

# **HIGH BLOOD PRESSURE**

## **What Is High Blood Pressure?**

High blood pressure is a blood pressure reading of 140/90 mmHg or higher. Both numbers are important.

Nearly 1 in 3 American adults has high blood pressure. Once high blood pressure develops, it usually lasts a lifetime. The good news is that it can be treated and controlled.

High blood pressure is called the silent killer because it usually has no symptoms. Some people may not find out they have it until they have trouble with their heart, brain, or kidneys. When high blood pressure is not found and treated, it can cause:

- The heart to get larger, which may lead to heart failure.
- Small bulges (aneurysms (AN-u-risms)) to form in blood vessels. Common locations are the main artery from the heart (aorta); arteries in the brain, legs, and intestines; and the artery leading to the spleen.
- Blood vessels in the kidney to narrow, which may cause kidney failure.
- Arteries throughout the body to "harden" faster, especially those in the heart, brain, kidneys, and legs. This can cause a heart attack, stroke, kidney failure, or amputation of part of the leg.
- Blood vessels in the eyes to burst or bleed, which may cause vision changes and can result in blindness.

## **What Is Blood Pressure?**

Blood is carried from the heart to all parts of your body in vessels called arteries. Blood pressure is the force of the blood pushing against the walls of the arteries. Each time the heart beats (about 60–70 times a minute at rest), it pumps out blood into the arteries. Your blood pressure is at its highest when the heart beats, pumping the blood. This is called systolic (sis-TOL-ik) pressure. When the heart is at rest, between beats, your blood pressure falls. This is the diastolic (di-a-STOL-ik) pressure.

Blood pressure is always given as these two numbers, the systolic and diastolic pressures. Both are important. Usually they are written one above or before the other, such as 120/80 mmHg (measured in millimeters of mercury, a unit for measuring pressure). When the two measurements are written down, the systolic pressure is the first or top number, and the diastolic pressure is the second or bottom number (for example, 120/80). If your blood pressure is 120/80, you say that it is "120 over 80."

Blood pressure changes during the day. It is lowest as you sleep and rises when you get up. It also can rise when you are excited, nervous, or active. Still, for most of your waking hours, your blood pressure stays pretty much the same when you are sitting or standing still. That level should be lower than 120/80 mmHg. When the level stays high, 140/90 mmHg or higher, you have high blood pressure.

With high blood pressure, the heart works harder, your arteries take a beating, and your chances of a stroke, heart attack, and kidney problems are greater.

### **What Is Normal Blood Pressure?**

A blood pressure reading below 120/80 mmHg is considered normal. In general, lower is better. However, very low blood pressure can sometimes be a cause for concern and should be checked out by a doctor.

Doctors classify blood pressures under 140/90 mmHg as either normal or prehypertension.

- Normal blood pressure is lower than 120/80 mmHg.
- Prehypertension is blood pressure between 120 and 139 for the top number, or between 80 and 89 for the bottom number. For example, blood pressure readings of 138/82, 128/89, or 130/86 are all in the prehypertension range. If your blood pressure is in the prehypertension range, it is more likely that you will end up with high blood pressure unless you take action to prevent it.

### **What Is High Blood Pressure?**

A blood pressure of 140/90 mmHg or higher is considered high blood pressure. Both numbers are important. If one or both numbers are usually high, you have high blood pressure.

If you are being treated for high blood pressure and have repeated readings in the normal range, you still have high blood pressure.

There are two levels of high blood pressure: stage 1 and stage 2 (see the chart below).

Categories for Blood Pressure Levels in Adults (in mmHg, millimeters of mercury)<sup>a</sup>

Category	Systolic (top number)	Diastolic (bottom number)
Normal	Less than 120	Less than 80
Prehypertension	120–139	80–89
High blood pressure		
Stage 1	140–159	90–99
Stage 2	160 or higher	100 or higher

For adults 18 and older who are not on medicine for high blood pressure; are not having a short-term serious illness; and do not have other conditions, such as diabetes and kidney disease.

Note: When systolic and diastolic blood pressures fall into different categories, the higher category should be used to classify blood pressure level. For example, 160/80 mmHg would be stage 2 high blood pressure.

There is an exception to the above definition of high blood pressure. A blood pressure of 130/80 mmHg or higher is considered high blood pressure in people with diabetes and chronic kidney disease.

### **Other Names for High Blood Pressure**

#### *General*

- HBP
- Hypertension
- HTN

### *Caused by Another Condition*

- Secondary hypertension

### *Other*

- Essential hypertension
- Primary hypertension
- Idiopathic hypertension

### **What Causes High Blood Pressure?**

In many people with high blood pressure, a single specific cause is not known. This is called essential or primary high blood pressure. Research is ongoing to find the causes of essential high blood pressure.

In some people, high blood pressure is the result of another medical problem or medicine. When the cause is known, this is called secondary high blood pressure.

### **Who Is At Risk for High Blood Pressure?**

About 65 million American adults—nearly 1 in 3—have high blood pressure.

In the United States, high blood pressure occurs more often in African Americans than in Caucasians. Compared to other groups, African Americans:

- Tend to get high blood pressure earlier in life
- Usually have more severe high blood pressure
- Have a higher death rate from stroke, heart disease, and kidney failure

Many people get high blood pressure as they get older. Over half of all Americans aged 60 and older have high blood pressure. This is not a part of healthy aging! There are things you can do to help keep your blood pressure normal, such as eating a healthy diet, maintaining a healthy weight, and getting enough physical activity.

Your chances of developing high blood pressure are also higher if you:

- Are overweight
- Are a man over the age of 45
- Are a woman over the age of 55
- Have a family history of high blood pressure
- Have prehypertension (that is, blood pressure in the 120–139/80–89 mmHg range)

Other things that can raise blood pressure include:

- Eating too much salt
- Drinking too much alcohol
- Not getting enough potassium in your diet
- Not doing enough physical activity
- Taking certain medicines
- Having long-lasting stress
- Smoking (smoking can cause a temporary rise in blood pressure)

### **What Are the Signs and Symptoms of High Blood Pressure?**

High blood pressure is called the silent killer because you can have it for years without knowing it. The only way to find out if you have high blood pressure is to have your blood pressure measured. Using a blood pressure cuff and stethoscope or electronic sensor, your doctor or nurse can take your blood pressure and tell you if it is high.

Even though high blood pressure usually has no signs or symptoms, it is dangerous if it continues over time. It is important to find out whether you have high blood pressure and, if you do, how to keep it under control.

### **How Do You Know Whether You Have High Blood Pressure?**

Only your doctor can tell you whether you have high blood pressure. Most doctors will check your blood pressure several times on different days before deciding that you have high blood pressure. A diagnosis of high blood pressure is given if repeated readings are 140/90 mmHg or higher, or 130/80 mmHg or higher if you have diabetes or chronic kidney disease.

Having your blood pressure tested is quick and easy. Your doctor or nurse will use some type of a gauge, a stethoscope (or electronic sensor), and a blood pressure cuff, also called a sphygmomanometer (sfig-mo-ma-NOM-eter).

Blood pressure readings are usually taken when you are sitting or lying down and relaxed. Below are things you can do before getting your blood pressure taken:

- Do not drink coffee or smoke cigarettes 30 minutes before having your blood pressure taken.
- Wear short sleeves.
- Go to the bathroom before the reading. Having a full bladder can change your blood pressure reading.
- Sit for 5 minutes before the test.
- You should ask the doctor or nurse to tell you the blood pressure reading in numbers.

You also can check your blood pressure at home with a home blood pressure measurement device, or monitor. It is important that you understand how to use the monitor properly. Your doctor, nurse, or pharmacist can help you check the monitor and teach you how to use it correctly. You also may ask for their help in choosing the right blood pressure monitor. Blood pressure monitors can be bought at discount chain stores and pharmacies. Below are additional things to do when taking your blood pressure at home:

- Sit with your back supported and your feet flat on the floor.
- Rest your arm on a table at the level of your heart.
- Take two readings, at least 2 minutes apart, and average the results.

Some people's blood pressure is high only when they visit the doctor's office. This condition is called white coat hypertension. If your doctor suspects this, you may be asked to check and record your blood pressure at home with a home monitor. Another way to check blood pressure away from the doctor's office is by using an ambulatory blood pressure monitor. This device is worn for 24 hours and can take blood pressure every 30 minutes.

## **How Is High Blood Pressure Treated?**

Usually, the goal is to keep your blood pressure below 140/90 mmHg (130/80 mmHg if you have diabetes or chronic kidney disease). Ask your doctor what your blood pressure goal should be.

Some people can prevent or control high blood pressure by changing to healthier habits, such as:

- Following the DASH (Dietary Approaches to Stop Hypertension) Eating Plan, which includes cutting down on salt and sodium and eating healthy foods such as fruits, vegetables, and low-fat dairy products
- Losing excess weight and staying at a healthy weight
- Being physically active (for example, walking 30 minutes every day)
- Quitting smoking
- Limiting alcohol intake

Sometimes blood pressure stays too high even when a person makes these kinds of healthy changes. In that case, it is necessary to add medicine to help lower blood pressure. Medicines will control your blood pressure, but they cannot cure it. You will need to take blood pressure medicine for a long time.

Blood pressure medicines work in different ways to lower blood pressure. Often, two or more medicines work better than one. Some medicines lower blood pressure by removing extra fluid and salt from your body. Others affect blood pressure by slowing down the heartbeat or by relaxing and widening blood vessels.

Below are the types of medicine used to treat high blood pressure:

*Diuretics (di-u-RET-iks)* are sometimes called water pills. They work by helping your kidneys flush excess water and salt from your body. This reduces the amount of fluid in your blood, and your blood pressure goes down. There are different types of diuretics. They are often used along with other high blood pressure medicines and may be combined with another medicine in one pill.

*Beta blockers* help your heart beat slower and with less force. Your heart pumps less blood through the blood vessels, and your blood pressure goes down.

*Angiotensin converting enzyme (ACE) inhibitors* keep your body from making a hormone called angiotensin II, which normally causes blood vessels to narrow. ACE inhibitors prevent this narrowing, so your blood pressure goes down.

*Angiotensin II receptor blockers (ARBs)* are newer blood pressure medicines that protect your blood vessels from angiotensin II. As a result, the blood vessels relax and become wider, and your blood pressure goes down.

*Calcium channel blockers (CCBs)* keep calcium from entering the muscle cells of your heart and blood vessels. This causes blood vessels to relax, and your blood pressure goes down.

*Alpha blockers* reduce nerve impulses that tighten blood vessels, allowing blood to pass more easily and causing blood pressure to go down.

*Alpha-beta blockers* reduce nerve impulses to blood vessels the same way alpha blockers do, but they also slow the heartbeat, as beta blockers do. As a result, blood pressure goes down.

*Nervous system inhibitors* relax blood vessels by controlling nerve impulses from the brain. This causes blood vessels to become wider and blood pressure to go down.

*Vasodilators (VA-so-di-LA-ters)* open blood vessels by directly relaxing the muscle in the vessel walls, causing blood pressure to go down.

*It is important that you take your blood pressure medicine at the same time each day and not skip days or cut pills in half to save money.*

## **How Can High Blood Pressure Be Prevented?**

You can take steps to prevent high blood pressure. These steps include:

- Keeping a healthy weight
- Being physically active
- Following a healthy eating plan, such as DASH, that emphasizes fruits, vegetables, and low-fat dairy foods
- Choosing and preparing foods with less salt and sodium
- Quitting smoking
- Drinking alcohol in moderation if you drink

## **Living With High Blood Pressure**

If you have high blood pressure, it is important that you:

- Keep track of your blood pressure. Learn to take your own blood pressure at home or have it regularly checked by a health care professional. Write it down each time (with date).
- Talk to your health care provider about the names and dosages of your blood pressure medicines and how to take them.
- If you think you're having other problems (side effects) from taking your medicine, talk to your doctor. Another medicine may be better for you, or the problem may not be related to the medicine.
- Refill your blood pressure medicines before they run out.
- Take your blood pressure medicines exactly as directed—don't skip days or cut pills in half.
- Keep your followup appointments with your health care provider.
- Choose healthier habits—for example, eat a heart healthy diet, get regular physical activity, and don't smoke.
- Ask your doctor or health care provider questions about your treatment and what you need to do to take care of yourself and lower your high blood pressure.

*Remember, high blood pressure has no symptoms. If you have high blood pressure, you will not be able to tell by the way that you feel.*

## **Women and High Blood Pressure**

In some women, blood pressure can increase if they use birth control pills, become pregnant, or take hormone therapy (HT) during menopause.

### *Oral Contraceptives (Birth Control Pills)*

Women taking birth control pills usually have a small increase in both systolic and diastolic blood pressure. If you have high blood pressure and are using birth control pills, get your blood pressure checked regularly. Talk to your doctor about a possible rise in blood pressure and what you can do about it.

If you have high blood pressure, are age 35 or older, and also smoke, you should not take birth control pills unless you quit smoking. Women age 35 and older who smoke and use birth control pills are more likely to develop heart disease or have a stroke. High blood pressure also raises your chances of stroke and heart disease.

If you are age 35 or older, are healthy, do not smoke, and your high blood pressure is controlled, it may be safe for you to use birth control pills. Ask your doctor if birth control pills are safe for you.

### *Pregnancy*

Many pregnant women with high blood pressure have healthy babies. However, high blood pressure can be dangerous for both the mother and the baby. High blood pressure can harm the mother's kidneys and other organs, and it can cause low birth weight and early delivery.

If you are thinking about having a baby and you have high blood pressure, talk first to your doctor or nurse. You can take steps to control your blood pressure before and during pregnancy. Regular prenatal care (health care during pregnancy) is very important for your and your baby's health.

Before becoming pregnant:

- Be sure your blood pressure is under control. Making changes—such as limiting the salt and sodium in your diet, exercising regularly, and losing weight if you are overweight—can be helpful.

- Discuss with your doctor how high blood pressure might affect you and your baby during pregnancy, and what you can do to prevent or lessen problems.
- If you take medicines for your blood pressure, ask your doctor what you should do about taking them during pregnancy. Women who take angiotensin converting enzyme inhibitors should talk to their doctor before they become pregnant.

While you are pregnant:

- Be sure to get regular prenatal health care. Don't miss any appointments.
- Don't drink alcohol or smoke.
- Talk to your doctor about any over-the-counter or prescribed medicines you are taking or are thinking about taking.
- Some women develop high blood pressure for the first time in the middle of their pregnancy. In the most serious cases, the mother develops a condition called preeclampsia (pre-e-KLAMP-se-a) or "toxemia of pregnancy." This condition can threaten the lives of both the mother and the unborn child.

Even though high blood pressure during pregnancy can be serious, most women with high blood pressure and those who develop preeclampsia have successful pregnancies. Getting early and regular prenatal care is the most important thing you can do for you and your baby.

#### *Postmenopausal Hormone Therapy*

Large randomized trials indicate that postmenopausal hormone therapy causes a small increase in systolic blood pressure. If you start taking postmenopausal hormone therapy, you should have your blood pressure checked regularly. Your doctor can help answer your questions.

#### *Older Adults and High Blood Pressure*

A common form of high blood pressure in older adults is isolated systolic hypertension (ISH). ISH is high blood pressure, but only the top (systolic) number is high (140 or higher). ISH can be as harmful as high blood pressure in which both numbers are high. ISH is the most common form of

high blood pressure for older adults. About 2 out of 3 people over age 60 with high blood pressure have ISH.

You may have ISH and feel fine. As with other types of high blood pressure, ISH often causes no symptoms. To find out if you have ISH—or any type of high blood pressure—get your blood pressure checked.

If not treated, ISH can cause damage to your arteries and to body organs. ISH is treated the same way as high blood pressure in which both systolic and diastolic pressures are high—by making changes in your health habits and with blood pressure medicines.

### **Key Points**

- Normal blood pressure is less than 120/80 mmHg.
- Uncontrolled high blood pressure is dangerous and can lead to stroke, heart failure, heart attack, kidney failure, and blindness.
- You have prehypertension if your top (systolic) number is usually between 120 and 139, or your bottom (diastolic) number is usually between 80 and 89.
- You have high blood pressure if your top (systolic) blood pressure number is usually 140 or higher, or your bottom (diastolic) number is usually 90 or higher. Both numbers are important.
- If you have diabetes or chronic kidney disease, you have high blood pressure if your top number is usually 130 or higher, or your bottom number is usually 80 or higher.
- Over half of all Americans aged 60 and over have high blood pressure.
- African Americans are more likely to have high blood pressure than Caucasians.
- High blood pressure is called the silent killer because it usually has no signs or symptoms.
- Having your blood pressure checked is quick and easy.
- You can control your high blood pressure through healthy lifestyle habits and taking medicines, if needed.
- It is important to keep track of your blood pressure and keep it under control.

- You can help prevent high blood pressure by choosing a healthy way of life.

### **Additional Information**

- **DASH Diet -**  
<http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/index.htm>
- **American Heart Association -**  
<http://www.americanheart.org/presenter.jhtml?identifier=2112>
- **The Hypertension Center of St. Louis -**  
<http://www.htncenterstl.com/>

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