

HIGH BLOOD PRESSURE

What is High Blood Pressure?

High blood pressure, also known as HBP or hypertension, is a widely misunderstood medical condition. Some people think that those with hypertension are tense, nervous or hyperactive, but hypertension has nothing to do with personality traits. The truth is, you can be a calm, relaxed person and still have HBP.

Let's look at the facts about blood pressure so you can better understand how your body works and why it is smart to start protecting yourself now, no matter what your blood pressure numbers are.

By keeping your blood pressure in the healthy range, you are:

- Reducing your risk of the walls of your blood vessels walls becoming overstretched and injured
- Reducing your risk of having a heart attack or stroke; and developing heart failure, kidney failure and peripheral vascular disease.
- Protecting your entire body so that your tissue receives regular supplies of blood that is rich in the oxygen it needs

Blood pressure measures the force pushing outwards on your arterial walls.

The organs in your body need oxygen to survive. Oxygen is carried through the body by the blood. When the heart beats, it creates pressure that pushes blood through a network of tube-shaped arteries and veins, also known as blood vessels and capillaries. The pressure --- blood pressure --- is the result of two forces. The first force occurs as blood pumps out of the heart and into the arteries that are part of the circulatory system. The second force is created as the heart rests between heart beats. (These two forces are each represented by numbers in a blood pressure reading.

The problems from too much force.

Healthy arteries are made of muscle and a semi-flexible tissue that stretches like elastic when the heart pumps blood through them. The more forcefully that blood pumps, the more the arteries stretch to allow blood to easily flow. Over time, if the force of the blood flow is often high, the tissue that makes up the walls of arteries gets stretched beyond its healthy limit. This creates problems in several ways.

- *Vascular weaknesses*
First, the overstretching creates weak places in the blood vessels, making them more prone to rupture. Problems such as strokes and aneurysms are caused by ruptures in the blood vessels.
- *Vascular scarring*
Second, the overstretching can cause tiny tears in the blood vessels that leave scar tissue on the walls of arteries and veins. These tears and the scar tissue are like nets, and can catch debris such as cholesterol plaque or blood cells traveling in the bloodstream.
- *Increased risk of blood clots*
Trapped blood can form clots that can narrow (and sometimes block) the arteries. These clots

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sometimes break off and block vessels and the blood supply to different parts of the body. When this happens, heart attacks or strokes are often the result.

- *Increased plaque build-up*

The same principle applies to our blood flow. Cholesterol and plaque build-up in the arteries cause the blood flow to become limited or even cut off altogether. As this happens, pressure is increased on the rest of the system, forcing the heart to work harder to deliver blood to your body. Additionally, if pieces of plaque break off and travel to other parts of the body, or if the build-up completely blocks the vessel, then heart attacks and strokes occur.

- *Tissue and organ damage from narrowed and blocked arteries*

Ultimately, the arteries on the other side of the blockage do not receive enough freshly oxygenated blood, which results in tissue damage.

- *Increased workload on the circulatory system*

Think of it this way: In a home where several faucets are open and running, the water pressure flowing out of any one faucet is lower. But when pipes get clogged and therefore narrow, the pressure is much greater. And if all the household water is flowing through only one faucet, the pressure is higher still.

When the arteries are not as elastic because of the build-up of cholesterol or plaque or because of scarring, the heart pumps harder to get blood into the arteries. Over time, this increased work can result in damage to the heart itself. The muscles and valves in the heart can become damaged and heart failure can result.

Damage to the vessels that supply blood to your kidneys and brain may negatively affect these organs.

You may not feel that anything is wrong, but high blood pressure can permanently damage your heart, brain, eyes and kidneys before you feel anything. High blood pressure can often lead to heart attack and heart failure, stroke, kidney failure, and other health consequences.

Many people have high blood pressure, also called hypertension, for years without knowing it. Most of the time, there are no symptoms, but when high blood pressure goes untreated, it damages arteries and vital organs throughout the body. That's why high blood pressure is often called the "silent killer."

There is good news! High blood pressure is treatable.

Symptoms of High Blood Pressure

Don't make the mistake of assuming symptoms will alert you to the problem of high blood pressure. Find out about the symptoms myths and understand why HBP is called the "silent killer."

The myth of symptoms

There's a common misconception that people with high blood pressure, also called hypertension, will experience symptoms such as nervousness, sweating, difficulty sleeping or facial flushing. The truth is that HBP is largely a symptomless condition. If you ignore your blood pressure because you think

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symptoms will alert you to the problem, you are taking a dangerous chance with your life. Everybody needs to know their blood pressure numbers, and everyone needs to prevent high blood pressure from developing.

The myth of symptomatic headaches

The best evidence indicates that high blood pressure does not cause headaches except perhaps in the case of hypertensive crisis (systolic/top number higher than 180 OR diastolic/bottom number higher than 110).

In the early 1900s, it was assumed that headaches were more common among people with high blood pressure. However, research into the subject doesn't support this view. According to one study, people with high blood pressure seem to have significantly fewer headaches than the general population.

In a study published in the journal *Neurology*, people with higher systolic blood pressure (the top number in blood pressure readings) were up to 40 percent *less* likely to have headaches compared to those with healthier blood pressure readings. The researchers also looked at another measurement called the pulse pressure, which is the change in blood pressure when the heart contracts. Pulse pressure is calculated by subtracting the bottom number (diastolic reading) from the top number (systolic reading). Those with higher pulse pressure had up to 50 percent fewer headaches. The researchers think that the higher the pulse pressure, the stiffer the blood vessels. The stiffer the blood vessel, the less likely the nerve endings are working properly. If the nerve endings aren't functioning correctly, the less likely a person will feel pain.

Therefore, headaches or the lack of headaches are not reliable indicators of your blood pressure. Instead, work with your doctor and know your numbers.

The myth of symptomatic nosebleeds

Except with hypertensive crisis, nosebleeds are not a reliable indicator for HBP. In one study, 17 percent of people treated for high blood pressure emergencies at the hospital had nosebleeds. However, 83 percent reported no such symptom. Although it's also been noted that some people in the early stages of high blood pressure may have more nosebleeds than usual, there are other possible explanations. If your nosebleeds are frequent (more than once a week) or if they are heavy or hard to stop, you should talk to your healthcare professional.

Keep in mind that nosebleeds can be caused by a variety of factors, with the most common one being dry air. The lining of the nose contains many tiny blood vessels that can bleed easily. In a hot climate like the desert Southwest or with heated indoor air, the nasal membranes can dry out and make the nose more susceptible to bleeding. Other causes include vigorously blowing your nose; medical conditions like allergies, colds, sinusitis or a deviated septum; and side effects from some anticoagulant drugs like warfarin (Coumadin®) or aspirin.

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Other inconclusively related symptoms

You should not try to evaluate your symptoms in an attempt to self-diagnose high blood pressure. Diagnosis should only be made by a healthcare professional. A variety of symptoms may be indirectly related to HBP but are not always caused by HBP, such as:

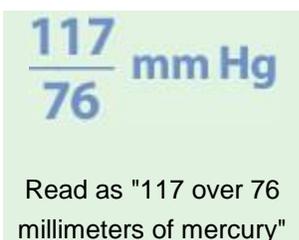
- **Blood spots in the eyes**
Yes, blood spots in the eyes, or subconjunctival hemorrhage, are more common in people with diabetes or high blood pressure, but neither condition causes the blood spots. Floaters in the eyes are not related to high blood pressure. However, an ophthalmologist may be able to detect damage to the optic nerve caused by untreated HBP.
- **Facial flushing**
Facial flushing occurs when blood vessels in the face dilate. The red, burning face can occur unpredictably or in response to certain triggers such as sun exposure, cold weather, spicy foods, wind, hot drinks and skin-care products. Facial flushing can also occur with emotional stress, exposure to heat or hot water, alcohol consumption and exercise, all of which can raise blood pressure temporarily. While facial flushing may occur while your blood pressure is higher than usual, HBP is not the cause of facial flushing.
- **Dizziness**
Although it is not caused by HBP, dizziness can be a side effect of some high blood pressure medications. Nonetheless, dizziness should not be ignored, especially if you notice a sudden onset. Sudden dizziness, loss of balance or coordination and trouble walking are all warning signs of a stroke. HBP is one of the leading risk factors for stroke.

How High Blood Pressure is Diagnosed

Although the only way to tell if you have HBP is to have it checked, the test can be done easily, quickly and painlessly. Upon diagnosis by a healthcare professional, HBP can usually be managed through lifestyle changes and, when prescribed, medication.

Understanding Blood Pressure Readings

Blood pressure is typically recorded as two numbers, written as a ratio like this:



117
—
76 mm Hg

Read as "117 over 76 millimeters of mercury"

Systolic

The top number, which is also the higher of the two numbers, measures the pressure in the arteries when the heart beats (when the heart muscle contracts).

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Diastolic

The bottom number, which is also the lower of the two numbers, measures the pressure in the arteries between heartbeats (when the heart muscle is resting between beats and refilling with blood).

What is the American Heart Association recommendation for healthy blood pressure?

This chart reflects blood pressure categories defined by the American Heart Association.

Blood Pressure Category	Systolic mm Hg (upper #)		Diastolic mm Hg (lower #)
Normal	less than 120	and	less than 80
Prehypertension	120 – 139	or	80 – 89
High Blood Pressure (Hypertension) Stage 1	140 – 159	or	90 – 99
High Blood Pressure (Hypertension) Stage 2	160 or higher	or	100 or higher
<u>Hypertensive Crisis</u> (Emergency care needed)	Higher than 180	or	Higher than 110

* Your doctor should evaluate unusually low blood pressure readings.

Prevention and Treatment of High Blood Pressure

There are eight main ways you can control your blood pressure:

1. Eat a better diet, which may include reducing salt
2. Enjoy regular physical activity
3. Maintain a healthy weight
4. Manage stress
5. Avoid tobacco smoke
6. Comply with medication prescriptions
7. If you drink, limit alcohol
8. Understand hot tub safety

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Adopting a healthy lifestyle is critical for the prevention of HBP and an indispensable part of managing it. Think of these changes as a "lifestyle prescription" and make every effort to comply with them.

Whether you have been diagnosed with high blood pressure, also called hypertension, or are concerned because you have some of the risk factors for the disease, understand this: while there is no cure, **high blood pressure is manageable**.

By adopting a heart-healthy lifestyle, you can:

- Reduce high blood pressure
- Prevent or delay the development of HBP
- Enhance the effectiveness of [blood pressure medications](#)
- Lower your risk of heart attack, heart disease, stroke and kidney disease

Here's how to do your part:

- *Be informed*
Of all people with high blood pressure, over 20 percent are unaware of their condition. This symptomless disease could leave them with substantial health consequences. Are you one of them? If you don't know, see a healthcare professional to be tested.
- *Do your part to reach your treatment goals*
Consider these statistics regarding those with known HBP:

69.1 percent are under current treatment

30.9 percent are not currently under treatment, even though they know their blood pressure is high

There is no healthy level of high blood pressure. Don't take life-or-death chances with this disease. Instead, take responsibility! Work with your healthcare professional to determine your treatment goals and map out your best action plan for HBP prevention and management.

- *Change your life and reduce your risks*
Even if your blood pressure is normal (less than 120 mm Hg systolic AND less than 80 mm Hg diastolic) and your goal is prevention only, the lifestyle modifications provide a prescription for healthy living.

If your resting blood pressure falls in the pre-hypertension range (systolic - top- number between 120 and 139 mm Hg OR diastolic - bottom - number between 80 and 89 mm Hg), your doctor will recommend lifestyle modifications.

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Lifestyle modifications are essential

These changes may reduce your blood pressure without the use of prescription medications.

- *Take medication if it is prescribed for you*

If your blood pressure is 140/90 or higher, your doctor will likely prescribe medication in addition to lifestyle modifications. Follow your healthcare professional's recommendations carefully, even if it means taking medication every day for the rest of your life. High blood pressure is a lifelong disease, and by partnering with your healthcare team, you can successfully reach your treatment goals and enjoy the benefits of better health.

Once your treatment program becomes routine, maintaining a lower blood pressure is easier. Remind yourself that by managing your blood pressure, you are lowering your risk of heart attack, heart failure, stroke, peripheral artery disease and kidney disease. Death rates from these diseases have decreased significantly, thanks in part to earlier and better treatment of HBP.

Managing blood pressure is a lifelong commitment; make a pledge to do so starting today for yourself and for those you love. Listen to your doctor, read the sound medical information on this site, and act on the information to live a heart-healthier life.

Home Blood Pressure Monitoring

Before you begin to monitor your blood pressure at home, it's important to know that differences between left-arm and right-arm (interarm) blood pressure are common. Several studies have been done to determine what is a 'normal' variation between right and left arm. In general, any difference of 10 mm Hg or less is considered normal and not a cause for concern.

Since some studies showed that the average interarm systolic blood pressure difference was significantly greater in patients with known coronary artery disease it's a good idea to discuss differences higher than 10 mm Hg with your doctor.

When you have your blood pressure taken at the doctor's office for the first time, it's recommended that it be taken in both arms. But if you're measuring your blood pressure at home, readings are often more easily taken in the non-dominant arm. If your home blood pressure readings are different from those taken in the doctor's office, be sure to discuss this with your healthcare professional.

Many factors affect blood pressure. The fact that there are differences in right and left arm readings emphasizes the importance of measuring blood pressure in both arms initially to prevent the misdiagnosis of high blood pressure. If one arm consistently has higher blood pressure than the other, that arm should

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be used to measure your blood pressure.

- *Make sure the cuff fits.*
Measure around your upper arm and choose a monitor that comes with the correct size cuff.
- *Be still.*
Don't smoke, drink caffeinated beverages or exercise within the 30 minutes before measuring your blood pressure.
- *Sit correctly.*
Sit with your back straight and supported (on a dining chair, for example, rather than a sofa). Your feet should be flat on the floor; don't cross your legs. Your arm should be supported on a flat surface (such as a table) with the upper arm at heart level. Make sure the middle of the cuff is placed directly above the eye of the elbow. Check your monitor's instructions for an illustration or have your healthcare provider show you how.
- *Take multiple readings.*
Each time you measure, take two or three readings one minute apart and record all the results.
- *Measure at the same time daily.*
It's important to take the readings at the same time each day, such as morning and evening, or as your healthcare professional recommends.
- *Accurately record all your results.*
Record all of your readings, including the date and time taken. Share your blood pressure records with your healthcare team. Some monitors have built-in memory to store your readings; if yours does, take it with you to your appointments. Some monitors may also allow you to upload your readings to a secure Web site after you register your profile.
- *Understand the readings.*
Optimal blood pressure is less than 120/80 mm Hg (systolic pressure is 120 AND diastolic pressure is less than 80).
- *Consult your healthcare professional if you get several high readings.*
A single high reading of blood pressure is not an immediate cause for alarm. However, if you get a high reading, take your blood pressure several more times and consult your healthcare professional to make sure you (or your monitor) don't have a problem. When blood pressure reaches a systolic (top number) of 180 or higher OR diastolic (bottom number) of 110 or higher, emergency medical treatment is required for hypertensive crisis.

Take advantage of the American Heart Association's BP tracking tools.

[Heart360](#) allows you to track your blood pressure and the steps you're taking to manage it online. You can print your readings to take or fax to your doctor. This online tool also works on Microsoft's Health Vault personal health record storage system, which allows you to share your data with your doctor electronically. Or, if you prefer to record your BP readings on paper, [download and print our Blood Pressure Tracker](#).

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AHA Recommendation

The American Heart Association recommends an automatic, cuff-style, bicep (upper-arm) monitor. Wrist and finger monitors are not recommended because they yield less reliable readings.

Here are some other tips to follow when shopping for a blood pressure monitor.

- *Choose a validated monitor.*
Make sure the monitor has been tested, validated and approved by the Association for the Advancement of Medical Instrumentation, the [British Hypertension Society](#) and the International Protocol for the Validation of Automated BP Measuring Devices. A list of validated monitors is available on the [Dabl Educational Trust website](#).
- *Ensure the monitor is suitable for your special needs.*
When selecting a blood pressure monitor for the elderly, pregnant women or children, make sure it is validated for these conditions.
- *Make sure the cuff fits.*
Children and adults with smaller or larger than average-sized arms may need special-sized cuffs. They are available in some pharmacies, from medical supply companies and by direct order from companies that sell blood pressure cuffs. Measure around your upper arm and choose a monitor that comes with the correct size cuff.