Understanding Blood Pressure

Every person needs blood pressure to live. Without it, blood wouldn't be able to circulate through the body to carry oxygen and fuel vital organs.

Blood pressure is the pressure your blood exerts against your blood vessel walls as your heart pumps. Blood pressure rises with each heartbeat and falls when the heart relaxes between beats, but there is always a certain amount of pressure in the arteries. That blood pressure comes from two physical forces. The heart creates one force as it pumps blood into the arteries and through the circulatory system. The other force comes from the arteries resisting the blood flow.

Blood pressure changes from minute to minute and is affected not only by activity and rest, but also by temperature, diet, emotional state, posture, and medications.

Blood pressure is measured in millimeters of mercury (written as mmHg). For example, normal blood pressure in adults should be less than 120/80 mmHg. The higher, or top, number — in this example it's 120 — is called systolic pressure and represents the pressure at the peak of each heartbeat. The lower, or bottom, number (80 in this example) is called diastolic and represents the pressure when the heart is resting between beats. The systolic pressure is stated first and the diastolic pressure comes second. For example: 120/80 (120 over 80) means that the systolic pressure is 120 and the diastolic pressure is 80.

Blood pressure is measured using an instrument called a sphygmomanometer (pronounced: sfig-mow-mah-nah-meh-ter). A cuff is wrapped around a person's upper arm and pumped up to create pressure. When the cuff is inflated, it compresses (squeezes on) a large artery in the arm, stopping the blood flow for a moment. Blood pressure is measured as air is gradually let out of the cuff, which allows blood to begin to flow through the artery again when the blood pressure in the artery is greater than the pressure in the cuff. Listening with a stethoscope — the instrument used to hear things like the heart beating inside the body — over the artery allows a doctor or nurse to hear the first pulse as the blood flows through. This is the systolic pressure. The diastolic pressure is noted when the sounds disappear.

When a machine reads out the pressure, the average blood pressure is measured and the systolic and diastolic pressures are calculated.

What Is Hypertension?

Hypertension is the medical term for high blood pressure. Most people associate high blood pressure with getting older, so it may seem odd that teens can have the condition. Although high blood pressure is rare in young people (only about 1% to 3% of kids in the United States have hypertension), it's important to check for it. Even babies can have high blood pressure!

Almost 60 million Americans age 6 and older have high blood pressure, with older people more likely to have hypertension. That means about 1 in 5 Americans has the condition. Because a third to a half of the people who have high blood pressure don't even know it, doctors are careful to check their patients for hypertension regularly.

Blood pressure of less than 120 over 80 is considered a normal reading for people 18 and over. A borderline systolic pressure of 120 to 139 or a diastolic pressure of 80 to 89 needs to be closely monitored. This is called prehypertension. A blood pressure reading equal to or greater than 140 over 90 is considered high in people over the age of 18.

Because blood pressure increases as you get older, readings that doctors consider high in teens may be lower than the blood pressure readings that are considered high in adults.
In teens up to age 18, high blood pressure is defined as a blood pressure greater than the 95th percentile for their age, height, and gender (in other words, 95% of kids at the same age, height, and gender will have blood pressure below this number). Measurements between 90% to 95% of the expected range are considered borderline or prehypertension.

Teens with blood pressure readings that are greater than 90% of the expected range are three times more likely than those with average readings to develop high blood pressure as adults.

A doctor will average at least three blood pressure measurements taken at different times before determining that a teen has hypertension. Most teens will have their blood pressure checked during an annual physical exam. Doctors recommend that older teens with normal blood pressure get their blood pressure checked yearly.

If your blood pressure is near the top of the normal range or if you have a family history of high blood pressure, you're at a higher risk for developing hypertension. Your doctor can advise you as to how often you should have your blood pressure checked in this situation.

What Causes Hypertension?

Most elevated blood pressure doesn't have a cause and is called essential or primary hypertension. In cases where the cause of high blood pressure is known (called secondary hypertension), it is usually the result of kidney problems, hormonal disorders, abnormalities of the aorta (the main artery that carries oxygenated blood to the body), or a narrowing of certain smaller arteries. Doctors screen teens with high blood pressure for secondary causes with physical examination and laboratory testing.

Some teens may inherit the tendency toward higher blood pressure from one or both parents. Although hypertension often runs in families, some people with a strong family history of high blood pressure may never develop it.

Kids and teens who are obese are at a higher risk for hypertension. Lack of exercise makes it easier to become overweight and increases the chance of high blood pressure. People who drink a lot of alcohol or take illegal drugs like amphetamines and cocaine are also at risk of developing the condition. In some cases, medications like steroids or birth control pills can cause high blood pressure.

Pregnant women also may be diagnosed with hypertension. This type of hypertension is known as preeclampsia (pronounced: pree-ih-klamp-see-uh), or toxemia. It's uncommon, though: Only about 6% to 8% of pregnant women get this condition.

How Does High Blood Pressure Affect the Body?

High blood pressure adds to the workload of the heart and arteries. The heart must pump harder and the arteries must carry blood that's moving under greater pressure. If high blood pressure continues for a long time, the heart and arteries may no longer work as well as they should. Other body organs, including the kidneys, eyes, and brain also may be affected.

People can live with hypertension for many years without having any symptoms. That's why high blood pressure is often called "the silent killer." Though a person may not have any symptoms, it doesn't mean that the high blood pressure isn't affecting the body.

Having high blood pressure puts a person at more risk for strokes, heart attacks, kidney failure, loss of vision, and atherosclerosis (hardening of the arteries). In rare cases, severe hypertension can sometimes cause headaches, visual changes, dizziness, nosebleeds, and nausea.

A person who has high blood pressure and experiences any of these symptoms should be treated immediately.
Can I Prevent Hypertension?

Here are some suggestions that can lessen your chances of developing high blood pressure and help keep you healthy in many other ways:

- Maintain a normal weight for your height.
- Exercise regularly. This can help prevent you from becoming overweight or help you in losing pounds if you need to. Exercise also helps keep your heart and blood vessels strong and healthy. Exercise keeps your blood pressure from going up as you get older.
- Eat a healthy diet that includes mostly whole grains, low-fat dairy products, fruits, and vegetables.
- Don't smoke. Smoking and high blood pressure are major risk factors for having a heart attack or stroke later in life.
- Keep your stress levels in check. It may help to practice relaxation techniques such as deep breathing exercises.
- Decrease your sodium (salt) intake. Consuming less sodium has been proven to help lower blood pressure in some people and may prevent some from developing high blood pressure in the first place. Salt is often found in breads, baked goods, and other processed/canned foods.
- Avoid drinking too much alcohol, which is associated with high blood pressure.
- Know your blood pressure. Have it checked regularly — although high blood pressure is more common in adults, it can occur at any age.

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http://kidshealth.org/teen/diseases_conditions/heart/hypertension.html?tracking=T_RelatedArticle#
Blood Pressure Worksheet

Name __________________________________

Answer the following questions.

1. Define blood pressure.

2. What are the two physical forces that cause blood pressure?

3. List any 5 factors that can affect blood pressure.

4. Identify what unit of measurement is used to measure blood pressure ________.

5. What is the name of the instrument used to measure blood pressure? ________________

6. Describe the normal ranges for each type of blood pressure measurement.

7. What is the difference between diastolic and systolic pressure?

8. What do you think the term prehypertension means?

9. What is hypertension?

10. Describe the three factors that may increase blood pressure.

11. What does having high blood pressure have to do with the circulatory system?

12. Why do you think that high blood pressure is called the “silent killer?”

13. What are 5 symptoms of high blood pressure?

14. Describe any three factors that could cause a decrease in blood pressure.