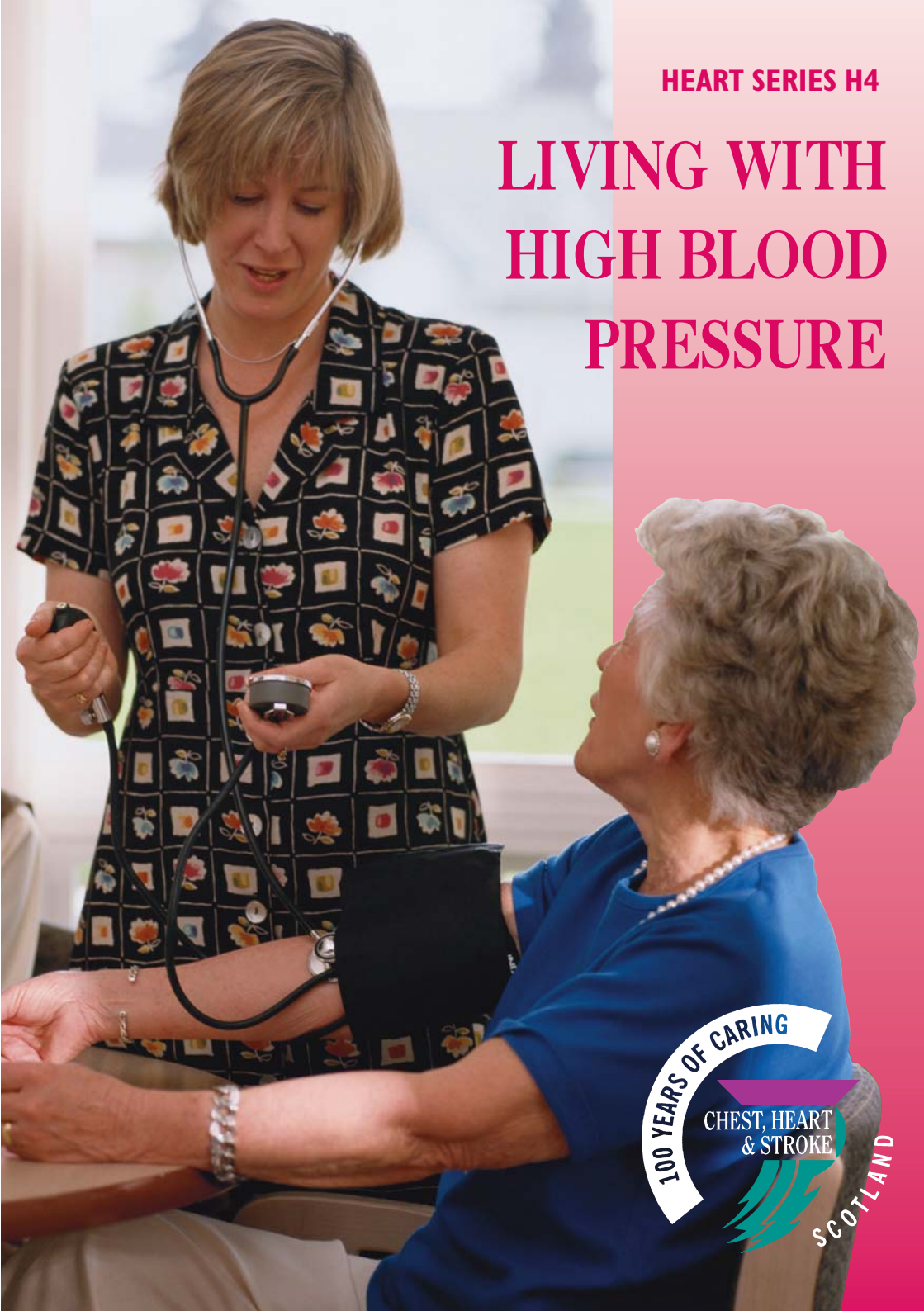
HEART SERIES H4

LIVING WITH HIGH BLOOD PRESSURE



100 YEARS OF CARING

CHEST, HEART & STROKE SCOTLAND

Chest, Heart & Stroke Scotland, is an independent medical charity which aims to improve the quality of life for people in Scotland affected by chest, heart and stroke illnesses, through medical research, advice and information and support in the community.

FUNDRAISING

CHSS is an independent Scottish medical charity. We receive no Government funding and rely entirely on the Scottish public to raise the £4 million a year we need to help people with chest, heart and stroke illness throughout Scotland.

RESEARCH

We are one of Scotland's largest charitable funders of medical research, with a programme worth over £500,000 a year. We fund research projects throughout Scotland into all aspects of the prevention, diagnosis, treatment and social impact of chest, heart and stroke illness. If you would like more details, please call (0131) 225 6963 for an explanatory leaflet.

WELFARE

We provide small grants to people in financial difficulty because of chest, heart or stroke illness, for items ranging from clothing and bedding, to respite care. Applications are submitted through local Social Work Departments, or health professionals; for further information call (0131) 225 6963.

VOLUNTEER STROKE SERVICE (VSS)

We give practical help to people whose communication skills are impaired after a stroke. The VSS provides weekly group meetings and home visits for patients. For details ask for our VSS leaflet and Stroke Directory.

CHSS NURSES

Our nurses provide independent practical advice and support to those who have chest, heart and stroke illnesses, their families, carers and health professionals. There are dedicated nursing services in Fife, Grampian, Highland, Lanarkshire and Lothian. There is also a Scotland wide nurse led Advice Line (0845) 077 6000 calls are charged at a local call rate (out of hours answerphone). We have a wide range of booklets, factsheets and videos on chest, heart and stroke illnesses, which help towards an understanding of these conditions. Please ask for our publication list.

COMMUNITY SUPPORT NETWORK

CHSS provides support to affiliated chest, heart and stroke clubs through the Community Support Network. The clubs are independent and are run by local volunteers. The groups provide a range of activities and offer people support, stimulation and companionship in a friendly and relaxed environment. Please ask for more information.

LIVING WITH HIGH BLOOD PRESSURE

CONTENTS

Note: The recommendations in this booklet are based on the British Hypertension Society Guidelines for Management of Hypertension 2004 –BHS IV and the NICE update June 2006

UNDERSTANDING YOUR BLOOD PRESSURE

What is blood pressure?

Blood pressure plays a vital role in the way the heart delivers fresh blood, containing the oxygen and nutrients required throughout the body, from the heart to the tiniest blood vessels within our body from our head to our toes. To get the blood to go that far, fast enough, it has to be under pressure. This pressure is created by the relationship between three things, the heart's pumping action, the size and stretchiness of the blood vessels and the thickness of the blood itself.

PUMPING ACTION OF THE HEART

+

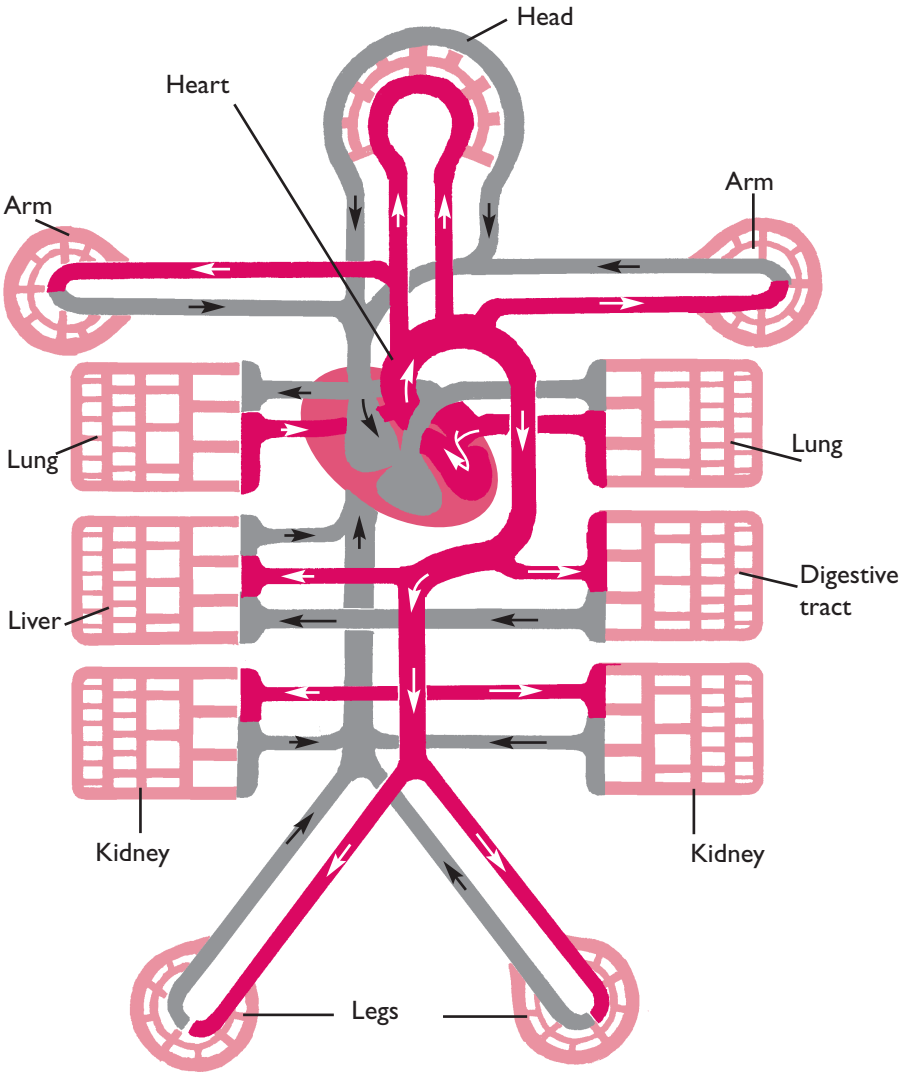
SIZE AND STRETCHINESS OF THE BLOOD VESSELS **=** **BLOOD PRESSURE**

+

THICKNESS OF BLOOD

Blood vessels have a layer of spiral muscle within their walls, which makes them able to widen or narrow depending on how much blood each part of the body requires. The action on these muscles is a very complex mechanism controlled partly by hormones.

Blood pressure can be compared to a central heating system. Three vital components work together to make the system work: the boiler (heart), the pipes (blood vessels) and the hot water (blood). The radiators are the different organs and parts of the body.



In order for the same amount of heat to be delivered to the farthest away radiator, the boiler has to send the water out under pressure. The size of the pipes will affect this pressure as will the power of the boiler itself.

It is normal for blood pressure levels to go up and down throughout the day. This is why there is a normal range of blood pressures and not one correct answer.

What is high blood pressure?
If your blood pressure is consistently higher than it should be it is called high blood pressure or **hypertension**.

There are two main types of high blood pressure:

Secondary hypertension
So called because the change in blood pressure comes as a result of (or secondary to) a specific disease or defect. This is rare and is caused by conditions such as kidney disease, problems with glands that produce hormones, and congenital problems affecting a blood vessel in the heart or brain.

Essential or primary hypertension
This is the type of high blood pressure that most people have.

With primary hypertension there is no specific disease process involved and there is likely to be no single cause. It is probably a result of a number of factors, some of which we cannot control, such as our age or family history. Some of which we can, such as being overweight, having a high salt intake, having a high alcohol intake and how we cope with stress.

Why is treating high blood pressure so important?

Over the years high blood pressure slowly damages the blood vessels, making them narrower and more rigid, so that the heart has to work harder to push the blood through the vessels making your overall blood pressure rise even more. This can lead to serious problems throughout the body:

- Damage to the blood vessels in the brain can lead to strokes.
- Damaged or blocked vessels in the heart can lead to angina and heart attacks.
- High blood pressure reduces blood flow to the heart and makes the heart work much harder. This can lead to heart failure.
- Elevated pressure can cause damage to the arteries in the kidneys which can lead to kidney failure.
- Damaged blood vessels in the eyes can lead to vision problems and blindness.

The good news is that by detecting it and treating it these problems can be prevented

If your blood pressure is ever found to be high, you should have it checked every year

When should I have it checked?

Because high blood pressure very rarely has any symptoms, there is nothing to tell us that anything is wrong. However we do know that high blood pressure is more common as we get older and that having it checked regularly is very important.

According to the British Hypertensive Society, a normally healthy person should request to have their blood pressure checked first from the age of 20 years. If found to be normal it should then be checked every five years. If ever found to be abnormal e.g. a one-off high reading or while taking the contraceptive pill or during pregnancy, it should be checked once a year, every year, indefinitely.

When *must* I have it checked?

There are certain circumstances when it is vital to know what your blood pressure is. Your blood pressure should be checked if:

- anyone in your family has high blood pressure, as it tends to run in families
- there is a family history of strokes or heart attacks
- you are of Afro-Caribbean or South East Asian descent
- you are taking the contraceptive pill
- you have diabetes
- you are concerned about your lifestyle – being overweight, excess alcohol, excess salt intake, high saturated fat diet, lack of exercise
- you go to the doctor with symptoms that could be related to having untreated high blood pressure.

How is blood pressure measured?

The only way to know what your blood pressure is doing is to have it measured. Most people have their pressure measured by using an instrument called a sphygmomanometer also known as a 'sphyg'.

The parts of a sphyg are:

- Cuff – needs to be the right size for your arm
- Pump – inflates cuff
- Valve – allows slow release of air from cuff
- Dial or column of mercury

The cuff is wrapped around the upper arm, inflated, then slowly deflated, as the person taking your blood pressure listens to the pulse of the main artery in your arm whilst looking at the readings.

Traditionally a column of mercury is used against a scale.

More modern methods do not require the actual mercury to be there but the reading is based on the same principle and means the same thing.

Automatic/electronic monitors

Nowadays there are electronic devices, which read the same measurement without having to manually inflate the cuff and listen with a stethoscope. The cuff automatically inflates and releases and an electronic reading is made. There are many versions of this used in hospitals and for monitoring for longer periods.

What do the readings mean?

Blood pressure is measured in millimetres of mercury (mmHg).

Two measurements are taken, giving the systolic pressure (the higher reading) and the diastolic pressure (the lower reading). The first reading indicates what pressure blood is under within the blood vessels as the heart contracts. The second reading indicates the pressure as the heart relaxes. The two readings are written one above the other as a short hand way of reading the results (e.g. 130/80). This means the systolic pressure is 130mmHg and the diastolic pressure is 80mmHg.

Does my blood pressure stay the same?
Your blood pressure fluctuates throughout the day, depending on what you are doing. During physical work for example, the muscles need a greater supply of food and oxygen. If you are working hard mentally because you are concentrating or under stress, the demand is also greater.

To meet this demand, the blood flow has to be increased. To achieve this, your heart has to beat faster and harder and the blood pressure rises. When you are asleep your blood pressure is at its lowest. Even then, there are fluctuations as you dream.

The white coat effect
Some people suffer from a 'white coat effect' where their blood pressure rises at the thought of having their blood pressure taken.

Getting an accurate reading

A one off high reading is not enough to make a diagnosis of high blood pressure. A high blood pressure that is sustained for most of the time is what will cause damage over time. As well as blood pressure levels going up and down throughout the day depending on demand, there are many other things that can affect your blood pressure reading. Hurrying, emotions, pain, alcohol, some drugs (including recreational drugs such as cocaine) and even a full bladder can result in a misleading blood pressure reading.

- Be sure to tell the person taking your blood pressure about any medication or drugs you are taking.
- Try to relax.
- Sit quietly for at least 5 minutes.
- Make sure your bladder is empty.
- Try and avoid having a heavy meal immediately before.
- Expect to have your blood pressure taken twice on each visit and possibly on different arms.
- Expect to be asked to have your blood pressure re-checked on at least two further occasions usually about a month apart.
- Sometimes your doctor may require you to monitor your blood pressure at home over a period of time. This can be either by home monitoring or by 24 hour ambulatory monitoring. Both these methods tend to produce lower levels than in a clinic setting.

Home monitoring
There is an increasing use of home monitors and self measurement of blood pressure. The advantages of home monitoring are to reduce white coat effect and to improve interpretation of readings by having multiple recordings possibly over many days. It also allows you to become involved in your own care and management of your blood pressure. The Blood Pressure Association can provide information about recommended equipment. Please refer to Useful Addresses at the end of this booklet.

Ambulatory monitoring
Ambulatory monitoring involves using a monitor that automatically takes your blood pressure at intervals over a 24 hour period at 15 – 30 intervals during the day and 30 – 60 minute intervals at night. It can be more helpful than either home or clinic measurements as it provides a full 24 hour profile that can be used to work out average day and night time readings and so establish more accurately if blood pressure is elevated for long periods.

What is normal blood pressure?
Most doctors agree that normal blood pressure is about 120/70mmHg

Up to 140/90mmHg is considered to be within normal range. Above this level may need treatment.

UP TO 140/90MMHG IS WITHIN NORMAL RANGE

ABOVE THIS LEVEL MAY NEED TREATMENT

Treating your blood pressure depends on you as much as your doctor

What treatment will I get?

The findings of the examination and detailed history will help you and the doctor to discuss the best treatment for you. Everyone with high blood pressure will be advised to make lifestyle changes and monitor the effect on blood pressure. On the other hand some people will be advised to get started on medication to lower high blood pressure sooner. It is essential to try making some lifestyle changes and to maintain these changes even if you have to take medication to lower your blood pressure. (Effective lifestyle modifications may lower blood pressure as much as a single blood pressure lowering drug.)

The following section looks at some of the things you can do to help yourself.

THINGS TO REMEMBER

- **Take every opportunity to ask any questions you may have.**
- **You need your thorough medical check up repeated every 5 years.**
- **Remember you will always have to have your blood pressure monitored regularly.**

WHAT CAN I DO TO HELP MYSELF?

What are the things I can change?

The main lifestyle areas that will affect your blood pressure are:

- your weight
- your diet
- your salt intake
- your physical activity
- your alcohol intake

What are the benefits of lifestyle changes?

Addressing all of these lifestyle measures at the same time will have the best effect on your blood pressure. Doing this and taking medicines as directed by your doctor will control your blood pressure.

In addition areas that will reduce the likelihood of cardiovascular problems such as heart disease and stroke are:

- Stopping smoking
- Controlling diabetes
- Controlling cholesterol levels

According to British Hypertension Society Guidelines lifestyle interventions for blood pressure reduction can achieve the following:

Intervention	Recommendation	Expected systolic blood pressure reduction
Weight reduction	Maintain ideal body mass index 20 – 25kg/m^2	5-10mmHg per 10kg weight loss
DASH eating plan*	Increase fruit and vegetables, low fat dairy products with reduced saturated and total fat	8-14mmHg
Salt reduction (2.4g sodium)	Reduce to 6g salt	2-8mmHg
Physical activity	Regular moderate physical activity for at least 30 minutes most days	4-9mmHg
Alcohol moderation	Men <=21 units per week Women <=14 units per week	2-4mmHg

* DASH stands for Dietary Approach to Stopping Hypertension – an eating plan which was used in trials to assess the effect of diet changes on high blood pressure.

Maintain a healthy weight

In people younger than 40, being over-weight can be the main cause of high blood pressure.

There are two accurate ways of assessing if you are overweight that are recognised as helping to identify weight as a risk factor. One is the Body Mass Index (BMI) the other is a measurement of waist size that indicates central obesity which has an increased cardiovascular risk (heart disease and stroke).

Body Mass Index (BMI)

Body Mass Index (BMI) is a measure of body fat based on height and weight that applies to both **adult** men and women.

The number is calculated by dividing your weight in kilograms by your height in metres squared. This is already done on some weight charts.

$$\frac{\textbf{Weight (kg)}}{\textbf{Height m}^2}$$

There is an example of how to work out a BMI and a weight chart at the end of the booklet.

What does your BMI mean?

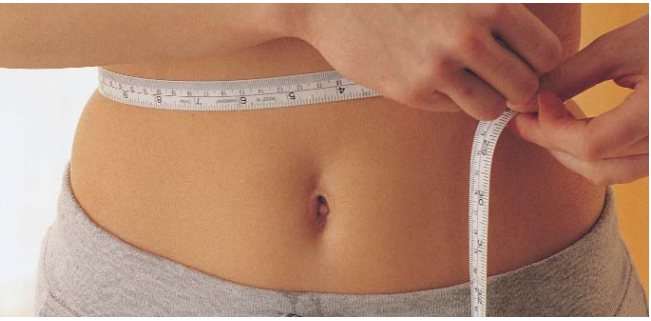
In the UK the following levels apply. There are various website links to calculate your BMI for you e.g. www.healthyliving.gov.uk/howhealthy

<18	underweight
<25	normal
25-30	overweight
>27	associated with high blood pressure
30-35	obese
>35	morbidly obese

Waist measurement

This method can also be used as an approximate guide to assess if you are overweight. These figures are a general indicator of a higher risk of health problems.

	Waist measurement		Category
Men	37 – 40 inches	92.5 – 100 cms	Overweight
	>40 inches	>100 cms	Obese
Women	32 – 35 inches	80 – 87.5 cms	Overweight
	>35 inches	> 87.5 cms	Obese



What is the best way of losing weight?

We gain weight when we take in more calories from food than we use up. (Calories are a measure of energy). When this is balanced our weight remains stable. So to lose weight we have to eat fewer calories and use up more energy by being more physically active. To gain weight we have to eat more calories.

If you combine increased physical activity, moderate alcohol intake and reduce salt intake along with your reduced calorie eating plan you will lose weight and achieve the best blood pressure lowering effect.

How quickly should I expect to lose weight?
The most effective way to lose weight is slowly. You should expect to lose 2lb (1kg approximately) in the first week and about 1lb each week after that. If you lose weight too quickly you will be far more likely to put weight back on again. You are also more likely to be successful if you lose weight with other people e.g. by joining a slimming club. You can attend weekly classes or gain support on-line.

Eat a healthy varied diet

The main diet recommendations are:

- Choose a diet rich in fruit and vegetables i.e. at least 5 portions a day.
- Choose a diet with reduced content of saturated and total fat
- Reduce salt intake

Fruit and vegetables

Evidence has shown that an increase in fruit and vegetables lowers blood pressure. The mechanism for how this works is not yet fully understood.

Blood pressure falls may be even better when this is combined with a low fat dairy and reduced total and saturated fat diet. Try and eat at least 5 servings of fruit and vegetables every day.

- Examples of one serving are: one banana; two plums; a couple of broccoli florets; one carrot; a handful of strawberries or two tablespoons of peas.
- Dried, canned and frozen fruit and vegetables also count.
- Fruit juice counts as one serving but only once a day.
- Pulses (such as peas and beans) also count as a serving once a day, potatoes do not count at all as they are carbohydrates.

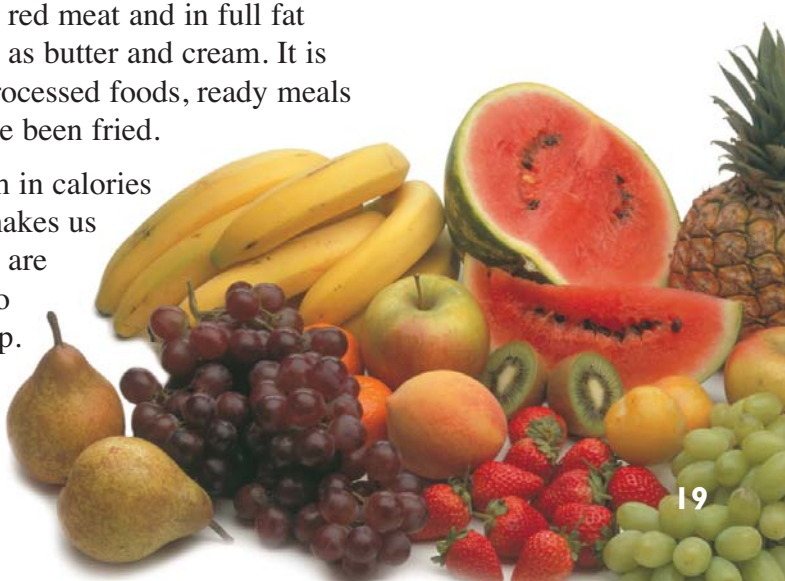
Breakfast	• Breakfast cereal with a couple of spoonfuls of dried fruit added. • Glass of orange juice.	1 1
Lunch	• Sandwich of your choice with a grated carrot or sliced tomato or salad. • Smoothie drink made from fresh fruit.	1 1
Snack	• An apple or a banana	1
Main meal	• Broccoli florets and a spoonful of carrots as part of your meal. • Serving of strawberries and yoghurt or ice cream.	2 1
	TOTAL	8

Some labelling now shows how many portions of fruit and vegetables are in foods such as ready meals. However remember to read the labels carefully for fat, salt and total calories.

Reduce fat intake

The aim is to reduce and replace saturated fat with unsaturated fat such as oils. Saturated fat is found in things like red meat and in full fat diary products such as butter and cream. It is also used a lot in processed foods, ready meals and snacks that have been fried.

Fat is also very high in calories and a high intake makes us put on weight if we are not active enough to use these calories up.



Healthier choices are:

- Choose lower fat dairy products such as milk, yoghurt and cheese.
- Choose unsaturated fat spreads and oils instead of butter.
- Choose leaner choices of meat such as chicken and turkey.
- Grill or bake rather than fry.
- Trim all visible fat before cooking and drain any fat on kitchen paper after cooking.
- Use sunflower or olive oil for cooking and for dressings.
- Increase the healthy oil we need found in oily fish such as salmon, mackerel and herring.

Many supermarkets and brands are now labelling food more clearly to make these choices easier but labelling can still be confusing. Look for healthier choice, reduced fat, lite, light and low on labels, but be aware that these foods are not necessarily low in calories. Traffic light systems on labelling can also be helpful in making the best choices, basically green for go and red for stop.

Food labels

A little fat per 100g is 3g
A lot of fat per 100g is 20g

A little saturated fat per 100g is 1g
A lot of saturated fat per 100g is 5g

Reduce salt intake

It is the sodium in salt that can affect your blood pressure through its effect on your kidneys. Your kidneys are one of the organs in your body that help regulate your blood pressure. Reducing salt in your diet will not be enough on its own to greatly reduce your blood pressure. However if you have a high intake normally and reduce it substantially you can achieve blood pressure reductions of 2-8 mmHg.

Food Labels

A little salt per 100g = 0.25g
A lot of salt per 100g = 2.5g

A little sodium per 100g is 0.1g
A lot of sodium per 100g is 0.5g

What is the recommended salt intake?

It is generally accepted that we should try and reduce our salt intake to less than 6g of salt a day (this is the same as 2.4 g of sodium), the equivalent of one level teaspoon. This target is roughly half the current estimated intake of salt in the UK.

How do I cut down my salt intake?

You can easily cut down on the amount of salt you add to your food by not using it in cooking and only adding it at the table to taste. In time you will adjust your taste to do without it altogether especially if you use other seasoning such as garlic, pepper, herbs and spices.

Hidden salt

Unfortunately most of the salt we eat is hidden in processed food. There are many foods that you would not expect to be high in sodium such as bread and breakfast cereals. Take away meals are also high in sodium in the form of monosodium glutamate and soy sauce. This contributes greatly to our high sodium intake.

Can I use a low sodium salt instead?

Even low salt substitutes have some sodium in them. Some salt substitutes replace some of the sodium with potassium, which can cause its own problems if you take too much. It is much better to allow your taste to adjust to less salt and more flavour.

The CHSS Salt factsheet has more details about reducing your salt intake and how to measure it.

Keep physically active

You will already be aware that exercise is good for you. However its role in reducing your blood pressure is very important. By exercising regularly you can bring down your blood pressure by as much as 10mmHg. This is as much as many BP lowering drugs. The aim is to do some form of aerobic exercise such as brisk walking for 30 minutes most days of the week.

What sort of exercise should I be doing?
If you have high blood pressure you should be doing exercise which keeps you moving (dynamic) and makes you breathe in more air (aerobic) e.g. walking, swimming, cycling, dancing, jogging.

How do I start?
The way to start is to be more active, more often. This is something you can build into your daily routine without making a special effort.

- Get up and do something during the adverts when watching television.
- Use the stairs instead of the lifts and escalators.
- Walk instead of taking the bus or get off a few stops early.
- Play with the kids outside.
- Go for walks – try not to sit for long periods.

Choose an activity that you can build into your daily routine.

- Start off with shorter periods of ten minutes at a time and gradually increase the time spent and the number of times a week you do it.

Build up your exercise gradually

- Once you are used to doing an activity every day you can make it more strenuous or spend longer doing it i.e. walk or swim faster in the same amount of time.
- Don't push yourself too hard. If it is painful - stop!
- Exercise should make you puff and pant a little but you should be able to continue a conversation.

What sort of exercise should I avoid?
You should avoid any form of exercise that involves staying in one place and straining to lift or move something. This is called static exercise. It strains your heart and will raise your blood pressure.

You should also avoid sports such as lifting weights, boxing and squash. You should not scuba dive, it can be dangerous if you have high blood pressure. However you can snorkel and dive to no more that 6 – 10 feet.

If you are unsure whether your sport is safe, discuss it with your doctor.

Moderate alcohol intake

Alcohol in excess of the amount your body can easily tolerate can cause high blood pressure. If you find you are drinking heavily on a regular basis this will put up your blood pressure and increase your weight. Binge drinking (drinking to get drunk) at any age can cause a temporary but significant rise in blood pressure and an increased risk of stroke.

What is the recommended limit?

People with high blood pressure should limit their intake to the lower recommended limits of:

3 units per day with a maximum of 21 units per week for men

2 units per day with a maximum 14 units per week for women

Above this level is associated with raising blood pressure.

You should also aim to have a minimum of two alcohol free days per week.

Drinking large quantities of alcohol is a common cause of sustained high blood pressure in young males

What is a unit of alcohol?
In the UK a unit contains 10mls of alcohol or 8g.

Remember it is the strength and size of a drink that determines how many units it contains. You would have to read the label to be accurate. Strength of alcohol is measured by the percentage of alcohol by volume (% Abv).

In the UK one unit of alcohol is approximately:

One small, single measure of spirit @ 37.5% Abv
A single measure being 25mls

or

One small glass of wine @ 9% Abv

A small glass of wine being 125mls

Wine comes in different strengths from 6% to 14%

or

Half a pint or 250mls of beer or lager @ <5% Abv

Beer and lager comes in different strengths from 3.8% to 5.2%

Remember some bottles/cans will contain more than 250mls.

If you have a calculator handy you can work out how many units you are having in each drink: Multiply the amount of fluid in mls by the % Abv and divide the result by 1000!

Stop smoking

If you smoke, you are much more likely to develop life threatening conditions such as heart disease, stroke, cancer, circulation problems and chronic lung problems. When smoking is combined with high blood pressure the risk of cardiovascular disease increases substantially.

How can I find out how to stop smoking?
If you find it very difficult to give up you may need some professional help.

Contact any of the following for further information:

- Smokeline Scotland free on 0800 84 84 84 (12 noon to midnight).
- Smoking Cessation classes and information – your nearest can be found through your local area Health Promotion Department.
- Practice Nurse at your GP surgery.
- ASH Scotland website has lists of classes.

Will nicotine patches affect my blood pressure?
Yes, as we said nicotine in any form, raises blood pressure.

However the level of nicotine in the patches is less than in a cigarette.

If you want to use nicotine patches, gum or nasal sprays you should always check with your doctor first.

Control diabetes and high cholesterol

It is important to monitor and control diabetes and high cholesterol levels to reduce your risk of heart disease and stroke especially if you also have high blood pressure. See the CHSS booklets ‘Living with a Healthy Heart’ and ‘Reducing the Risk of Stroke’ for more detailed information.

UNDERSTANDING YOUR TREATMENT

What happens now if my blood pressure is high?

Treating your blood pressure involves treating you as an individual whose particular circumstances are completely unique to you. For this reason, it is vital that the doctor makes a thorough investigation before deciding on what course of action to take. This will involve taking a medical history and doing a medical check up. In all cases steps should be taken to:

- offer advice on lifestyle changes
- monitor your blood pressure
- treat with drugs if necessary

Will I need to start treatment straightaway?

In some cases your doctor may have to consider starting drug treatment straight away. In general, a sustained blood pressure of 160/100mmHg or above indicates the need to consider early treatment.

In people with diabetes early treatment will be considered at the lower level of 140/90mmHg or above.

Those people who already have heart disease or stroke (cardiovascular disease) or have a higher cardiovascular risk may also be advised to start treatment sooner.

If your blood pressure is higher than 180/110 and there are signs of increased pressure in the eyes you may be referred to a specialist.

Cardiovascular disease risk assessment
Because high blood pressure puts you at increased risk of heart disease or stroke your doctor may feel it would be helpful to do a cardiovascular risk assessment. The result of this will be taken into consideration to help your doctor decide the best course of treatment for you. A risk assessment usually takes into consideration age, ethnic origin, smoking, cholesterol levels and whether you are diabetic or not as well as your blood pressure. Once the necessary information has been obtained a risk assessment chart or computer programme can be used to work this out. Options can then be discussed about treating your blood pressure and making changes to any lifestyle factors that might be an issue.

Lifestyle changes
For anyone with high blood pressure lifestyle changes should be discussed and monitored such as your weight, your diet, salt and alcohol intake and your physical activity and stress levels. See the section called ‘What can you do to help yourself?’

Previous medical history
As we discussed earlier, your family history of cardiovascular disease is very relevant. Your previous medical history is also important and any current medical problems may need to be reviewed and current medication noted.

What does a medical check up involve?

The doctor has to examine you to look for any evidence of damage that may already have been done as well as possible causes of high blood pressure.

- Your urine will be checked for protein and blood. This is an indication of any need to examine the kidneys more closely, as a possible cause of high blood pressure or as a sign of damage.

- Your blood will be taken: to check kidney function by looking at the chemical balance within the blood stream; check hormone levels as a possible cause of high blood pressure; check blood sugar and cholesterol.

- Your heart will be checked by listening for evidence of heart muscle damage and by having an ECG (electrocardiograph). This gives a tracing of the electrical activity of the heart and assesses any damage.

- Your eyes will be looked into with an ophthalmoscope to examine the blood vessels at the back of the eye directly. Any damage to these vessels can be seen by the doctor.

- The condition of your circulation may be assessed by checking pulses in your wrists, legs and feet.

About blood pressure drugs

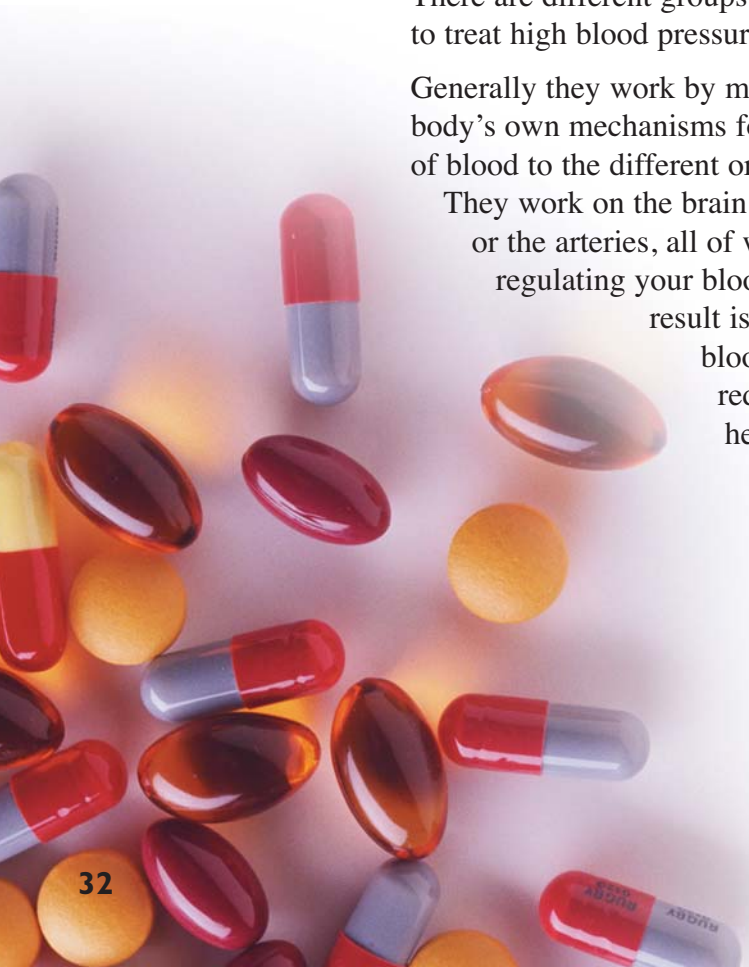
What are the aims of drug treatment?
The aim of drug treatment is to try and get high blood pressure as close to target range as possible. This is currently to 140/90 or less.

If you have diabetes the lower target range of 130/80 is used.

However in spite of best treatment it is not always possible to achieve the target in some people.

How do blood pressure lowering drugs work?
There are different groups of drugs that are used to treat high blood pressure.

Generally they work by manipulating your body's own mechanisms for controlling the flow of blood to the different organs in your body. They work on the brain, the kidneys, the heart or the arteries, all of which are involved in regulating your blood pressure. The end result is that they widen the blood vessels and/or reduce the work of the heart.



How will the doctor find the right drug for me?
It is likely you may have to take more than one group of blood pressure lowering drugs. Your doctor will find the best combination for you depending on your individual situation and how well your blood pressure responds to treatment. The benefits of taking more than one group at a time are that you are likely to achieve good results and by taking lower doses of more than one drug, will have fewer side effects.

Will I have side effects?
Drugs used in medicine affect all of your body. To get the desired effect on the part you want you should also expect other parts to respond, causing side effects. If you are having problems, speak to your doctor as a change may be needed. Sometimes side effects can wear off so your doctor may ask you to persevere with taking your tablets for a number of weeks.

Never stop or alter your drugs without consulting your doctor – this can be dangerous

What are the benefits?
Lowering blood pressure substantially reduces the risk of heart disease and stroke. There is no reason why you can not live a perfectly normal and active life while being on treatment. Uncontrolled high blood pressure is responsible for so many problems later in life that we may sometimes have to accept the inconvenience of having to take medication and tolerate some side effects in order to enjoy the benefits of reducing these risks.

What other drugs am I likely to be prescribed?
This depends on your age, medical history and overall risk of developing or already having cardiovascular disease. Most people who have high blood pressure also need to take aspirin, or aspirin and cholesterol lowering drugs called statins as a preventative measure.

Drugs and their side effects

There are several different groups of drugs available. Drugs all have two names, their scientific name and their brand name. The lists of drugs given is not exhaustive. If you are not sure which groups the drugs you are taking belong to, ask your doctor or pharmacist to explain.

The groups of drugs used to treat high blood pressure are:

A: Ace inhibitors

Angiotensin receptor blockers

B: Beta-blockers

C: Calcium channel blockers

D: Thiazide diuretics

E: Alpha-blockers

You may not recognise the brand name (in the 2nd column) of your drugs in the tables on the following pages but if you look at your patient information leaflet that came with your tablets you should recognise the generic name (in the 1st column). Check with your pharmacist, GP or practice nurse if you are unsure what you are taking for your high blood pressure.

Some of these drugs are also available in different combinations for example:

- ACE inhibitors with either a diuretic or calcium channel-blocker
- ARBs with a diuretic
- Betablockers with either a diuretic or with a calcium channel blocker

A – Angiotensin converting enzyme (ACE) inhibitors

Work by reducing the the kidneys' production of a hormone – angiotensin II that is important in constricting blood vessels. This reduction causes the blood vessels to relax and so reduces blood pressure.

Generic name	Examples of brand names	Some possible side effects
Captopril Cilazopril Enalapril Fosinopril Lisinopril Moexipril Perindopril Quinapril Ramipril Trandalopril	Capoten Vascace Innovace Staril Carace or Zestril Perdix Coversyl Accupro Tritace Gopten	Dizziness/ light headedness/ persistent dry cough/ loss of taste.

ARB's Angiotensin receptor blockers

Also work by blocking the effect of angiotensin II on the blood vessel walls. So they have a similar effect to ACE inhibitors (described above).

Generic name	Examples of brand names	Some possible side effects
Candesartan Eprosartan Irbesartan Losartan Olmesatan Telemisartan Valsartan	Amias Teveten Aprovel Cozaar Olmetec Micardis Diovan	Dizziness/light headedness/ cough/ sore throats/ headaches/ cystitis (urine infections)/ aches and pains/ stuffy nose/ tiredness or weakness

Some rare side effects	Other information
Kidney or liver problems/ acute allergy/ rash/ a type of tummy swelling called angioedema/ inflammation of pancreas/ sinusitis/ digestive tract problems/ blood cell changes.	Particularly useful if you have heart failure or diabetes. Blood tests may be required when taking these drugs. Can not be used in pregnancy.

Some rare side effects	Other information
Severe joint or muscle pain/ chest pain/ leg cramps/ fast or slow pulse/ digestive tract problems/ taste problems/ dry mouth/ mood changes/ liver or kidney problems/ anaemia	A good alternative to an ACE inhibitor if ACE is causing a troublesome cough Avoid salt substitutes Alcohol in moderation only Can not be used in pregnancy

B – Betablockers

Produce most of their effect by slowing the heart rate reducing the work of the heart and so reducing blood pressure.

Generic name	Examples of brand names	Some possible side effects
Atenolol	Tenormin	Fatigue/ general tiredness or sleep problems/ cold hands and feet/ lowered sex drive/ impotence
Acebutolol	Sectral	
Bisoprolol	Monocor	
Carvedilol	Eucardic	
Celiprolol	Celectol	
Labetalol	Trandate	
Metoprolol	Betaloc or Lopressor	
Nadalol	Corgard	
Nebivolol	Nebilet	
Oxprenolol	Trasicor	
Pindolol	Visken	
Propanalol	Inderal	
Timolol	Betim	

C – Calcium channel blockers

Relax the walls of the blood vessels and reduce the work of the heart.

Generic name	Examples of brand names	Some possible side effects
Amlodipine	Istin	Nausea/ Dizziness/ light headedness/ Headaches/ hot flushes/ ankle swelling/ constipation
Diltiazem	Tildiem	
Felodipine	Plendil	
Isradapine	Prescal	
Lacidipine	Motens	
Lercanidapine	Zanidip	
Nicardipine	Cardene	
Nifedipine	Adalat	
Nisoldipine	Syscor MR	
Verapamil	Cordilox or Securon	

Some rare side effects	Other information
Depression/ dizziness/ skin rashes/ digestive tract problems/ dry eyes.	Usually avoided in people with asthma and chest problems unless BP very high. Beta blockers can also be used to treat angina and after a heart attack. Certain cough and cold remedies and appetite suppressants can increase your blood pressure if taken with a beta blocker.

Some rare side effects	Other information
Rash/ palpitations/ tiredness	Calcium-channel blockers can also be used to treat angina. Avoid grapefruit juice (excepting amlodipine and diltiazem)

D – Thiazide diuretics

Increase salt and water loss from the kidneys increasing urine production this is a diuretic effect. They also relax blood vessels. (When used to treat high blood pressure a low dose is used so you may not notice much diuretic effect.)

Generic name	Examples of brand names	Some possible side effects
Bendrofluamethiazide (Bendrofluazide)	Aprinox	Tiredness, muscle cramps
Chlortalidone (Chlorthalidone)	Hygroton	
Cyclopenthiazide	Navidrex	
Indapamide	Natrilix	
Metolazone	Metinix 5	
Xipamide	Diurexan	

E – Alpha blockers

Relax blood vessel walls so reduce blood pressure.

Generic name	Examples of brand names	Some possible side effects
Doxazosin	Cardura	Nausea/ dizziness on standing
Indoramin	Baratol	
Prazosin	Hypovase	
Terazosin	Hytrin	

Some rare side effects	Other information
Can cause or worsen gout, skin rashes, impotence.	There may be an increased likelihood of developing diabetes when combined with beta blockers.

Some rare side effects	Other information
Headache/ tiredness or weakness/ sleeping problems/ nausea/ runny or stuffy nose/ tummy ache/ swelling of feet or lower legs/ diarrhoea/ vomiting/ agitation/ shakiness/ blurred vision/ skin rashes/ itching/ fast heartbeat/ pain in back,fingers or toes/ pins and needles/ passing water more often.	May be more suitable for you if you have heart failure, kidney problems or diabetes.

Antiplatelets

Used to prevent clots from forming by reducing the tendency of platelets to stick together in the blood stream.

Generic name	Examples of brand names	Some possible side effects
Aspirin	Nu-seals Caprin	Indigestion
Dipyridamol	Persantin	
Clopidogrel	Plavix	

Statins

Used to lower cholesterol.

Generic name	Examples of brand names	Some possible side effects
Atorvastatin Fluvastatin Pravastatin Rosuvastatin Simvastatin	Lipitor Lescol Lipostat Crestor Zocor	Headaches/ tiredness/ nausea/ tummy upsets/ pins and needles.

Some rare side effects	Other information
Can cause irritation to the stomach.	Do not take additional medicines containing aspirin eg. painkillers whilst on these drugs. Report black bowel motions to your doctor immediately as this may indicate bleeding from gut.
Dizziness, headaches, nausea, muscle pains.	
Dizziness/ pins and needles/ nausea/ constipation/ upset stomach/ itching/ skin rashes	

Some rare side effects	Other information
Muscle pain/ tenderness or weakness/ jaundice (yellow eyes & skin)	Report rare side effects immediately. Not recommended if pregnant or breastfeeding or have active liver disease

Combination therapy

The British Hypertension Society has produced this chart to show a simple plan for combining drugs to get the best effect in controlling high blood pressure in people who are newly diagnosed with hypertension. Special attention is paid to being black of African or Caribbean descent who should start treatment with calcium channel blockers or thiazide diuretics no matter what age.

	Younger than 55	55 or older or black patients of any age*
Step 1	A	C or D
Step 2	A + C	A + D
Step 3	A + C + D	
Step 4	Add: further diuretic or alpha blocker or beta-blocker	

*(Black African or Caribbean descent and not mixed race or Chinese patients)

Use of beta blockers

Beta-blockers have long been the first line of treatment for high blood pressure. However latest evidence has shown that they should not be considered as routine therapy for high blood pressure any longer. This is because other drugs have been found to have fewer side effects and are more effective.

Who will still be prescribed beta blockers?
In some cases beta blockers will still be the drug of choice for example possibly in younger people, women of child bearing potential or people who can not tolerate ACE inhibitors. Beta blockers will continue to be used in cases where there are other indications for using them such as for people with angina or after a heart attack.

If a second drug is added to beta blockers it should be a calcium channel blocker rather than a diuretic to reduce the risk of developing diabetes.

Will my beta blockers be stopped?
If beta blockers are not controlling your blood pressure your doctor may well consider changing your treatment as shown in the chart.

If your blood pressure is well controlled by beta blockers your doctor will discuss changing your treatment with you at your next routine review.

Stopping treatment with beta blockers should always be done by gradually reducing the dose. They should never be stopped suddenly.

Where can I get more information about the drugs I am taking?
Always read any instructions about taking your drugs carefully.

Your pharmacist will tell you any special instructions when you start a new drug. An information leaflet is usually provided with your drugs providing more information about the drug itself.

Never stop or alter your dose without consulting your doctor – this can be dangerous.

What if my blood pressure doesn't come down to recommended levels despite treatment?
In some cases the target of 140/90mmHg or less can not be achieved even with treatment by several drugs and lifestyle changes. However there are still benefits by being treated. The best results are obtained through a combination of prescribing and monitoring by your doctor and adhering to drug treatment and making changes to lifestyle.

How long will I have to stay on drugs?
Some people with mild blood pressure problems may manage to achieve reduction by changing their lifestyle as mentioned previously.

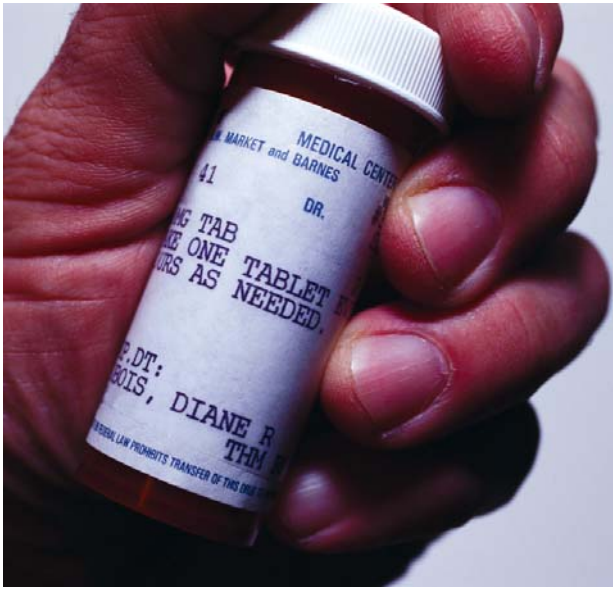
Some people feel they would really like to try and manage without drug treatment. In this case your doctor may consider a trial reduction or withdrawal of therapy if you have a low cardiovascular risk and your blood pressure is well controlled. Most people will have to have treatment for life.

How often will I have to take my drugs?
None of the BP lowering drugs available at present need to be taken more than twice a day. You can therefore space them out with twelve hours between. For some drugs you need only take them once a day. If this is the case you should take them at the same time every day.

Slow release tablets should be taken with meals

If you are starting two different BP lowering drugs at the same time, your doctor may ask you to start them separately to see how you respond to each drug. If there are any side effects you will then know which one is the cause.

How should I take slow release tablets?
If your drugs are slow release they will have SR after the name. All slow release drugs are designed to be taken either with your meal or soon after.



Other drugs, which are not slow release, don't usually have to be taken at meal times.

Don't crush slow release tablets as they are designed to be absorbed slowly.

What happens if I forget to take my drugs?
Take your dose as soon as you remember it. Do NOT take a double dose. Try to get into a routine of taking your drugs at the same time each day. Ensure that you never run out of tablets, at home or on holiday.

Can I drink alcohol if I'm on blood pressure lowering drugs?
Yes, in moderation. However, alcohol can make the side effect of drowsiness much worse, so caution is needed if your drugs have this effect on you.

Stopping your drugs suddenly can be harmful

Some people who have difficulty controlling their blood pressure despite being on medication, find that cutting down on their alcohol intake brings their blood pressure under control.

Drinking large quantities of alcohol is a common cause of sustained high blood pressure in younger males.

What about alternative remedies?
Some herbal and natural remedies can actually raise blood pressure or interfere with the action of conventional drugs. If you decide to take something, do not stop taking your prescribed blood pressure lowering drugs. Always discuss with your doctor or pharmacist before taking any alternative remedies.

LIVING WITH HIGH BLOOD PRESSURE

Can I take my own blood pressure at home?
There is an increasing use of home monitors and self measurement of blood pressure. However some monitors are not accurate and wrist monitors are not recommended. The most accurate readings will be achieved under standard conditions using accurate, validated and well maintained monitors with the appropriate cuff size. You can validate your own monitor by comparing readings with your doctor or nurses findings at the same visit.

Contact the British Hypertension Society for a list of recommended monitors.

Can I continue to drive?
You only have to stop driving domestic cars if your drugs give you side effects such as drowsiness or dizziness.

If you drive vehicles over 3.5 tonnes or a minibus with more than 8 seats you will not be allowed to drive if your systolic is greater than 180mmHg or diastolic is greater than 100mmHg, until it is under control.

Are there any jobs I can't do if I have high blood pressure?
If you fly or work under the sea for a living, you will not be allowed to continue in this line of work.

If you work with machinery you must discuss this with your doctor before he/she prescribes any medication, as some tablets can make you drowsy.

If I have a medical examination for my work will my high blood pressure be detected?
The doctor has no way of knowing that you are on medication for high blood pressure unless you tell him/her. Employers sometimes want to know if you have high blood pressure to fulfil conditions for pension funds. Unfortunately if you choose not to disclose any type of information which is relevant for your job, you can be dismissed quite legally.

Does stress cause high blood pressure?
Stress increases your blood pressure for short periods of time.

Once the stress is relieved your blood pressure returns to normal. This happens in everyone. Stress itself has not been proven to actually cause high blood pressure. However, if you are leading a stressful life you may find that you are not eating a healthy diet, that you are smoking too much, drinking too much and not taking enough exercise. All these things will contribute to raising your blood pressure.

See the CHSS factsheet called 'Living with stress and anxiety' for more information.

Do I have to mention my high blood pressure if I am buying holiday insurance?
Yes. If you don't, your insurance policy may not be valid.

At CHSS we have a list of sympathetic insurance companies to approach for insurance cover.

Is flying quite safe if I have high blood pressure?
Sitting in one position for a long time and becoming dehydrated can cause the blood to thicken increasing the risk of clots forming.

To protect yourself when flying always:

- drink plenty of fluids
- avoid alcohol
- get up regularly for short walks
- make sure you have plenty of leg room
- stretch and move your feet and legs about when sitting

If you have any queries about flying speak to your doctor or the airline's medical advisory department.

See the CHSS factsheet called 'Air travel' for more information.

Can I take a holiday at high altitude?
At high altitude your blood thickens and your blood pressure rises. This may increase your risk of a stroke. If you are thinking about going on a holiday at high altitude you should check first with your doctor to see that you are fit enough to go.

Will sex raise my blood pressure?
Sex does raise your blood pressure but only briefly. Your blood pressure then falls immediately afterwards. However this is quite safe. Very occasionally heart attacks and strokes can occur during sexual activity. This is relatively rare in comparison with other activities, which raise your blood pressure for similar lengths of time.

As a general principal no one should give up doing something that gives pleasure and happiness to their partners and themselves without strong scientific evidence that it is necessary. There is no such evidence for sexual activity.

Will having high blood pressure affect my sex life?
All BP lowering drugs can cause impotence in **some** people. Impotence **that is caused by drugs** is always reversible. If you find you have this problem after you start your treatment you should speak to your doctor who will try you on a different drug. 90% of people will find their sex life unaffected by their high blood pressure. If you find you are one of the remaining 10% you may be reassured that there is no evidence to link high blood pressure itself with impotence or a loss of sexual desire.

Which drugs are more likely to cause impotence?
Thiazide diuretics and beta-blockers tend to cause impotence more than other blood pressure lowering drugs. If you are having problems with these drugs your doctor may be able to put you on a tablet from a different group of blood pressure lowering drugs.

Will the contraceptive pill affect my blood pressure?
The 'combined' contraceptive pill can cause a small rise in blood pressure. Therefore if you have high blood pressure your doctor will not recommend this pill for you. You may be able to take the 'progesterone only' pill under supervision from your doctor or family clinic. Alternatively you may wish to consider another form of contraception especially if you are over 35 and a smoker.

If I have high blood pressure can I take HRT?
Hormone replacement therapy (HRT) can reduce the unpleasant effects of the menopause. It has no effect on your blood pressure. However, deciding whether HRT is right for your situation is complex. If you are considering it, you must discuss the risks and benefits carefully with your doctor.

Things to remember

High blood pressure is known as the silent killer as it has no symptoms.

Without treatment many organs are at risk of permanent damage.

High blood pressure does not get better or just go away.

Lifestyle changes to diet and exercise will **always** need to be maintained and can prevent the need for drug treatment.

Drug treatment + lifestyle changes can make blood pressure 'normal'.

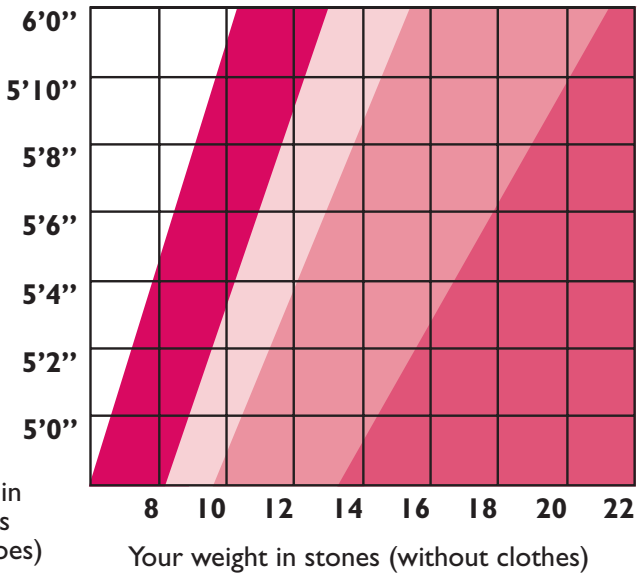
Drug treatment will usually be needed for life.

Your thorough medical check up should be repeated every 5 years.

You will always have to have your blood pressure monitored regularly.

WEIGHT CHART

- You are underweight and could do with a few extra pounds
- This is the ideal weight for your height
- You are getting too fat so choose your food carefully
- You are obese and need to lose weight
- You are severely obese and must lose weight



Appendix 1 How to work out your BMI
Here is an example of how to work out a BMI.

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height m}^2}$$

How to work out kgs	Example weight 11st 5lbs
14 pounds in a stone	11 x 14 =154
	+ 5
Total pounds	=159
Total pounds divided by 2.2 = kgs	159 divided by 2.2
	=72

How to work out metres	Example height 5ft 5ins
12 inches in a foot	5 x 12= 60
	+5
Total inches	=65
Total inches x 2.5 =cm	65 x 2.5
	=162.5
Divide cm by 100 to give metres	1.6
Squared	1.6 x 1.6
	=2.5

kgs divided by metres squared = 72 divided by 2.5 = BMI of 28

USEFUL ADDRESSES

Alcohol Focus Scotland
166 Buchanan Street
Glasgow
G1 2LW
Tel: 0141 572 6700
Fax: 0141 333 1606
Email: enquiries@alcohol-focus-scotland.org.uk
Website: www.alcohol-focus-scotland.org.uk

Alcohol Focus Scotland is committed to improving the quality of people's lives by changing Scotland's drinking culture, providing information and training on alcohol issues, raising awareness of alcohol related problems and working to influence national alcohol policy.

Blood Pressure Association
60 Cranmer Terrace
London
SW17 0QS
Tel: 020 8772 4994
Fax: 020 8772 4999
Email information service through website.
Website: www.bpassoc.org.uk

The Blood Pressure Association is for members of the public who have or are interested in high blood pressure. It is associated with the British Hypertension Society. Free membership provides access to information, discount on products and involvement in shaping services. Subscribe to quarterly magazine Positive Pressure.

Chest Heart & Stroke Scotland
65 North Castle Street
Edinburgh
EH2 3LT
Tel: 0131 225 6963
Fax: 0131 220 6313
Advice Line: 0845 077 6000
E-mail: adviceline@chss.org.uk
Website: www.chss.org.uk

CHSS aims to improve the lives of people in Scotland with chest, heart and stroke problems through medical research, advice and information, training and support in the community.

Diabetes UK *Scotland*
49 Bath Street
Glasgow
G2 2DG
Tel: 0141 332 2700
Careline: 0171 636 6112
E-mail: info@diabetes.org.uk
Website: www.diabetesuk.org.uk

Diabetes UK Scotland is the leading charity working for people with diabetes in Scotland – funding research, campaigning and influencing and providing care and support for people living with the condition.

Heart UK
7 North Road
Maidenhead
SL6 1PE
Tel: 01628 628638
Fax: 01628 628698
Email:ask@heartuk.org.uk
Website: www.heartuk.org.uk

Specialise in helping people with inherited high cholesterol.

Healthy Living
HealthyLiving Line: 0845 2 78 88 78
Website: www.healthyliving.gov.uk

Healthy Living is joint collaboration between NHS Health Scotland and the Scottish Executive to promote Scotland's 'Healthy Living' programme. It is designed to help you attain a healthier diet and a more active lifestyle by providing resources, advice and support on healthy eating, physical activity, losing weight and much more.

NHS 24
Tel: 08454 24 24 24
Textphone: 18001 08454 24 24 24
Website: nhs24.com

This phone service is designed to help you get the right help from the right people at the right time. The service is now running throughout Scotland and works in conjunction with General Practitioners, Accident and Emergency, Ambulance and Community Pharmacy services.

Smokeline
Tel: 0800 84 84 84

Smokeline offers telephone advice and support to those who wish to stop smoking, as well as their family and friends. Smokeline also provides a free copy of their helpful guide to stopping smoking.

Stresswatch Scotland
Information leaflets, self-help programmes and relaxation tapes available from the Stresswatch Office –

Tel: 01563 570886
Helpline: 01563 574144
Monday to Friday from 10:00am - 6:00pm.
Website: www.StresswatchScotland.com
Email: office@StresswatchScotland.com

Phone/Textphone the Chest, Heart and Stroke Advice Line for confidential, independent advice from one of our nurses.

The line is open
Monday – Friday
9.30 – 12.30 and 1.30 – 4.00

0845 077 6000

Charged at local call rate.
Out of hours answering machine.
Email: adviceline@chss.org.uk
Fax: 0131 220 6313

The information contained in this booklet is based on current guidelines and is correct at time of printing. The content is also put out to peer, patient and expert review. If you have any comments about this booklet please contact:

Lorna McTernan, Publications Manager at the address on the facing page.

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We need £4 million a year to fulfil our commitment to improving lives for Scottish people. We need your help and your money to help others. You can help by volunteering your time as a fundraiser, VSS volunteer or support your local Regional office. You can send a donation, remember us in your Will, take out a Deed of Covenant or organise a fundraising event.

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CHEST, HEART & STROKE SCOTLAND

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Monday – Friday
9.30am – 12.30 and 1.30pm – 4.00pm

0845 077 6000

Email: adviceline@chss.org.uk
Textphone available

Scottish Charity Number SC018761 **Updated Aug 2006**