

Understanding High Blood Pressure

What Is Blood Pressure?

Blood pressure is the force of circulating blood against the inner walls of the blood vessels. It is affected by:

- how hard the heart pumps
 - the amount of blood in the body
 - the diameter of the blood vessels
- Generally, blood pressure increases when the heart pumps *harder*, the amount of blood in the body *increases* or the diameter of the blood vessels *decreases*.

What Is High Blood Pressure?

More than 65 million Americans have high blood pressure. The term hypertension is also used to describe this condition. Hypertension occurs when blood is flowing through the vessels at a pressure that is too high for the long-term health of the blood vessels. Generally, a blood pressure higher than 120/80 is considered unhealthy. Over time, vessel walls exposed to high levels of pressure become damaged. This damage can lead to serious health problems.

What Causes High Blood Pressure?

In 90 to 95 percent of high blood pressure cases, the cause is unknown. When the cause is unknown, it is called **essential or primary hypertension**. Secondary hypertension, the least common type, can be caused by factors such as kidney abnormality, a structural abnormality of the aorta, or narrowing of the arteries.



Measuring Blood Pressure

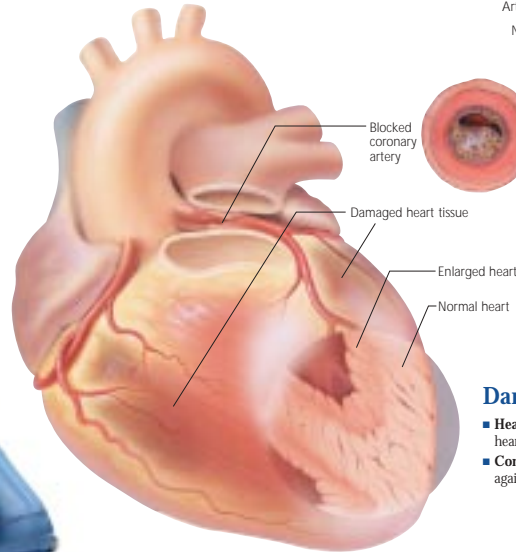
Blood pressure is a measurement consisting of a top number, **systolic pressure** (pressure when the heart is contracting), and a bottom number, **diastolic pressure** (pressure when the heart is resting). It is measured with a pressure cuff and sphygmomanometer or digital monitor. The cuff is placed around the upper arm and tightened until blood flow through the brachial artery is stopped. Pressure is gradually decreased in the cuff. Sounds or vibrations detected in the brachial artery while the pressure is dropping will determine the blood pressure.

Risk Factors

- Family history of high blood pressure
- Race (African Americans have the highest incidence)
- Age (risk increases with age)
- Obesity
- Sedentary lifestyle
- Diabetes mellitus

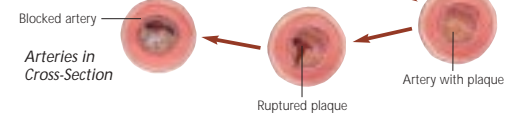
Effects of High Blood Pressure

A person with high blood pressure usually has no symptoms until he or she has had it for quite some time and serious damage has occurred. For this reason, it is often called the "silent killer." Long-term damage from uncontrolled high blood pressure is often irreversible and can lead to an early death.



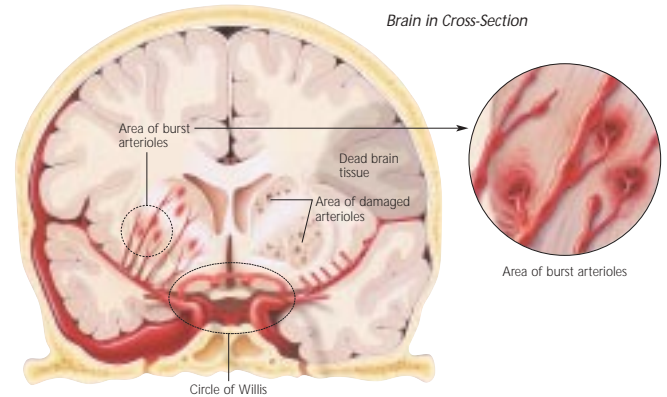
Damage to Blood Vessels

Artery walls become damaged from high pressure. Fat accumulates and the walls thicken. Calcium is deposited in the fatty areas, "hardening" the arteries, making them unable to increase in size. Blood flow through the arteries decreases. Damaged artery walls may also cause blood clots to form which block the artery itself or break off and block arteries in other organs.



Damage to the Heart

- **Heart disease leading to heart attack:** Fat deposits and blockages form in the arteries that supply the heart with blood.
- **Congestive heart failure:** Heart becomes damaged and enlarged from working so hard to pump blood against the higher blood pressure.



Damage to the Brain

- **Stroke:** A portion of brain tissue dies when it is deprived of blood supply. This can happen when a bulging artery (called an **aneurysm**) ruptures or an artery becomes blocked by a blood clot or fat deposits.
- **Cerebrovascular insufficiency:** A series of mini-strokes occurs in the smaller vessels of the brain. Tiny arterioles bulge, then burst from high pressure or become blocked by small blood clots. There are no symptoms until damage accumulates over time.

Damage to the Kidneys

- **Blood vessel damage:** Arteries become narrowed and stiff from high pressure. Blood flow to the kidneys is decreased. Receptors respond by recruiting mechanisms throughout the body to *raise* overall blood pressure even further.
- **Kidney disease leading to failure:** It becomes more and more difficult for the kidneys to remove impurities from the blood. Toxic materials accumulate.

Blood Pressure Guidelines

According to the National Heart, Blood and Lung Institute (NIH), more than 65 million Americans have hypertension and another 45 million are prehypertensive totaling 110 million people at risk. Guidelines have been issued in hopes that people will adopt a healthier lifestyle to lower their blood pressure.

BP Classification	Systolic BP (mmHg)	and	Diastolic BP (mmHg)
Normal	<120	and	<80
Prehypertensive	120-139	or	80-89
Stage 1 Hypertension	140-159	or	90-99
Stage 2 Hypertension	≥160	or	≥100

Source: the Seventh Report of the Joint National Committee on Prevention, Evaluation and Treatment of High Blood Pressure. National Heart, Lung and Blood Institute - May 2003

Taking Control of Your Blood Pressure

- Measure blood pressure regularly at home.
- Maintain a low-fat diet.
- Decrease salt intake to less than a teaspoon per day (2000 mg).
- Shed extra weight to decrease strain on your heart.
- Don't smoke.
- Restrict caffeine and alcohol consumption.
- Follow all of your physicians instructions.
- Take prescribed medications as part of your daily routine.
- Consult your physician about an appropriate exercise plan and follow it.
- Continue taking medication even after your blood pressure has reached a good level.

Effective control of high blood pressure can prevent most of its complications.