

The rules for measuring blood pressure—and why they exist

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The last time your blood pressure was measured, did you rush to the appointment while sipping coffee? Were you perched on an exam table with your legs dangling or your arm hanging? Were you chatting with a

medical staff member or scrolling social media on your phone? Was your bladder full?

Any of these actions could throw off your [blood pressure reading](#)—in some cases, by as much as 33 millimeters of mercury (mmHg). That could leave you and your doctor unable to determine if you need treatment or whether any current treatment is working.

"The measurement of blood pressure is probably the most taken-for-granted measurement done across any clinical environment," said Dr. Shawna Nesbitt, medical director at Parkland Health's Hypertension Clinic and a professor in the department of internal medicine at UT Southwestern Medical Center, both in Dallas.

But not enough attention is paid to its validity on a day-to-day basis, she said. "I think the routineness of it is why it is taken for granted—and basically done wrong probably 60, 70% of the time."

Blood pressure is considered high in a teen or adult when the systolic (top number) is at least 130 mmHg, or the diastolic (bottom number) is 80 mmHg or more. Blood pressure [guidelines](#) issued by the American Heart Association and American College of Cardiology call for, among other things, readings to be taken with the patient seated in a chair with feet flat on the floor, their back supported and their upper arm cuffed and raised to heart level.

While it's important to know how to properly measure blood pressure, it's just as important to understand why the guidelines should be followed.

"Blood pressure is one of those factors that has a lot of variability. It's all over the place," said Dr. Paul Whelton, a renowned professor at the Tulane University School of Public Health and Tropical Medicine in

New Orleans and president of the World Hypertension League, a nonprofit dedicated to the prevention and control of high blood pressure.

The key is to avoid factors that naturally cause a temporary increase in blood pressure.

"Even if you're just rushing in from your car, that may generate some stress that increases blood pressure at least momentarily," Nesbitt said.

"What we want to measure is not that momentary increase. We want what is the most representative blood pressure on average for you in your regular life."

Here are some key points to keep in mind to ensure an accurate reading so you and your medical team can determine the right treatment if your blood pressure is too high.

- Plan ahead. It's important to avoid exercise, smoking and caffeine at least 30 minutes before the blood pressure reading. All of these temporarily raise [heart rate](#) and blood pressure. Smoking also constricts [blood vessels](#) in the short term, altering the way blood flows through the body.
- Keep calm. Ideally, you should relax for about five minutes before your blood pressure measurement. That's because your body's "fight or flight" response—officially called your sympathetic nervous system—automatically revs up in response to stress or physical activity. The heart accelerates and blood vessels tighten—ways the body prepares to react to perceived danger by fighting or running away.
- Bathroom break. Once you arrive for your appointment, take a moment to visit the bathroom. "If your bladder is full, it sends a response to your brain that also stimulates the nervous system," Nesbitt said. "And that increases blood pressure as well."
- Posture matters. Next, pay attention to how you're sitting. "Be

seated with your back supported, feet flat on the ground," said Dr. Yvonne Commodore-Mensah, an associate professor at Johns Hopkins School of Nursing in Baltimore. Not following these steps could increase blood pressure from 5 to 20 mmHg, she said.

One reason: Even exertion that we barely notice, such as engaging muscles to sit up straight on an examination table, can affect blood pressure, Nesbitt said. Different postures also affect the way blood circulates. For example, crossing your legs at the knees compresses blood vessels, reducing the amount of blood returning to the heart, so the body has to work harder to keep the blood flowing, she said.

Shhhh. During the test, both you and the health care professional should be quiet. Talking can raise blood pressure even if you're not discussing something that's obviously stressful. Talking also stimulates the brain, Nesbitt said. "It's not just the act of talking. It's the thinking and the engagement and what you're saying that also may drive blood pressure up."

The effect of these factors on blood pressure is not minor: According to the ACC, talking can [increase a measurement](#) by up to 19 mmHg and crossed legs by up to 15 mmHg. If your arm is hanging, rather than supported at heart level, readings could be up to 20 mmHg too high. Lack of leg or back support can raise blood pressure by 5 mmHg, and a full bladder can increase it by up to 33 mmHg.

"If you do most of these steps wrong," Commodore-Mensah said, "just think about the dramatic impact it can have on the blood pressure that is measured."

If you measure your blood pressure at home—which she said is "absolutely critical" if you have hypertension—follow all of the

guidelines and keep a record of the results to show your doctor. It is the best way to track high blood pressure long term. But there's still a chance the device may still show a wrong measurement.

"There are a lot of instruments out there," and most are labeled "FDA cleared," said Whelton, who led the writing committee for the AHA/ACC blood pressure guidelines. "All 'FDA cleared' means is the component parts function as they're supposed to. But it doesn't tell you anything about how well or how poorly the device measures blood pressure."

Before buying an at-home [blood pressure](#) monitor, check www.validatebp.org or consult with a health care professional or pharmacist. "It's a worthwhile investment because we know it's a lifelong condition," Commodore-Mensah said.

Provided by American Heart Association

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