

Blood pressure: Getting it right

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Getting your blood pressure measured may seem like a straight-forward thing, like having your height or weight measured. So when you're given those two numbers and told that they're normal or elevated or possibly that you have hypertension, you may think that's that. If only it were that simple. In fact, recent research suggests that blood pressure readings are often not as accurate as they should be and that as a result many people may be misdiagnosed. Usually the results err in being too high, meaning that some people may be put on medication unnecessarily or given doses that are too high.

The devil's in the details

Everyone's blood pressure fluctuates throughout the day—thus evaluating it is like shooting at a moving target. Complex bodily systems

(including the heart, arteries, nerves, hormones, and kidneys) regulate and affect blood pressure. It can fluctuate from minute to minute, rising when you're active, for instance, and typically dropping when you rest or sleep. Just standing up can cause pressure to rise—or fall. Your mental state can affect it, too, with anxiety or stress boosting it temporarily. In some people, blood pressure rises in the doctor's office because of nervousness—this is called the “white-coat effect.” But many other factors can lead to inaccurate, inconsistent, or misleading blood pressure readings. For instance, did you know that you shouldn't smoke, exercise, or consume caffeine during the 30 minutes before testing?

For good measure. There is a standard way to measure blood pressure, described by American Heart Association [guidelines](#). Studies have found that readings done in medical offices and hospital clinics usually differ by at least a few points from those done according to the guidelines. This doesn't matter if your blood pressure is so high that there's no doubt you have hypertension, or if your blood pressure is clearly normal. But it could affect your treatment if you're in the gray area in between. The guidelines discuss proper cuff size and placement on the arm, as well as arm and body position, all of which can affect results. Ideally, you should wait five minutes in a quiet room before being tested. Neither you nor the practitioner should talk during the test. You should sit on a chair (not on the examination table), with your back supported, feet flat on floor, sleeve rolled up, and forearm supported by the practitioner at your heart level. Crossing your legs, sitting with your back unsupported, or letting your arm hang too low (or holding it up by yourself) can raise blood pressure. Using a cuff that's too small for a large upper arm will give an erroneously high reading.

Multiple tests. Two measurements should be done at least one minute apart and the results averaged. Even if this shows that your blood pressure is elevated, that isn't sufficient to diagnose hypertension, unless the numbers are quite high. In most cases, to confirm that blood pressure

is persistently elevated, doctors should measure it at subsequent visits, as well as have patients measure it at home before making any decisions about treatment.

Two arms? You may be surprised to learn that blood pressure should be measured in both arms, at least at the initial visit, with the second arm tested at least five minutes later. Most practitioners don't do this. In many people the readings will differ significantly, in which case the numbers should be averaged. (If the difference is big, however, the arm with the higher pressure should always be used.) Moreover, according to a recent [analysis](#) in *The Lancet* that pooled data from 20 studies, a large inter-arm difference (more than 10 points) in systolic pressure is an indication of increased cardiovascular risk. This is especially true in people with hypertension.

The gold standard. Even when the guidelines are followed, testing done in a doctor's office or at home may not be accurate enough to diagnose mild hypertension, according a 2011 review [article](#) in the journal *BMJ*, though it can diagnose moderate or severe cases. Thus, if your doctor tells you that you have mild hypertension based on blood pressure measurements done at the office or at home, discuss the advisability of 24-hour "ambulatory" blood pressure testing, if it's available, before going on medication. You wear a device that automatically measures blood pressure every half hour or so and stores the results. About one in four people with high readings in a clinic will not have a high ambulatory result. If you're already taking medication for mild hypertension, ask your doctor if it would be a good idea to do a 24-hour test while you're off your drug.

BOTTOM LINE: There is a right way to measure blood pressure. It's debatable how much this matters for most people, but if you're at the high end of prehypertension or low end of hypertension, readings that are off by 5 or 10 points could make the difference between taking a

drug or not. Talk to your doctor about your results and ask any questions you may have about how the test is being done. You may want to request a chair to sit in, for instance. If the reading is elevated, make sure you're retested several times before any treatment decision is made.

Ambulatory testing will provide the clearest picture if blood pressure readings are close to the borderline between prehypertension and hypertension.

Blood pressure testing—the basics

Blood pressure is measured with a device called a sphygmomanometer, which typically consists of a bulb, inflatable compression cuff, and gauge or digital readout. The doctor, nurse, or other practitioner wraps the cuff around your upper arm and squeezes the bulb to inflate the cuff. Then the air in the cuff is slowly released, which gradually deflates the cuff and lowers the pressure constricting your arm. Meanwhile, the doctor or nurse listens with a stethoscope, just below the cuff, for sounds from the artery in your arm. Systolic pressure is indicated by the first sound heard through the stethoscope as the cuff deflates; diastolic pressure is the point at which the sound disappears. Many offices now use automated devices.

Normal [blood pressure](#) is less than 120/80. You have hypertension when your average systolic pressure (the first number) is 140 or higher and/or your average diastolic pressure (second number) is 90 or higher on at least two separate occasions. If your systolic number falls between 120 and 140 and/or your diastolic number is between 80 and 90, you have prehypertension, which puts you at elevated risk for eventually developing full-blown hypertension.

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