**Hypertension: Causes, symptoms, and treatments**



Hypertension is another name for high blood pressure. It can severely impact quality of life and it increases the risk of heart disease, stroke, and death.

Around [85 million people](http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/GettheFactsAboutHighBloodPressure/The-Facts-About-High-Blood-Pressure_UCM_002050_Article.jsp#.WV4gedPyvMI) in the United States (U.S.) have [high blood pressure](https://www.medicalnewstoday.com/articles/159283.php).

Hypertension and [heart disease](https://www.medicalnewstoday.com/articles/237191.php) are global problems. The World Health Organization (WHO) suggests that the growth of the processed food industry [has impacted](http://www.who.int/mediacentre/factsheets/fs393/en/) the amount of salt consumed, and that this plays a role in hypertension.

Some types of hypertension can be managed through lifestyle and dietary choices, such as engaging in physical activity, reducing alcohol and tobacco use, and avoiding a high-sodium diet.

* [What is hypertension?](https://www.medicalnewstoday.com/articles/150109.php#what_is_hypertension)
* [Causes](https://www.medicalnewstoday.com/articles/150109.php#causes)
* [Risk factors](https://www.medicalnewstoday.com/articles/150109.php#risk_factors)
* [Symptoms](https://www.medicalnewstoday.com/articles/150109.php#symptoms)
* [Diagnosis](https://www.medicalnewstoday.com/articles/150109.php#diagnosis)
* [Treatment](https://www.medicalnewstoday.com/articles/150109.php#treatment)

Fast facts on hypertension:

Here are some key points about hypertension.

* + Normal [blood pressure](https://www.medicalnewstoday.com/articles/270644.php) is 120 over 80 mm of mercury (mmHg), but high blood pressure is higher than 140 over 90 mmHg.
  + Acute causes of high blood pressure include [stress](https://www.medicalnewstoday.com/articles/145855.php), but it can happen on its own or it can result from a condition, such as kidney disease.
  + Unmanaged hypertension can lead to a [heart attack](https://www.medicalnewstoday.com/articles/151444.php), [stroke](https://www.medicalnewstoday.com/articles/7624.php), and other problems.
  + Lifestyle factors are the best way to address high blood pressure.

## What is hypertension?

Blood pressure is the force exerted by the blood against the walls of the blood vessels.

How great the pressure is depends on the work being done by the heart and the resistance of the blood vessels.

Medical guidelines define hypertension as a blood pressure higher than [140 over 90](http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/KnowYourNumbers/Understanding-Blood-Pressure-Readings_UCM_301764_Article.jsp#.WV4hdtPyvMI) millimeters of mercury (mmHg).

The systolic reading of 140 mmHg refers to the pressure as the heart pumps blood around the body. The diastolic reading of 90 mmHg refers to the pressure as the heart relaxes and refills with blood.

|  |  |  |
| --- | --- | --- |
|  | **Systolic** | **Diastolic** |
| **Normal blood pressure** | 120 | 80 |
| **Prehypertension** | Between 120 and 139 | Between 80 and 89 |
| **Stage 1 hypertension** | Between 140 and 159 | Between 90 and 99 |
| **Stage 2 hypertension** | 160 | 100 |
| **Hypertensive crisis** | 180 | 110 |

If, when taking blood pressure, the reading shows a hypertensive crisis, the person should wait 2 or 3 minutes and then repeat the test.

**If the reading is the same or higher, this is a medical emergency.**

The person should seek immediate attention at the nearest hospital.

**Causes**

Blood pressure varies throughout the day. It is lower during sleep and higher on awakening.

Occasionally having high blood pressure for a short time is a normal physiological response to many situations. Acute stress and intense exercise, for example, can briefly elevate blood pressure in a healthy person.

For this reason, a diagnosis of hypertension normally requires several readings that show high blood pressure over time.

However, a reading of 180 over 110 mmHg or higher could be a sign of a hypertensive crisis that warrants immediate medical attention.

**Risk factors**

A number of risk factors increase the chances of having hypertension.

**Age**: Hypertension is more common in people aged over 60 years. With age, blood pressure can increase steadily as the arteries become stiffer and narrower due to plaque build-up.

**Ethnicity**: Some ethnic groups are more prone to hypertension.

**Size and weight**: Being overweight or obese is a key risk factor.

**Sex**: The lifetime risk is the same for males and females, but men are more prone to hypertension at a younger age, while rates tend to be higher rate in women at older ages.

**Existing health conditions**: Cardiovascular disease, [chronic kidney disease](https://www.medicalnewstoday.com/articles/172179.php), and high cholesterol levels are predictors for hypertension, especially as people get older.

Other contributing factors include:

* physical inactivity
* a salt-rich diet associated with processed and fatty foods
* low [potassium](https://www.medicalnewstoday.com/articles/287212.php) in the diet
* alcohol and tobacco use
* certain diseases and medications

A family history of high blood pressure and poorly managed stress also contribute.

**Primary and secondary hypertension**

High blood pressure that is not caused by another condition or disease is called primary, or essential, hypertension. If it occurs as a result of another condition, it is called secondary hypertension.

**Primary hypertension** can result from multiple factors, including blood plasma volume and activity of the hormones that regulate of blood volume and pressure. It is also influenced by environmental factors, such as stress and lack of exercise.

**Secondary hypertension** has specific causes and is a complication of another problem.

It can result from:

* [diabetes](https://www.medicalnewstoday.com/info/diabetes/), due to both kidney problems and nerve damage
* kidney disease
* pheochromocytoma, a rare [cancer](https://www.medicalnewstoday.com/info/cancer-oncology/) of an adrenal gland
* Cushing syndrome, which can be caused by corticosteroid drugs
* congenital adrenal hyperplasia, disorder of the cortisol-secreting adrenal glands
* [hyperthyroidism](https://www.medicalnewstoday.com/articles/9153.php), or overactive thyroid gland
* hyperparathyroidism, which affects [calcium](https://www.medicalnewstoday.com/articles/248958.php) and phosphorous levels
* pregnancy
* sleep apnea
* [obesity](https://www.medicalnewstoday.com/info/obesity/how-much-should-i-weigh.php)
* chronic kidney disease (CKD)

CKD is a common cause of high blood pressure, because the kidneys do not filter out fluid. This fluid overload leads to hypertension.

Common reversible causes of secondary hypertension are excessive alcohol intake and hormone therapy for [menopause](https://www.medicalnewstoday.com/articles/155651.php).

**Symptoms**

A person with hypertension may not notice any symptoms, and it is often called the "silent killer." While undetected, it can [cause damage](http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/UnderstandSymptomsRisks/Why-High-Blood-Pressure-is-a-Silent-Killer_UCM_002053_Article.jsp) to the cardiovascular system and internal organs, such as the kidneys.

Long-term hypertension can cause complications through [atherosclerosis](https://www.medicalnewstoday.com/articles/247837.php), where the formation of plaque results in the narrowing of blood vessels. This makes hypertension worse, as the heart must pump harder to deliver blood to the   
High blood pressure raises the risk of a number of health problems, including a heart attack.

Hypertension-related atherosclerosis can lead to:

* [heart failure](https://www.medicalnewstoday.com/articles/156849.php) and heart attacks
* an [aneurysm](https://www.medicalnewstoday.com/articles/156993.php), or an abnormal bulge in the wall of an artery that can burst, causing severe bleeding and, in some cases, death
* kidney failure
* stroke
* amputation
* hypertensive retinopathies in the eye, which can lead to blindness Regular blood pressure testing can help people avoid the more severe complications.

**Diagnosis**

Diagnosis of hypertension is made by measuring blood pressure over at least 3 clinic visits using the upper-arm cuff device called a sphygmomanometer.

The doctor will take a history and perform a physical examination before diagnosing hypertension.

Some additional tests can help identify the cause of high blood pressure and determine any complications.

Tests may include:

* urine tests
* kidney [ultrasound](https://www.medicalnewstoday.com/articles/245491.php) imaging
* blood tests
* electrocardiogram (ECG) and an echocardiograph

**Treatment**

Lifestyle choices can contribute to the treatment and prevention of high blood pressure, and they can have wider benefits for the heart and overall health.

**Salt restriction**

Average salt intake is between 9 grams (g) and 12 g a day in most countries around the world.

The WHO recommend reducing intake to [under 5 g](http://www.who.int/mediacentre/factsheets/fs393/en/) a day, to help decrease the risk of hypertension and related health problems. This can benefit people both with and without hypertension, but those with hypertension will benefit the most.

**More fruit and vegetables, less fat**

People who have or who are at risk of high blood pressure are advised to minimize intake of saturated fat and total fat.

Recommended instead are:

* whole-grain, high-fibre foods
* a variety of fruit and vegetables
* beans, pulses, and nuts
* omega-3-rich fish twice a week
* non-tropical vegetable oils, for example, olive oil
* skinless poultry and fish
* low-fat dairy products It is important [to avoid](http://www.heart.org/HEARTORG/HealthyLiving/Diet-and-Lifestyle-Recommendations_UCM_305855_Article.jsp#.WV5Tt9PyvMI%20) trans-fats, or hydrogenated vegetable oils, and animal fats, where possible, and watch your portion size.

**Reducing and maintaining weight**

Hypertension is closely related to excess body weight, and weight reduction is normally followed by a fall in blood pressure. A healthy, balanced diet with a calorie intake that matches the individual's size, sex, and activity level will help.

**Regular physical exercise**

Doctors [recommend](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4369613/) that patients with hypertension engage in 30 minutes of moderate-intensity dynamic aerobic exercise, such as walking, jogging, cycling or swimming, on 5 to 7 days of the week.

**Stress reduction**

Avoiding stress, or developing strategies for managing unavoidable stress, can help with blood pressure control.

Using alcohol, drugs, smoking, and unhealthy eating to cope with stress will add to hypertensive problems. These should be avoided.

Smoking can raise blood pressure. Giving up smoking reduces the risk of hypertension, heart conditions, and other health issues.

**The DASH diet**

The U.S. National Heart Lung and Blood Institute (NHLBI) recommends the DASH diet for people with high blood pressure. DASH, or "Dietary Approaches to Stop Hypertension," has been specially formulated to help people lower blood pressure.

It is a flexible and balanced eating plan based on research studies sponsored by the Institute, which says that the diet:

* lowers high blood pressure
* improves levels of fats in the bloodstream
* reduces the risk of developing cardiovascular disease

There is a National Institute [cookbook](https://healthyeating.nhlbi.nih.gov/pdfs/Dinners_Cookbook_508-compliant.pdf) called *Keep the Beat Recipes* with cooking ideas to help achieve these results.

There is [some evidence](http://hyper.ahajournals.org/content/early/2014/07/21/HYPERTENSIONAHA.114.03469) that using probiotic supplements for 8 weeks or more may benefit people with hypertension.

**Drug treatments**

Lifestyle measures are standard first-line treatment for hypertension, but people with blood pressure over 140 over 90 may use medication.

Drugs are usually started one at a time, at a low dose. Side effects associated with antihypertensive drugs are usually minor.

Eventually, a combination of at least two antihypertensive drugs is usually required.

A range of drug types are available to help lower blood pressure, including:

* diuretics, including thiazides, chlorthalidone, and indapamide
* [beta-blockers](https://www.medicalnewstoday.com/articles/173068.php) and alpha-blockers
* calcium-channel blockers
* central agonists
* peripheral adrenergic inhibitor
* vasodilators
* angiotensin-converting enzyme (ACE) inhibitors
* angiotensin receptor blockers

The choice of drug depends on the individual and any other conditions they may have.

Anyone taking antihypertensive medications should be sure to carefully read labels, especially before taking any over-the-counter (OTC) medications, such as decongestants.These may interact with medications used to lower blood pressure.