



American
Heart
Association

American
Stroke
Association®

Understanding and Controlling Your High Blood Pressure



Understanding Blood Pressure

When your heart beats, it pumps blood into your blood vessels. This creates pressure against the blood vessel walls. This **blood pressure** causes your blood to flow to all parts of your body.

When you're healthy, your arteries are elastic. They stretch when your heart pumps blood through them. How much they stretch depends on how much force the blood exerts.

Everybody has—and needs—blood pressure. Without it, blood can't circulate through your body. And without blood circulating, your vital organs can't get the oxygen and food they need to work.

That's why it's important to know about blood pressure and how to keep it in the healthy range.



Measuring Blood Pressure

Two numbers are recorded when measuring your blood pressure. The top, or larger, number (called **systolic** pressure) measures the pressure in your arteries when your heart beats. The bottom, or smaller, number (called **diastolic** pressure) measures the pressure while your heart rests between beats. Blood pressure is measured in millimeters of mercury (mm Hg).



Blood Pressure Categories

Normal blood pressure is below 120/80 mm Hg. Blood pressure of 120–139 mm Hg and/or 80–89 mm Hg is called **prehypertension**.

If you're an adult and your blood pressure is 140 mm Hg and/or 90 mm Hg or higher, you have **high blood pressure (HBP)**. If your blood pressure goes above this and stays there, you are at risk of many health problems.

The only way to find out if you have HBP is to have your blood pressure measured. Your healthcare provider can check it for you. He or she may take several readings over time before deciding whether you have high blood pressure.

Blood Pressure Category	Systolic (mm Hg)		Diastolic (mm Hg)
Normal	Less than 120	and	Less than 80
Prehypertension	120–139	or	80–89
Hypertension, Stage 1	140–159	or	90–99
Hypertension, Stage 2	160 or higher	or	100 or higher

Source: Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7 Complete report) Hypertension 2003;42:1206.

Causes of High Blood Pressure

High blood pressure is also called **hypertension**. You can have high blood pressure and not know it. HBP usually has no symptoms. That's why it's called the "silent killer."

Your heart beats about 60–80 times a minute under normal conditions. Your blood pressure rises when your heart beats and falls when your heart relaxes between beats. Your blood pressure can change rapidly. It's affected by changes in stress levels, posture, physical activity, medications, caffeine use and sleep.



There are factors that increase your chances of developing HBP. These are called **risk factors**. Some you can control, and some you can't.

Risk Factors You Can Control

- **Overweight or obesity.** People with a body mass index (BMI) of 25 or higher are more likely to develop HBP.
- **Poor diet, especially one that includes too much salt.** Eating too much salt increases blood pressure in some people.
- **Alcohol.** Heavy and regular use of alcohol can greatly increase blood pressure.
- **Lack of regular physical activity.** An inactive lifestyle makes it easier to become overweight and increases the chance of HBP.
- **Stress.** Stress levels are hard to measure. Responses to stress vary from person to person.
- **Smoking and secondhand smoke.** Smoking can increase your risk of damaged arteries and it temporarily raises blood pressure. And exposure to other people's smoke increases the risk of heart disease for nonsmokers.

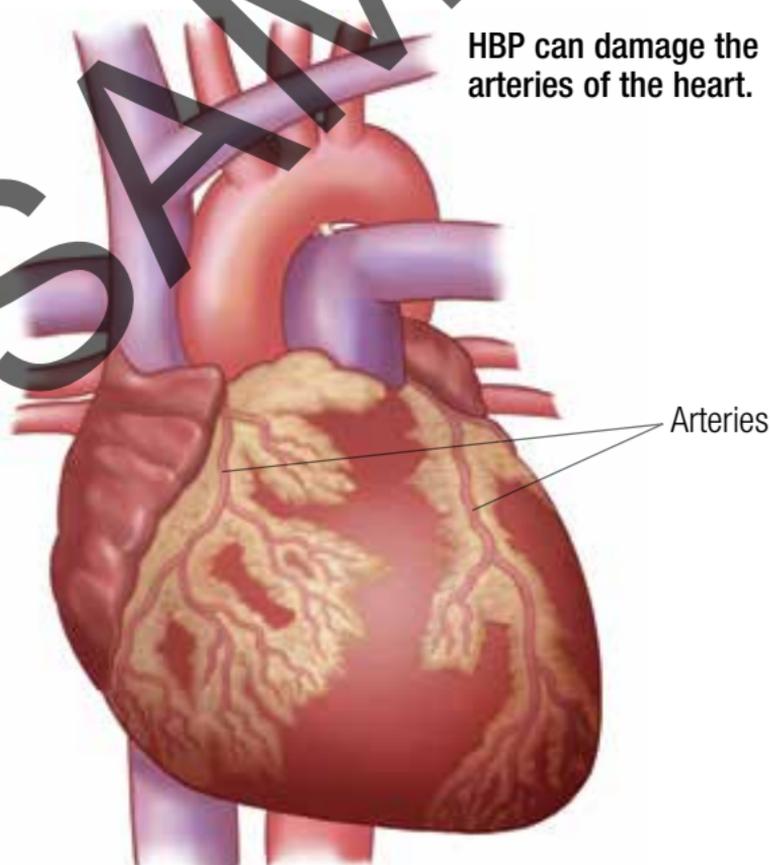
Risk Factors You Can't Control

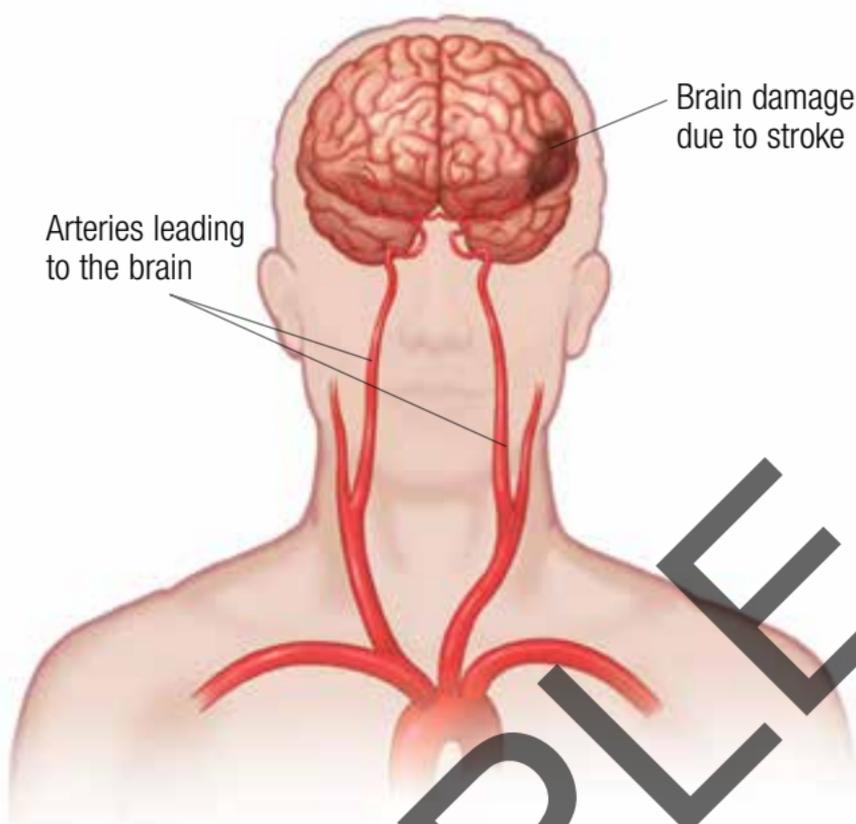
- **Race.** African Americans develop HBP more often than Caucasians. It also tends to occur earlier in life and be more severe in African Americans.
- **Heredity.** A tendency to have HBP runs in families. If your parents or other close blood relatives have it, you're more likely to develop it.
- **Age.** In general, the older you get, the greater your chance of developing HBP. A higher percentage of men have HBP until age 45. From age 45–64, the percentages of men and women are similar. After that, a higher percentage of women have HBP than do men.

How HBP Damages the Body

Having HBP can hurt your body in many ways. Mainly, it adds to the workload of your heart and arteries. Because your heart must work harder than normal for a long time, it tends to get bigger. A slightly enlarged heart may still work well. But if it's enlarged very much, it can have a hard time meeting your body's needs.

As you grow older, your arteries will harden and become less elastic. This occurs in all people, regardless of blood pressure. But having HBP tends to speed up this process.





HBP can cause stroke.

Cardiovascular Risk

High blood pressure increases your risk of stroke. It can also damage your kidneys and eyes. Compared with people with controlled HBP, people with uncontrolled HBP are also more likely to develop coronary heart disease and heart failure.

Treating High Blood Pressure

If you have high blood pressure, follow your healthcare provider's advice. Most HBP can't be cured. But it usually can be managed. And its effects can be prevented or reduced if it's treated early and kept under control.

Most treatments for HBP rely on a combination of lifestyle changes. These include eating healthier, balancing the calories you take in with the calories you burn, losing weight, getting regular physical activity and limiting sodium (salt) and alcohol intake. In some cases, it also includes taking medication.

Physical Activity

Don't be afraid to be active. Physical activity should be part of your daily routine. It helps reduce your risk for cardiovascular disease by improving blood pressure and other risk factors. It can also help you lose weight or stay at your ideal weight.

*Aim for at least 40 minutes of moderate-to-vigorous physical activity three to four times per week.** If you have a chronic condition, you should consult with your healthcare provider to develop a physical activity plan that is right for you. Find an activity you enjoy and do it regularly.

** To learn more about our guidelines and scientific statements, visit heart.org/statements.*

Diet

Your healthcare provider can design an eating plan to help reduce your blood pressure and control your weight. It will include plenty of fruits and vegetables, and whole grains, as well as low-fat dairy products, poultry, fish and nuts. It will also limit sweets and red meat. Once you're given a healthy eating plan, follow it closely and stick to it. This includes advice on how much alcohol you drink. Alcoholic drinks are low in nutrients and high in calories. If you're trying to lose weight, avoid them.

Most Americans eat more salt (sodium) than they need. You should aim to consume less than 1,500 mg per day to help lower your blood pressure.

To do so:

- Avoid salty foods.
- Reduce salt in cooking and at the table.
- Eat out less. Restaurant and fast foods are often very high in sodium.
- Read food labels to learn the sodium content of prepared foods. Choose the lower-sodium options.

Weight Loss

Many people with HBP are also overweight. If that's true of you, your healthcare provider can prescribe a healthy weight-loss plan that is right for you. Often when people lose weight, their blood pressure also drops.



Taking Medication

for HBP

Some people need medication to help them control their blood pressure. Many drugs are available for this. Some remove excess fluid and salt from the body. Others open up and expand narrowed blood vessels.

Medications lower blood pressure in many cases. But every person reacts differently to medication. You may need a trial period before your doctor finds the best medication, or combination of medications, for you.



What You Should Know

You should know the following information about any prescribed medication:

- The name of the medication
- What it's supposed to do
- How often to take it
- How much to take
- How long to take it
- How to store it (Does it need to be in a cool place?)
- What to do in case you miss a dose
- If there's a specific time of day it should be taken
- If there's any written information to help you remember key points about the drug
- If you need to avoid foods, drinks, other medications or activities while on the medication
- What results, reactions or side effects you might expect from the medication, and what to do if you have reactions or side effects
- If the medication can cause side effects if you become pregnant
- What to do if you get sick from something else or have to go to the hospital

Also, be sure to know the names and effects of all other medicines you're taking. Tell your healthcare provider about all of them, including over-the-counter drugs and/or supplements, before you start on a new medication.

Diuretics

Medications called **diuretics** are often the first treatment chosen. These drugs help control blood pressure by removing excess salt and water from your body through urination.

There are many diuretics to choose from. Your healthcare provider will prescribe one that he or she believes will work best for you.

If diuretic therapy doesn't lower your blood pressure enough, you may be prescribed other medication. Your doctor may recommend a tablet that contains both a diuretic and another blood pressure-lowering drug. This reduces the number of tablets you must take daily.

Other Medications for HBP

Other types of medication that may be prescribed to treat your HBP include angiotensin-converting enzyme (ACE) inhibitors, angiotensin II receptor blockers (ARBs), beta-blockers, calcium channel blockers (CCBs), central agonists, peripheral adrenergic inhibitors, blood vessel dilators and combination therapies.

- **Angiotensin-converting enzyme (ACE) inhibitors** relax blood vessels and decrease resistance. This allows blood to flow more easily and makes the heart's work easier or more efficient.
- **Angiotensin II receptor blockers (ARBs)** prevent a hormone called angiotensin II from causing blood vessels to narrow.

- **Beta-blockers** decrease the heart rate and cardiac output, which lowers blood pressure.
- **Calcium channel blockers (CCBs)** interrupt the movement of calcium into heart and vessel cells so they don't contract as forcefully.
- **Central agonists** help decrease the blood vessels' ability to tense up or contract, which lowers blood pressure.
- **Peripheral adrenergic inhibitors** block the "message" from the brain that makes the blood vessels constrict. These drugs are rarely used unless other medications don't help.
- **Blood vessel dilators** can cause the muscle in the walls of the blood vessels to relax, allowing the vessel to dilate (widen). This allows blood to flow through more easily.

These drugs all work to lower blood pressure. But this can only happen while you're taking the drug. That's why medication shouldn't be stopped without your doctor's approval, even after your blood pressure is lowered. Treatment usually must be continued over your lifetime for best results.

If you're being treated with any of these drugs, the dose must be carefully monitored. You may have to see your doctor often until your blood pressure is controlled. After that, you may need to visit only three to four times a year. He or she may have to try several medications before finding the one that works best for you.

Understanding Side Effects

Some HBP medications can affect certain body functions. This may result in side effects. But the benefits of using them far outweigh the risk of side effects in most people.

Diuretics

Some diuretics can decrease the body's supply of a mineral called **potassium**. Symptoms such as weakness, leg cramps or fatigue (tiredness) may result. Eating foods containing potassium can help replace what is being lost. And if needed, your doctor may recommend a potassium supplement.

Some diuretics are called "potassium-sparing" drugs. They don't cause the body to lose potassium. They are usually used with another diuretic.

Some people suffer from attacks of gout (painful swelling of the joints) after prolonged use of diuretics. This side effect isn't common. It can be managed by other treatment. In people with diabetes, diuretic drugs may increase blood sugar levels. A change in drug, diet, insulin or oral anti-diabetic therapy most often corrects this. Impotence (inability for men to have an erection) also occurs in a small percentage of people.

Beta-Blockers

Beta-blockers can cause lightheadedness, insomnia, cold hands and feet, tiredness or depression, a slow heartbeat or symptoms of asthma. Impotence can also occur. If you have diabetes and you're taking insulin, your responses to beta-blockers will be closely watched.

ACE Inhibitors

These drugs can cause a skin rash, dizziness, loss of appetite or a chronic dry, hacking cough. Women should not become pregnant while taking ACE inhibitors.

Angiotensin II Receptor Blockers (ARBs) and Calcium Channel Blockers (CCBs)

ARBs can cause occasional dizziness. Like ACE inhibitors, ARBs should not be used during pregnancy. CCBs can cause palpitations, swollen ankles, upset stomach, headache or dizziness. Side effects with each type of these drugs differ a great deal.

Alpha-Blockers and Combined Alpha- and Beta-Blockers

People taking alpha-blockers can have a fast heart rate, dizziness or a drop in blood pressure when they stand up. Combined alpha- and beta-blockers can cause blood pressure to become too low.

Central Agonists

Central agonists can cause drowsiness or sluggishness, dry mouth, constipation, fever or rash. If these side effects persist, your healthcare provider may change the drug dose or use another medication.

If you're taking any of these drugs, don't stop suddenly because your blood pressure could rise quickly to dangerously high levels.

Peripheral Adrenergic Inhibitors

Some of these medications can cause a stuffy nose, diarrhea or heartburn. These side effects usually aren't severe. If you have nightmares or get depressed, tell your healthcare provider. He or she will likely replace this medicine with one that won't cause these side effects.

Blood Vessel Dilators

These medications can cause headaches, swollen ankles or feet, rapid heartbeat, unexplained weight gain or difficulty breathing. Contact your doctor immediately if you have any of these symptoms. Some types of this medication can also cause excessive hair growth.

These drugs are usually used only in more resistant cases of HBP.



Things to Keep in Mind

HBP is a lifelong condition. It can be managed, but not cured. Once you start a treatment program, maintaining a lower blood pressure is easier. You'll lower your risk of diseases like stroke, heart attack, heart failure and kidney disease.

It may be annoying to take pills that may have side effects. This is especially true if you felt fine before treatment. But don't be discouraged. The inconvenience of medication is still much better than suffering a stroke or heart attack. Many people who are successfully treated live long and healthy lives.

It takes a team to treat your high blood pressure successfully. Your healthcare provider can't do it alone, and neither can you. You need to work together. But you can do more than anyone else to bring your blood pressure under control—and keep it there. Follow these tips:

1. Keep all appointments with your healthcare provider.
2. Take prescribed blood pressure drugs as directed. If you don't feel well after taking a medication, tell your healthcare provider. This will help him or her adjust your medicine.
3. Follow medical advice about diet and physical activity. Try to lose weight if it's recommended.
4. Remind yourself that as long as you and your team of healthcare providers work together, you CAN manage your blood pressure.

For **More Information**

We have many educational booklets to help you make healthier choices to reduce your risk, manage disease or care for a loved one. Topics include nutrition and weight management, smoking, cholesterol, high blood pressure, physical activity, controlling risk factors, cardiovascular conditions, treatments, procedures, stroke and more.

Visit **heart.org/mylifecheck** and complete our My Life Check[®] assessment to get your personal heart score and a custom plan with the seven steps you may need to improve your heart health.

To learn more, call us toll-free at **1-800-AHA-USA1 (1-800-242-8721)** or contact your nearest American Heart Association office. You can also visit our Web site, **heart.org**.

For information on stroke, call **1-888-4-STROKE (1-888-478-7653)** or visit us online at **strokeassociation.org**.

Heart Attack Warning Signs

Some heart attacks are sudden and intense, but most of them start slowly, with mild pain or discomfort. Here are some of the signs that can mean a heart attack is happening.

- **Chest discomfort.** Most heart attacks involve discomfort in the center of the chest that lasts more than a few minutes, or that goes away and comes back. It can feel like uncomfortable pressure, squeezing, fullness or pain.
- **Discomfort in other areas of the upper body.** Symptoms can include pain or discomfort in one or both arms, the back, neck, jaw or stomach.
- **Shortness of breath.** This may occur with or without chest discomfort.
- **Other signs.** These may include breaking out in a cold sweat, nausea or lightheadedness.

As with men, women's most common heart attack symptom is chest pain or discomfort. But women are somewhat more likely than men to experience some of the other common symptoms, particularly shortness of breath, nausea/vomiting and back or jaw pain.

Stroke Warning Signs

- Sudden numbness or weakness of the face, arm or leg, especially on one side of the body
- Sudden confusion, or trouble speaking or understanding
- Sudden trouble seeing in one or both eyes
- Sudden trouble walking, dizziness or loss of balance or coordination
- Sudden, severe headache with no known cause

F.A.S.T. is an easy way to remember how to recognize a stroke and what to do. Spot a stroke **FAST**. **F**ace drooping. **A**rm weakness. **S**peech difficulty. **T**ime to call 9-1-1.

Dial 9-1-1 Fast

Heart attack and stroke are life-or-death emergencies—every second counts. If you suspect you or someone you are with has any of the symptoms of heart attack or stroke, **immediately call 9-1-1 or your emergency response number** so an ambulance can be sent. **Don't delay—get help right away!**

For a stroke, also note the time when the first symptom(s) appeared. If given within three hours of the start of symptoms, a clot-busting drug may improve the chances of getting better faster.

Cut along dotted line and keep



For heart- or risk-related information,
call the American Heart Association at
1-800-AHA-USA1 (1-800-242-8721)
or visit us online at heart.org.

For stroke information, call our American Stroke
Association at **1-888-4-STROKE (1-888-478-7653)** or visit
strokeassociation.org. For information on life after stroke,
call and ask for the Stroke Family Support Network.

The statistics in this brochure were up to date at publication.
For the latest statistics, see the Heart Disease and Stroke Statistics
Update at heart.org/statistics.



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