

WHAT IS BLOOD PRESSURE?

Your heart is a pump that keeps blood moving around your body. Blood travels through your arteries, delivering oxygen and nutrients to every tissue and organ in your body.

Blood pressure is the pressure of blood running through your arteries. You need a certain amount of pressure in your arteries to keep the blood flowing. Your blood pressure will vary throughout the day, depending on what you are doing. For example, it's likely to be lower if you are sitting quietly.

Your blood pressure reading 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.

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

A sample blood pressure measurement :

120mmHg Systolic pressure is the highest pressure, when the beat or contraction of your heart forces the blood around your body.

Diastolic pressure 80 mmHg is the lowest pressure, which occurs between heartbeats when your heart is relaxing.

What is high blood pressure?

High blood pressure – known as hypertension – 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.

Your blood pressure target

For most people, the target is to have a blood pressure below 140/90mmHg.

High blood pressure is called a 'silent killer', because usually there are no

symptoms and it can go undiagnosed.

WHAT CAUSES HIGH BLOOD PRESSURE?

For most people, there is no obvious cause for their high blood pressure. Doctors sometimes call this primary hypertension or essential hypertension.

There are a number of factors that can increase the risk of developing high blood pressure:

- smoking
- being overweight or obese
- not doing enough physical activity
- eating too much salt
- drinking too much alcohol
- having high blood pressure in your family, and
- your age.

In a very small number of people, the cause of high blood pressure can be identified. Doctors sometimes call this secondary hypertension.

For example, an abnormal production of hormones from the adrenal glands can lead to high blood pressure. If your doctor gives you treatment for the hormonal condition, your blood pressure should then return to normal.

Other causes of secondary hypertension include:

- kidney disease
- diabetes, and
- some medicines, such as oral contraceptives and some over-the-counter and herbal medicines.

If you are concerned that any medicine or remedy might affect your blood pressure, ask your doctor or pharmacist about it.

BUT I DON'T FEEL ILL!

High blood pressure – known as hypertension – rarely makes people feel ill. It is called a 'silent killer' because usually there are no symptoms and it can go undiagnosed.

Unfortunately, very often the first time someone finds out that they have high blood pressure is when they are taken to hospital because their high blood pressure has led to a stroke or a heart problem.

The only way of knowing if you have high blood pressure is to have it measured. Your GP or nurse can do this for you. It only takes a few minutes. If you have a health check , your blood pressure will be taken as part of the check.

What is Hypertension and its stages?

Hypertension is a term used to describe persistent elevation of blood pressure, which if untreated damages the heart, brain and kidneys.

Table 1: Know Your Numbers			
	SYSTOLIC (MM HG)		DIASTOLIC (MM HG)
Normal	<120	and	<80
Pre hypertension	120 – 139	or	80 – 89
HYPERTENSION			
Stage 1	140 – 159	or	90 – 99
Stage 2	160	or	100

Based on two readings taken 5 minutes apart with a confirmation reading in the Contra-lateral arm.

WHY IS HIGH BLOOD PRESSURE HARMFUL?

Having high blood pressure greatly increases your risk of having a heart attack or stroke. It can also lead to other problems, such as kidney failure, heart failure and problems with your vision.

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. Around one in four adults has high blood pressure, and your risk of developing it increases as you get older. High blood pressure is thought to cause around one in every five heart attacks and half of all strokes.

WHAT ABOUT LOW BLOOD PRESSURE?

Low blood pressure – 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, or even normal, blood pressure.

Signs and symptoms

Low blood pressure is sometimes found during a routine check-up. Most people with low blood pressure don't have any noticeable symptoms.

However, it can 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 such as dizziness or fainting, it is important that you see your doctor. If your blood pressure 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 where your blood pressure drops after you change your body position (your posture). For example, it may happen when you stand up after sitting, bending over or lying down.

This can make you feel dizzy or light-headed, and may cause you to fall. Everyone gets a small drop in their blood pressure from time to time, but in people with postural hypotension there is a larger drop than normal.

Postural hypotension is quite common in adolescents and in older people.

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, there are certain things you can do to help reduce the symptoms – such as getting up slowly and avoiding standing still for

too long.

Fortunately, most people don't need any treatment for their 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 connected to an inflatable cuff that is wrapped around your upper arm.

At the press of a button, the cuff inflates 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 reduced.

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 on a chair that supports your back, 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 or too large for your arm can give an inaccurate reading.

Some doctors and nurses may prefer to use a traditional sphygmomanometer instead of a digital blood pressure monitor. This works in much the same way, but the doctor or nurse inflates the cuff using a hand pump, and listens to your pulse using a stethoscope. This can give a more accurate blood pressure reading if you have a very faint or irregular pulse.

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 re-checked 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.

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 that you have 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.

Ambulatory blood pressure monitoring (24-hour monitoring)

Ambulatory blood pressure monitoring can be used to measure your average blood pressure. This helps to find out 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. You will also be advised not to drive while wearing the monitor.

Home blood pressure monitoring

Your doctor may suggest that you measure your blood pressure yourself at home, using a monitor similar to the one used in practice or clinic. Your nurse or doctor will show you how to do this, and tell you how often you will need to do it.

Using your own home blood pressure monitor

Checking your own blood pressure can help make you feel more in charge of your care, so some people decide to buy their own monitor.

If you find that your blood pressure readings are always changing, it is a good idea to monitor this and also keep a diary of 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 when taking their own blood pressure, and some end up checking it far too often. Also, if you are having difficulty using your machine, you may get inaccurate blood pressure readings.

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

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

If you are diagnosed with high blood pressure, or if it is close to 140/90mmHg, you will need to have your blood pressure measured fairly often.

How often will depend on how well controlled it is, any other medical conditions you may have, and your risk of developing cardiovascular disease. Your doctor or nurse will tell you how often you need to have it checked.

If your blood pressure is not high, your doctor or nurse should measure it again within five years. You may be advised to have it checked more often as you get older.

WHAT DO THE BLOOD PRESSURE MEASUREMENTS MEAN?

Your blood pressure is not considered to be high if:

- your blood pressure is below 140/90mmHg, or

- your 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 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.

Your doctor may also offer you medicines to lower your blood pressure, depending on how high it is and whether you have any other health problems.

WHAT TESTS WILL I HAVE ?

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 kidney disease – 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.

If your doctor finds that you have high blood pressure, he or she will examine you to look for signs that show whether your circulation is healthy. This includes listening to your heart and looking at the blood vessels in the back of your eyes.

Your doctor may also ask you to have some simple tests, such as:

- blood tests to find out your cholesterol and blood glucose levels, and to check how well your kidneys are working
- 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 electrical activity of your heart.

STEPS TO CONTROL HIGH BLOOD PRESSURE

It is recommended that lifestyle modification for 3-6 months before starting on medications. Treatment for hypertension includes:

-) Control of body weight
-) Restriction of dietary sodium to no more than 2400mg sodium (6gm of salt per day)
-) Limit alcohol intake. Consumption should not exceed 1-2oz of ethanol per day.(1 drink = 5oz wine, 12 oz beer, 1.5oz of 80-proof liquor)
-) Adequate intake of potassium. Include potassium rich foods in your diet like green leafy vegetables, soups, salads, citrus fruits, fruits, fresh lime juice, and coconut water.
-) Adequate intake of dietary calcium and magnesium

-] Regular aerobic exercise for 30-45min per day
-] Smoking cessation
-] Low fat intake for overall cardiac health
-] Fiber rich foods: Whole cereals – dalia, oats, whole wheat, brown bread. Whole dals – Rajmah, black chana, lobia Vegetables and Fruits with skin Nuts-figs, prunes, flaxseeds.

] The ‘**Dietary approaches to stop Hypertension**’ (**DASH**) Diet is used for prevention and controlling hypertension. It emphasizes in low fat dairy, fruit and vegetable consumption and reduction in fats, sweets and red meat consumption.

FOUR Fs for Healthy Living

FATS – Reduce the amount of saturated and Trans fats in your diet. Cut down on meats, ghee high fat dairy products (milk, butter, cream, and cheese). Trans fats are found in snack foods like chips, bakery products, French fries etc. Replace with monounsaturated fats like olive oil, peanut oils, nuts, avocados and polyunsaturated fats like sunflower, flaxseed, soya bean oils etc. Increase the intake of Omega 3 fatty acid found in fish oils, nuts like walnuts, almonds, and flaxseed.

FIBERS – Increase intake of fiber in diet. Choose from whole cereals, unprocessed foods, and complex carbohydrates, soluble fibers (oats, apple, barley, legumes and nuts)

Fruits and Vegetables – Eat plenty of fruits and vegetables at least 5 to 9 servings in a day. Eat more of raw veggies and fruits. They are good source of fiber, antioxidants and good sources of potassium, magnesium and calcium to lower your blood pressure.

FITNESS – Exercise helps to maintain weight and lowers blood pressure. Good nutrition is important but is not enough, exercise is a must for healthy living.

The DASH Eating Plan

The DASH eating plan shown below is based on **1800 calories a day**. The number of daily servings in a food group may vary from those listed depending on your caloric needs.

Food Group	Daily	Servings	Serving Sizes
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	(except as noted)	
<i>Grains & grain products</i>	7-8	1 slice bread 1 cup ready-to-eat cereal ½ cup cooked rice
<i>Vegetables</i>	4-5	1 cup raw leafy vegetable ½ cup cooked vegetable
<i>Fruits</i>	4-5	1 medium fruit 200ml ounces fruit juice
<i>Low fat or fat free dairy foods</i>	2-3	250ml milk 1 cup yogurt
<i>Lean meats, poultry, and fish</i>	2 or less	1/2cup cooked lean meats, skinless poultry, or fish
<i>Nuts, seeds, and dry beans</i>	4-5 per week	7-8 nos. of nuts
<i>Fats & oils</i>	2-3	1 teaspoon vegetable oil
<i>Sweets</i>	2-3	1 teaspoon sugar