

DID YOU KNOW?

If all your blood vessels were laid end to end, they'd stretch over 60,000 miles. Your blood pressure helps keep blood moving through every inch of those blood vessels.

Chapter **1**

Defining High Blood Pressure

Every time you visit your doctor's office, you probably have your blood pressure taken. Odds are, you know it shouldn't be high, but you may not know what blood pressure is, what counts as high blood pressure, what happens if your blood pressure is high, and whether you can prevent high blood pressure. If so, you've come to the right chapter. Read on!

What Is Blood Pressure?

Every cell in the body requires a steady supply of blood carrying oxygen and essential nutrients to function, grow, and repair. The heart pumps blood through the *circulatory system*, a network

of blood vessels called *arteries*. Blood pressure is the force of the blood pushing against the walls of the arteries as the heart pumps it around the body. Blood pressure rises and falls with each heartbeat and can be affected by factors such as age, weight, fitness level, stress, and the health of the blood vessels themselves.

What Is Systolic Blood Pressure?

Systolic blood pressure is the higher number of the two given in a blood pressure reading, representing the peak pressure in the arteries. This occurs at the precise moment the heart contracts and pumps blood out to the body through the circulatory system. It reflects the pressure on artery walls during the heart's active pumping phase.

For most adults, a systolic reading below 120 millimeters of mercury (abbreviated mmHg) is generally considered normal. However, a consistently high systolic blood pressure is typically diagnosed only after several readings are taken, often in different settings and at various times, to account for temporary fluctuations and ensure accuracy.

What Is Diastolic Blood Pressure?

Diastolic blood pressure is the bottom number in a blood pressure reading. It measures the pressure in arteries while the heart is relaxing between beats. During this time, the heart refills with blood and prepares for the next contraction, so diastolic pressure gives an important indication of the health and flexibility of blood vessels as they maintain pressure and accommodate blood flow during this resting phase. A normal diastolic reading is generally below 80 mmHg.

Systolic blood pressure often receives more attention, especially because it can rise considerably in older adults due to age-related stiffening of the arteries, diastolic blood pressure is still crucial, particularly for younger people. High diastolic blood pressure can be an important factor in assessing overall cardiovascular risk because persistently raised pressure during the heart's resting phase indicates that the arteries are less able to relax and expand, leading to a constant strain on and potential damage to artery walls.

What Is High Blood Pressure?

High blood pressure, also known as *hypertension*, is a situation in which the force of circulating blood pushing against artery walls is consistently

higher than normal. This extra pressure can result in arteries and organs being damaged. It also forces the heart to work harder than it should to pump blood through the circulatory system.

What Are the Symptoms of High Blood Pressure?

High blood pressure is sometimes called the “silent killer” because it usually doesn’t cause noticeable symptoms, even when it reaches dangerously high levels.

Rarely, particularly when blood pressure rises to dangerously high levels in a condition known as *hypertensive crisis* or *malignant hypertension*, people may experience headaches, dizziness, nosebleeds, blurred vision, or shortness of breath.

High blood pressure is sometimes diagnosed when a person develops complications of high blood pressure such as organ damage in the form of heart disease, stroke, or kidney failure.

Because there are often no symptoms of high blood pressure, people over 40 years of age, as well as those with risk factors such as obesity, a family history of high blood pressure, or other health conditions, should have their blood pressure checked regularly. Early detection and management can prevent serious complications.



TIP

Many people live with high blood pressure for years without realizing it, which is why regular checkups are so important.

How Can High Blood Pressure Affect Your Health?

High blood pressure can have serious long-term consequences for health. Over time, the increased pressure can damage the walls of arteries, making them less flexible and more prone to blockages or ruptures. This occurs because the constant high pressure causes small injuries to the inner lining of the arteries, which triggers inflammation and the buildup of fatty deposits called *plaques*, made up of cholesterol, fat, calcium, and other substances accumulating within the artery walls. The process of plaque development is known as *atherosclerosis*.

Inflammation plays a key role in atherosclerosis, because it attracts immune cells, resulting in further damage. As plaques develop and grow larger, they can narrow or even block arteries, reducing blood flow to vital organs and tissues. This can lead to cardiovascular disease, where the blood supply to essential organs is compromised, resulting in life-threatening or life-altering conditions such as heart attack, stroke, heart failure, dementia, kidney disease, and peripheral artery disease.

Another consequence of high blood pressure can be to cause strain to the heart, weakening

its ability to pump blood efficiently through the circulatory system, especially if atherosclerosis is affecting the arteries that supply blood to the heart itself.

Can High Blood Pressure Be Prevented?

A combination of diet and lifestyle strategies can help to prevent high blood pressure. Evidence shows that maintaining a healthy body weight, eating a healthy diet, exercising, and properly managing stress can help to prevent heart disease.

The ideal diet focuses on fresh vegetables and fruits, whole grains, lean proteins, and extra-virgin olive oil. Processed foods, trans fats, excess sodium, and sugary drinks should be avoided. Depending on your individual risk factors, you should reduce your sodium intake to less than 1,500 to 2,300 milligrams per day.

Aim for 150 minutes of moderate-intensity exercise or 75 minutes of vigorous exercise per week, and get seven to nine hours of quality sleep per night to help to keep high blood pressure at bay.

What Causes Blood Pressure to Fluctuate throughout the Day?

Blood pressure naturally rises and falls throughout the day in response to normal activities. Physical movement, emotional stress, meals, and even talking can temporarily increase blood pressure, while rest and relaxation generally brings it down. Blood pressure also follows a daily pattern, usually dipping at night and rising again in the morning as the body becomes more active.

These fluctuations are normal, but consistently high readings at different times of day may suggest an underlying problem. Understanding these variations helps you and your doctor interpret blood pressure measurements more reliably and determine whether changes are due to everyday influences or a sign that treatment may be needed.

