BLOOD PRESSURE TEST

Definition

Blood pressure is a measurement of the force applied to the walls of the arteries as the heart pumps blood through the body. The pressure is determined by the force and amount of blood pumped, and the size and flexibility of the arteries.

Blood pressure is continually changing depending on activity, temperature, diet, emotional state, posture, physical state, and medication use.

Alternative Names

Diastolic blood pressure; Systolic blood pressure

How the test is performed

Blood pressure is usually measured while you are seated with your arm resting on a table. Your arm should be slightly bent so that it is at the same level as your heart. The upper arm should be bare, with your sleeve comfortably rolled up.

Blood pressure readings are measured in millimeters of mercury (mmHg) and usually given as 2 numbers. For example, 110 over 70 (written as 110/70).

- The top number is the systolic blood pressure reading. It represents the maximum pressure exerted when the heart contracts.
- The bottom number is the diastolic blood pressure reading. It represents the pressure in the arteries when the heart is at rest.

To obtain your blood pressure measurement, your health care provider will wrap the blood pressure cuff snugly around your upper arm, positioning it so that the lower edge of the cuff is 1 inch above the bend of the elbow.

The health care provider will locate the large artery on the inside of the elbow by feeling for the pulse and will place the head of the stethoscope over this artery, below the cuff. It should not rub the cuff or any clothing because these noises may block out the pulse sounds. Correct positioning of the stethoscope is important to get an accurate recording.

Your health care provider will close the valve on the rubber inflating bulb and then will squeeze it rapidly to inflate the cuff until the dial or column of mercury reads 30 mmHg higher than the usual systolic pressure. If the usual systolic pressure is unknown, the cuff is inflated to 210 mmHg.

Next, the valve is opened slightly, allowing the pressure to fall gradually (2 to 3 mmHg per second). As the pressure falls, the level on the dial or mercury tube at which the pulsing is first heard is recorded. This is the systolic pressure.

As the air continues to be let out, the sounds will disappear. The point at which the sound disappears is recorded. This is the diastolic pressure (the lowest amount of pressure in the arteries as the heart rests).

The procedure may be performed two or more times.

How to prepare for the test

The test may be done at any time. When it is performed for comparison purposes, it is usually done after resting for at least 5 minutes. All you need to perform a blood pressure measurement is a cuff and a device for detecting the pulse in the artery (stethoscope or microphone).

How the test will feel

You will feel the pressure of the cuff on your arm. If the test is repeated a few times, you may feel temporary numbness or tingling in your hand.

Why the test is performed

Adults 18 years and older should have their blood pressure checked every year.

Most people cannot sense if their blood pressure is high because there are usually no symptoms.

High blood pressure increases the risk of heart failure, heart attack, stroke, and kidney failure.

If you have high blood pressure, blood pressure measurements can help determine if your medicine and diet changes are working.

Low blood pressure may be a sign of a variety of illnesses, including heart failure, infection, gland disorders, and dehydration.

Normal Values

In adults, the systolic pressure should be less than 120 mmHg and the diastolic pressure should be less than 80 mmHg.

What abnormal results mean

Pre-high blood pressure:

- Top number is consistently 120 to 139 or the bottom number reads 80 to 89

Stage 1: Mild high blood pressure:

- Top number is consistently 140 to 159 or the bottom number reads 90 to 99

Stage 2: Moderate-to-severe high blood pressure:

- Top number is consistently 160 or over or the bottom number reads 100 or over

Low blood pressure (hypotension):

- Top number reading lower than 90 or pressure 25 mmHg lower than usual

Blood pressure readings may be affected by many different conditions, including:

- Cardiovascular disorders
- Neurological conditions
- Kidney and urological disorders
- Pre-eclampsia in pregnant women
- Psychological factors such as stress, anger, or fear
- Various medications
- "White coat hypertension" may occur if the medical visit itself produces extreme anxiety

What the risks are

There are no significant risks associated with checking blood pressure.

If you have vascular access (shunt) for kidney dialysis on your arm, you should not have your blood pressure checked on that arm.

Special considerations

Repeated measurements are important. A single high measurement does not necessarily mean you have high blood pressure. On the other hand, a single normal measurement does not necessarily mean that you don't have high blood pressure.

Blood pressure readings taken at home can provide important information to your doctor. Such readings may be a better measure of your current blood pressure than those taken at your doctor's office, as long as you make sure your machine is accurate. You can ask your health care provider to compare readings in the office. Many people become nervous at the doctor's office and have higher readings that they normally would at home. This is called white-coat hypertension.

Consult your provider if your blood pressure measurements are consistently high or low or if you have symptoms at the same time as the high or low reading.