

## High Blood Pressure (Hypertension)

### What is high blood pressure?

Hypertension is also called high blood pressure. According to the American Heart Association, approximately 85 million people in the United States have high blood pressure. Hypertension and heart disease are common health problems around the world. The World Health Organization (WHO) suggests that sodium in processed food plays a role in hypertension.

Seeking treatment for hypertension is the most common reason for visiting a doctor's office and for using long-term prescription medications. About half of people with hypertension do not have acceptable blood pressure control.

The heart is a fist-sized organ that beats about 100,000 times per day and pumps about five quarts of blood per minute. When the heart beats, it creates pressure that pushes blood through arteries, veins and capillaries. When the heart has to work extra hard to pump blood, and the arteries strain to carry blood throughout the body, it causes high blood pressure or hypertension.

### What are blood pressure measures?

Blood pressure is measured by looking at two numbers:

**Systolic blood pressure** (the top number) occurs as blood is pumped out of the heart and into the arteries.

**Diastolic pressure** (the bottom number) is created as the heart rests between heartbeats.

**Normal blood pressure** — Systolic 120 or less mmHg and diastolic is 80 or less mmHg

**Elevated blood pressure** — Systolic 120 to 129 mmHg and diastolic more than 80 mmHg

#### **Hypertension or high blood pressure:**

- Stage 1 — Systolic 130 to 139 mmHg or diastolic 80 to 89 mmHg
- Stage 2 — Systolic at least 140 mmHg or diastolic at least 90 mmHg

In people over age 40, the systolic pressure number is more important, because it increases our risk of having a heart attack, stroke or artery disease in the leg. Younger people need to watch the diastolic number. A high number may indicate they will develop high blood pressure when they are older.

High blood pressure puts you at a higher risk for stroke, heart attack, kidney failure, loss of vision and atherosclerosis (hardening of the arteries).

### What causes high blood pressure?

The exact cause of hypertension is not known, but there are a number of factors that increase the risk of developing hypertension. Risk factors include:

- **Age:** As people get older, the arteries can stiffen up and narrow as plaque builds up.
- **Alcohol:** Consumed regularly in large amounts, alcohol can increase blood pressure. Even “normal” amounts of alcohol can raise blood pressure.
- **Tobacco:** Smoking can increase blood pressure. Giving up smoking is important for your health.
- **Diet:** To prevent fatty tissue buildup and becoming overweight, avoid eating processed and fatty foods.
- **Ethnicity:** People who are African American, American Indian/native Alaskan, Asian, native Hawaiian or other Pacific Islanders have a significantly greater chance of developing hypertension than people who are Caucasian or Hispanic.
- **Family history of high blood pressure:** One or more close family members with hypertension increases your risk of developing the condition.
- **Obesity:** An increase in fatty tissue throughout the body makes the heart work harder to push blood through the circulatory system.
- **Physical inactivity:** Lack of physical activity is linked to obesity, which is linked to high blood pressure. Increasing activity can help lower your weight and blood pressure.
- **Potassium:** Not eating enough foods with potassium can increase blood pressure and the risk of stroke and chronic kidney disease.
- **Stress:** Reacting to stress in unhealthy ways or not managing your stress can increase your blood pressure.
- **Salt excess:** In susceptible individuals, too much salt can raise blood pressure.

Other health conditions such as heart disease, diabetes, chronic kidney disease, high cholesterol, thyroid disease and sleep apnea can increase blood pressure.

Medications for asthma and colds, as well as hormones for menopause, may raise blood pressure.

It’s important to know your blood pressure numbers and when they go up or down. Early detection of heart disease is important to early intervention and preventing death.

## What are symptoms of high blood pressure?

Hypertension is called the “Silent Killer” because it generally does not have symptoms that warn you about a developing problem. There are no signs of high blood pressure in many cases, so most people don’t even know they have it until a health care provider tells them. If you have a family member with high blood pressure, you have an increased risk of developing this condition. The only way to know if you develop hypertension is having your blood pressure checked regularly and noticing any changes in your blood pressure readings.

The most important sign of high blood pressure is your blood pressure reading.

Symptoms that MAY be related to high blood pressure include:

- **Headaches or nosebleeds:** Blood pressure that is very high, 180/120 mm Hg or higher, can cause headaches or nosebleeds and is considered a medical emergency.
- **Blood Spots in the Eyes:** It is common for people with diabetes or high blood pressure to develop blood spots in the eyes, even though it is not caused by either condition.
- **Facial flushing:** When blood pressure is temporarily higher than normal, the face can flush or turn red. This can happen during exercise, emotional stress and exposure to heat, and when consuming alcohol, hot drinks or spicy food.
- **Dizziness:** Often a side effect of medications, dizziness can also be caused by inner ear disturbance, motion sickness and dehydration. Sudden dizziness can be a warning sign of a stroke. High blood pressure is a major risk factor for stroke.
- **Chest pain:** Untreated high blood pressure strains and damages the heart over time and causes a slow buildup of plaque, which leads to a heart attack. Chest pain is the most common symptom of a heart attack.
- **Difficulty breathing:** High blood pressure reduces blood flow to the lungs and can make it harder to breathe. Seek medical care immediately if you have difficulty breathing.
- **Irregular heartbeat:** Heart palpitations can increase blood pressure and cause anxiety and related

symptoms to get worse.

- **Blood in the urine:** Kidney disease can cause high blood pressure. Blood in the urine is a sign of kidney disease. If you have high blood pressure, you are more likely to have kidney disease.
- **Pounding in your chest, neck or ears:** Sometimes exercise causes a feeling of pulsing or pounding in the ears, neck or chest. Increased blood pressure, too much caffeine and anxiety can also cause that sensation.

## What are other health conditions associated with high blood pressure?

Untreated high blood pressure can lead to other health conditions including:

- **Aneurysm:** An increase in blood pressure can weaken blood vessels, causing them to bulge and create an aneurysm. An aneurysm can be life-threatening if it ruptures.
- **Dementia:** Vascular dementia happens when blood flow to the brain is interrupted. It's caused by narrowed or blocked arteries or a stroke that limits blood flow to the brain.
- **Eyes:** High blood pressure can eventually cause the blood vessels in the eyes to thicken, narrow or even tear, resulting in vision loss.
- **Heart attack or stroke:** High blood pressure is the major risk factor for stroke due to the hardening and thickening of the arteries (atherosclerosis). It can also lead to a heart attack or other heart complications.
- **Heart failure (Left Ventricular Hypertrophy):** Untreated high blood pressure eventually weakens the heart muscle, after the muscle first becomes thickened. Over time, the heart becomes damaged by the extra strain from working hard to pump blood through arteries that have narrowed from plaque buildup (from fat, cholesterol and other substances). Blood clots are now likely to form in this environment. When blood flow is blocked by plaque and blood clots it can cause a heart attack.
- **Kidneys:** Hypertension can eventually weaken and narrow the blood vessels in the kidneys, which makes them not function properly.
- **Memory/Confusion:** Hypertension can decrease or block blood flow to the brain, which can happen during a transient ischemic attack (TIA) or mini-stroke.
- **Metabolic syndrome:** This syndrome increases your risk of developing diabetes, heart disease and stroke. Risk factors include increased waist circumference, high triglycerides, low high-density lipoprotein (HDL) or good cholesterol, high blood pressure and high insulin levels.

## How is high blood pressure diagnosed?

The best way to diagnose high blood pressure (HBP or hypertension) is to have your blood pressure measured with a pressure cuff (sphygmomanometer). During the test, the cuff is placed around the upper arm before being manually or electronically inflated. Once inflated, the cuff compresses the brachial artery and momentarily stops blood flow. Then air in the cuff is slowly released while the person performing the measurement listens with a stethoscope.

Your blood pressure reading is recorded as two numbers:

**Systolic blood pressure** (the top number) — how much pressure your blood is exerting against your artery walls during heartbeats

**Diastolic blood pressure** (the bottom number) — how much pressure your blood is exerting against your artery walls while the heart rests between beats

### What do the blood pressure numbers mean?

Systolic blood pressure (the first number) is a major risk factor for cardiovascular disease in people over 50. As we age, systolic blood pressure gradually increases as the large arteries get stiff, and plaque builds up.

- Normal BP = 120 or less /80 or less mm Hg

Eat healthy and be physically active to keep your blood pressure in the normal range.

- Elevated = 120 – 129 /more than 80 mm Hg

If your blood pressure falls in this range, talk with your doctor about steps to lower your numbers. Taking a 20 minute walk every day can help. Join the National Jewish Health Walk with a Doc Program. Get more information here: [njhealth.org/wwad](http://njhealth.org/wwad).

- Hypertension = 130 or more /80 or more mm Hg

If your blood pressure is consistently at or above 130/80 mm Hg, you are at increased risk of heart attack or stroke. Your doctor may prescribe lifestyle changes and blood pressure medication, depending on your risk of atherosclerotic cardiovascular disease (ASCVD).

The American College of Cardiology has a free online ASCVD estimator that calculates your 10-year ASCVD risk to establish a reference point. This online tool looks at blood pressure, cholesterol, diabetes, smoking status and certain treatments. Check your ACSVD risk here: <http://tools.acc.org/ASCVD-Risk-Estimator-Plus/#!/calculate/estimate/>.

## How is high blood pressure treated?

High blood pressure treatment includes living a healthy lifestyle and medications.

## Heart-Healthy Lifestyle Changes

These lifestyle changes can reduce your risk of heart disease, stroke, kidney disease and more, while helping you feel better and enjoy a better quality of life.

- Know your numbers: blood pressure, blood sugar, cholesterol, etc., are all important numbers to know and watch.
- Food: Eat a well-balanced diet that limits or avoids salt, high fat and processed foods. A diet that limits animal products, and is more whole-food and plant-based has been proven to not only lower blood pressure, but also reduce overall heart disease risk.
- Drink: Stay hydrated, and limit alcohol consumption.
- Exercise: Take a 30-minute brisk walk daily five days a week (or more) to improve and maintain heart health. The goal is to be mildly short of breath (i.e., challenged) with exercise. Exercise is your best medicine for reducing blood pressure and avoiding heart disease. Be sure to talk with your doctor about developing an exercise plan to meet your health needs.
- Relax: Reduce and manage stress with exercise, breathing techniques, yoga or meditation.
- Remember, the medical word for high blood pressure is HYPERTENSION: Too much tension: Spend 30 minutes a day letting go of as much stress as is possible.
- Weight: Get to and maintain a healthy weight to help take strain off your heart. Losing just a few pounds can significantly reduce blood pressure.
- Smoking: Quit smoking. This is one of the most important lifestyle changes that can improve your health almost immediately.
- Medications: Follow your doctor's medication treatment plan consistently.

## Types of Hypertension Medications

There are many different types of high blood pressure medications. Your doctor will prescribe what is best for you. It's important to take your medication as prescribed. Don't stop or change the dose or frequency of the medicine without talking with your doctor. Remember to report all side effects that you experience.

- **ACE inhibitors** help the blood vessels relax and open up, which lowers blood pressure.
- **Alpha-2 receptor agonists** decrease adrenaline production in the involuntary nervous system, which lowers blood pressure.
- **Alpha blockers** reduce resistance in the arteries and relax the muscle tone of the vascular walls.
- **Angiotensin II receptor blockers** block angiotensin, a chemical in the body that narrows arteries, to

- keep the blood vessels open and reduce blood pressure.
- **Beta blockers** reduce the heart rate, how hard the heart works and how much blood the heart pumps to lower blood pressure.
  - **Calcium channel blockers** prevent calcium from entering the smooth muscle cells of the heart to relax and open up narrowed blood vessels, and to reduce heart rate and blood pressure.
  - **Central agonists** decrease tensing and contractions in the blood vessels to reduce blood pressure.
  - **Diuretics** help the body remove excess sodium (salt) and water to help control blood pressure.
  - **Peripheral adrenergic inhibitors** block neurotransmitters in the brain from sending a message to the heart muscle telling it to constrict (have a heart attack).
  - **Vasodilators** relax and widen the walls of the blood vessels so blood flows through better.

## What healthy habits can reduce high blood pressure?

Hypertension usually requires lifelong management and observation. There are healthy habits that can help you reduce high blood pressure.

How to lower high blood pressure:

- **Maintain a healthy diet.** A predominantly low-fat, plant-based, and whole, unprocessed food-based diet is key to lowering blood pressure. Try to limit the amount of salt that you eat and look for low-sodium options. Avoid foods high in fat and cholesterol, which can raise blood pressure. Avoid processed foods, which are usually the number one source of salt. Top sources include chicken (even before cooked or prepared), breads, lunchmeats and pizzas— all without even being salted by the consumer.
- **Avoid alcoholic beverages.** Alcohol can increase your blood pressure and fat levels in the blood. Alcohol also adds extra calories, which may lead to weight gain.
- **Exercise.** Routine physical activity (ideally 30 minutes a day or more) can lower cholesterol, decrease high blood pressure and remove excess weight. Your doctor can help you develop a personal routine that suits your individual needs and interests.
- **Maintain a healthy weight.** Maintaining a healthy weight can help alleviate unnecessary stress on the heart. Excess weight makes the heart work harder than it should. It is often associated with other heart conditions often associated with hypertension.
- **Stop smoking.** Cigarettes damage and constrict blood vessels. Avoid any secondhand smoke.
- **Reduce stress.** The most common trigger for a heart attack is a strong emotional reaction to a stressful event, such as anger. Learning to remain calm and relax can help keep your heart healthy. Facing stressors and neutralizing them through mindfulness is critical. Remember, the medical word for high blood pressure is “hyper-tension,” or too much tension.
- **Get evaluated for sleep apnea.** In some patients, sleep apnea can be a cause of high blood pressure.

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