

# Ten Factors that Can Temporarily Elevate Blood Pressure Readings

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Most people do not realize their blood pressure is constantly changing minute by minute in response to mood, activity, body position, etc. In fact, simple changes in your body, environment, and activities significantly impact your blood pressure and cause your blood pressure to fluctuate between 5 and 40 mmHg. It is important for medical professionals and patients to know factors that can temporarily cause significant deviations in blood pressure measurements to avoid misdiagnosis of hypertension and inappropriate prescriptions of anti-hypertension medications. Below is a list of 10 factors that can temporarily cause significant deviations in your blood pressure measurements.

Factors that Temporarily Increase Blood Pressure	Measurement Increase (mmHg)		
Blood Pressure Cuff is too Small	Sys	<sup>2</sup>	10 to 40
Blood Pressure Cuff Used Over Clothing	Sys	<sup>2</sup>	10 to 50
Not Resting 3-5 Minutes	Sys	<sup>2</sup>	10 to 20
Arm/Back/Feet Unsupported	Sys	<sup>2</sup>	2 to 8
	Dia	<sup>2</sup>	6
Emotional State	Sys	<sup>2</sup>	10 to 15
	Dia	<sup>2</sup>	4 to 8
Talking	Sys	<sup>2</sup>	10 to 15
Smoking	Sys	<sup>2</sup>	5 to 10
Alcohol/Caffeine	Sys	<sup>2</sup>	5 to 10
Temperature	Sys	<sup>2</sup>	Up to 30
	Dia	<sup>2</sup>	Up to 30
Full bladder	Sys	<sup>2</sup>	10 to 15

(Sys=Systolic; Dia=Diastolic)

- Blood Pressure Cuff is too Small<sup>2,5,6</sup>** – It is extremely important to make sure the proper size blood pressure cuff is used on your upper arm when taking a measurement. In fact, most blood pressure measurement errors occur by not taking the time to determine if the patient's arm circumference falls within the Range indicators on the cuff. Studies have shown that using too small of a blood pressure cuff can cause a patient's systolic blood pressure measurement to increase 10 to 40 mmHg.
- Blood Pressure Cuff Used Over Clothing<sup>2,5,6</sup>** – When having your blood pressure measured, the cuff should always be placed directly on your arm. Studies have shown that clothing can impact a systolic blood pressure from 10 to 50 mmHg.
- Not Resting 3-5 Minutes<sup>5,6</sup>** – To obtain an accurate blood pressure measurement, it is important that you relax and rest quietly in a comfortable chair for 3 to 5 minutes before a reading is taken. Any activities such as exercise or eating can affect your systolic blood pressure measurement 10 to 20 mmHg.
- Arm/Back/Feet Unsupported<sup>2,5,6</sup>** – When having your blood pressure measured, you should always be seated in a comfortable chair, legs uncrossed, with your back and arm supported. If your back is not supported, your diastolic blood pressure measurement may be increased by 6 mmHg. Crossing your legs has shown to raise your systolic blood pressure by 2 to 8 mmHg. The positioning of your upper arm below your heart level will also result in higher measurements, whereas positioning your upper arm above your heart level will give you lower measurements. These differences can increase/decrease your systolic blood pressure 2mmHg for every inch above/below your heart level.

5. **Emotional State**<sup>8,9</sup> – Stress or anxiety can cause large increases in blood pressure. If you are having your blood pressure taken while thinking about something that causes you to tense up or become stressed, your systolic & diastolic blood pressure could increase approximately 10 to 15 mmHg and 4 to 8 mmHg, respectively.
6. **Talking**<sup>2,4,5,6</sup> – If you are talking to the nurse/doctor while having your blood pressure taken, studies have shown that your systolic blood pressure measurement may increase 10 to 15 mmHg.
7. **Smoking**<sup>2,7</sup> – Tobacco products (cigarettes, cigars, smokeless tobacco) all contain nicotine which will temporarily increase your systolic blood pressure 5 to 10 mmHg, so refrain from smoking at least 30 minutes before having a blood pressure measurement taken.
8. **Alcohol/Caffeine**<sup>2,6,9</sup> – Alcohol and caffeine (sodas, coffee, tea, etc) consumption causes systolic blood pressure levels to temporarily increase 5 to 10 mmHg so stay away from alcohol/caffeine at least 30 minutes before having a blood pressure measurement taken.
9. **Temperature**<sup>1,3,6</sup> – Blood pressure tends to increase when you are cold. Therefore, if you are at the doctor's office and the room temperature is "chilly" to you, be aware that your systolic/diastolic blood pressure readings could potentially increase 30/20 mmHg, respectively.
10. **Full bladder**<sup>2,5,6</sup> – Your blood pressure is lower when your bladder is empty. As your bladder gradually fills, your blood pressure increases. Studies have shown that your systolic blood pressure measurements could increase 10 to 15 mmHg when you have a full bladder.

## References

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