tests is to:

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

## When is treatment started for high blood pressure?

### **If you have moderate or severe high blood pressure (160/100 or above)**

Medication is usually advised if your blood pressure remains at 160/100 mmHg or above despite a period of observation and tackling any lifestyle factors.

### **If you have mildly high blood pressure (140/90 to 160/100 mmHg)**

The advice about treatment varies. If you are healthy and have an otherwise low risk of developing heart disease or stroke, medication is not usually advised. Your blood pressure should be checked every now and then as advised by your doctor or nurse. Medication is likely to be advised if you:

- have other risk factors which add to your increased risk of developing heart disease or a stroke. (See separate leaflet called 'Heart Disease and Stroke Risk Score' for details. This leaflet explains how your risk is assessed, and how you can be given a 'percentage' risk. Briefly, treatment of mildly high blood pressure is usually advised if you have a 20% risk or more of developing heart disease or stroke in the next 10 years), or if you...
- already have heart disease, have had a stroke, or your heart tracing shows damage to your heart from the high blood pressure. Treatment helps to prevent, or delay, further problems.

## What is the treatment for high blood pressure?

The usual 'target' is to reduce blood pressure to below 140/90. (Some experts say it should be to below 140/85 mmHg. Also, the target level is lower if you have diabetes - see separate leaflet 'Diabetes and High Blood Pressure'.)

There are several medicines that can lower blood pressure. The one chosen depends on such things as: if you have other medical problems; if you take other medication; possible side effects of the medicine; your age; etc. 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 can reduce high blood pressure to below the target level in about half of cases. However, it is quite 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.

A separate leaflet called 'Medication for High Blood Pressure' gives more details.

Also: if your risk of heart disease and stroke is high you may also be advised to take:

- Medication to lower your blood cholesterol level (if it is high).
- A daily low dose of aspirin. This reduces the risk of blood clots forming in the blood vessels (which cause strokes and heart attacks).

## How long is treatment for?

In most cases, treatment is for life. However, in *some* people whose blood pressure has been well controlled for three years or more, treatment *may* be able to be stopped. In particular, in people who have made significant changes to lifestyle (such as lost a lot of weight, or stopped heavy drinking, etc). Your doctor can advise. If you stop treatment, you need regular blood pressure checks. In some cases the blood pressure remains normal. However, in others it starts to rise again. Treatment can then be started again.

## Further help and information

**Blood Pressure Association** 60 Cranmer Terrace, London, SW17 0QS  
Tel: 020 8772 4994 Web: [www.bpassoc.org.uk](http://www.bpassoc.org.uk)

**High Blood Pressure Foundation** Dept of Medical Sciences, Western General Hospital,  
Edinburgh, EH4 2XU Tel: 0131 332 9211 Web: [www.hbpf.org.uk](http://www.hbpf.org.uk)

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