

# Lowers Blood Pressure More Efficiently Than a Prescription

Analysis by [Dr. Joseph Mercola](#) ✓ Fact Checked

## STORY AT-A-GLANCE

- › High resistance Inspiratory Muscle Strength Training (IMST) reduced systolic blood pressure measurements in participants by nine points, with a 45% improvement in endothelial function, increase in nitric oxide and a reduction in markers of oxidative stress and inflammation
- › Preliminary results also suggest it improves cognitive and physical functioning. Researchers were encouraged when 95% of the sessions were completed, far better than the less than 40% who meet the current aerobic exercise guidelines
- › High blood pressure may lead to kidney disease, heart attack, stroke, vision loss, heart failure and sexual dysfunction. It also increases the risk of peripheral artery disease, vascular dementia and brain lesions and tangles associated with Alzheimer's disease
- › Other strategies that may help lower your blood pressure include addressing identified factors that lead to increased blood pressure, such as elevated uric acid and insulin resistance, and lifestyle strategies to reduce blood pressure, such as optimizing vitamin D, intermittent fasting and addressing your stress

A June 2021 study using high resistance Inspiratory Muscle Strength Training (IMST) demonstrated a reduction in blood pressure measurements as well as aerobic exercise or medication.<sup>1</sup> High blood pressure, which is also called hypertension, is one of the most prevalent health conditions in the U.S. It is estimated that 47.3% of U.S. adults, or 116 million people, have high blood pressure.<sup>2</sup>

High blood pressure can increase your risk of a heart attack and stroke. The American Heart Association reported that the death rate from this condition increased nearly 11% from 2005 to 2015.<sup>3</sup> Despite advances in education, screening and treatment, cardiovascular disease remains the leading cause of death in the world, claiming the lives of 659,041 people in the U.S. in 2019 (latest data available).<sup>4</sup>

The American Heart Association<sup>5</sup> recommends making lifestyle changes that include changing your diet, monitoring your blood pressure, limiting alcohol, maintaining a healthy weight and getting exercise.

When these measures do not reduce your blood pressure to within normal limits the standard recommendation is high blood pressure medications.<sup>6</sup> The types of medication can include diuretics, beta blockers, ACE inhibitors and calcium channel blockers – which may be prescribed individually or in a combination as determined by your doctor. Each comes with a list of possible side effects that may include weakness, fatigue, a loss of taste and swollen feet and ankles.<sup>7</sup>

If you have [high blood pressure](#) or would like to help reduce your risk of getting high blood pressure, the results of this recent study are encouraging. There are additional strategies you can use that I discuss below.

## **Breathing This Way May Lower Blood Pressure as Well as Drugs**

The current study<sup>8</sup> is the strongest evidence presented yet that IMST may play a role in reducing blood pressure, thus reducing the risks of cardiovascular disease. Although aerobic exercise is one foundational strategy for controlling blood pressure, fewer than 40% meet the current recommended guidelines.<sup>9</sup>

Lead author Daniel Craighead is an assistant research professor in the department of Integrative Physiology. Researchers were seeking a time efficient way of helping to reduce blood pressure, since more than 60% of people were not meeting exercise guidelines. Craighead commented in a press release:<sup>10</sup>

*"There are a lot of lifestyle strategies that we know can help people maintain cardiovascular health as they age. But the reality is, they take a lot of time and effort and can be expensive and hard for some people to access. IMST can be done in five minutes in your own home while you watch TV.*

*We found that not only is it more time-efficient than traditional exercise programs, the benefits may be longer lasting."*

IMST was originally developed for critically ill patients with respiratory diseases to help improve the strength of their inspiratory muscles. The strategy uses a handheld device that provides resistance to the user as they inhale vigorously, thus strengthening muscles.

Initially, physicians recommended a 30-minute program each day with a low level of resistance. However, recent tests using high resistance six days a week were initiated to determine if the participant would reap the same benefits with respiratory, cardiovascular and cognitive improvements.

In the most recent study researchers engaged 36 adults ages 50 to 79 who had above normal systolic blood pressure. Half the participants used high resistance IMST and half used lower resistance IMST for six weeks. At the end of the intervention the group using high resistance IMST experienced a nine-point reduction in their systolic blood pressure.<sup>11</sup>

## **Respiratory Conditioning May Benefit Cognitive Function**

Six weeks after stopping the program, the group maintained most of their improvement. Additionally, the researchers measured a 45% improvement in vascular endothelial function, an increase in the level of nitric oxide and a reduction in markers of oxidative stress and inflammation. The researchers were encouraged by the compliance rate in the group as they completed 95% of the sessions.

Senior author of the study, Doug Seals, is a distinguished professor of integrative physiology. In his past research, data demonstrated that postmenopausal women don't

get as much benefit from **aerobic exercise** as men do. However, in the current study, IMST improved markers in postmenopausal women as much as in men. “That’s noteworthy,” Seals said.

Preliminary results also suggest that it improves some cognitive function and physical fitness. The researchers are unable to explain how using IMST can lower blood pressure, but they postulate it has something to do with raising the level of nitric oxide. Craighead uses IMST in his marathon training. He says:<sup>12</sup>

*“If you're running a marathon, your respiratory muscles get tired and begin to steal blood from your skeletal muscles. The idea is that if you build up endurance of those respiratory muscles, that won't happen and your legs won't get as fatigued. It's easy to do, it doesn't take long, and we think it has a lot of potential to help a lot of people.”*

There are some physiological conditions that contraindicate IMST,<sup>13</sup> including a history of spontaneous pneumothorax, a pneumothorax related to a traumatic injury that isn’t healed and a ruptured eardrum that is not fully healed.

Some asthma patients with unstable disease or individuals with abnormally low perception of dyspnea may also be unsuitable candidates. Researchers encourage people who want to consider trying IMST to first consult with their health care provider.<sup>14</sup>

## **What Does Blood Pressure Measure?**

Your blood pressure measurement is an indication of how much pressure exists within your arterial system. As blood moves through your arteries, it places pressure along the walls of the vessels.

Your systolic blood pressure is the pressure exerted on the arteries when the heart beats and is the top number in the measurement. Your diastolic blood pressure is the pressure in the blood vessels as the heart muscle relaxes between beats.

The systolic blood pressure is always higher than the diastolic blood pressure. Blood pressure measurements are given in units of millimeters of mercury (mm Hg). In 2017, the American Heart Association and the American College of Cardiology,<sup>15</sup> in collaboration with nine other health organizations,<sup>16</sup> developed new guidelines lowering the systolic and diastolic blood pressure numbers for the diagnosis of high blood pressure.

Previously, elevated blood pressure started at 140/90 for people younger than age 65 and 150/80 for people 65 and older.<sup>17</sup> The new guidelines were created to help address high blood pressure earlier and thus hopefully reduce the risk of heart attack and stroke. There are five categories of blood pressure measurements that are recognized by the American Heart Association.<sup>18</sup>

- Normal blood pressure is consistently 120/80 or less
- Elevated blood pressure is consistently 120-129/80
- **Hypertension** Stage 1 is blood pressure that is consistently 130-139/80-89
- Hypertension Stage 2 is blood pressure that is consistently 140/90 or greater

A hypertensive crisis occurs when blood pressure readings are suddenly 180/120 or greater, which may trigger organ damage with symptoms that include chest pain, shortness of breath, changes in vision or difficulty speaking. It is crucial you seek emergency medical treatment immediately.

## **Risks Associated With High Blood Pressure**

There are multiple risks associated with chronic high blood pressure. These include kidney disease and kidney failure, heart attack, stroke, vision loss, heart failure and sexual dysfunction.<sup>19</sup>

High blood pressure also increases your risk for peripheral artery disease (PAD). This occurs when the arteries in your extremities, stomach or head become narrowed. It causes pain and fatigue when the arteries cannot deliver enough oxygen to the

muscles.<sup>20</sup> Another recent risk factor of high blood pressure is the increased risk of **death with COVID-19**.

If high blood pressure is allowed to continue it can also lead to vascular dementia.<sup>21</sup> In one study,<sup>22</sup> researchers found that older adults who had a consistently elevated average systolic blood pressure had a greater risk for brain lesions and tangles associated with **Alzheimer's disease**. In this study, the average pressure in the senior adults was 134/71. As reported in the press release:<sup>23</sup>

*“Researchers found that the risk of brain lesions was higher in people with higher average systolic blood pressure across the years. For a person with one standard deviation above the average systolic blood pressure, for example 147 mmHg versus 134 mmHg, there was a 46 percent increased risk of having one or more brain lesions, specifically infarcts.*

*For comparison, the effect of an increase by one standard deviation on the risk of having one or more brain infarcts was the equivalent of nine years of brain aging.”*

## **This Also Raises Nitric Oxide to Relax Blood Vessels**

Researchers in the current study postulated that one of the reasons the **breathing** exercise helps reduce blood pressure may be because it helps release nitric oxide into the arterial system. Another way to get nitric oxide naturally is using a simple and quick exercise developed by Dr. Zach Bush.

The exercise is called the Nitric Oxide Dump and is an efficient anaerobic activity that works better the more you do it. I demonstrate a version of that work out in the video above. The routine works best if you complete it three times a day and wait at least 2 hours between each session.

This allows nitric oxide to be synthesized so it can be released. Benefits to naturally releasing nitric oxide include relaxing your arterial system and potentially lowering

blood pressure, improving age-related decline in muscle mitochondria and reducing insulin resistance.

For further explanation of the many benefits behind releasing nitric oxide naturally, see [“Fitness Checkup: Why You Need to Try the Nitric Oxide Dump Workout.”](#)

## These Strategies May Also Help Lower Blood Pressure

In addition to strategies you can use to reduce your blood pressure, it's important to note one study<sup>24</sup> published in the Journal of the American College of Cardiology demonstrated there are differences between taking a central aortic blood pressure, which is an invasive procedure, and a peripheral blood pressure using a cuff on your arm or leg.

To reduce the potential inaccuracies in taking a peripheral blood pressure, several factors must be taken into consideration. These include the size of the cuff and relationship to your arm, the placement of the blood pressure cuff, your body position and activity during blood pressure reading and nicotine, caffeine or alcohol intake prior to having your blood pressure measured.

You'll find further explanations and ways to reduce potential inaccuracies in [“Blood Pressure Testing Is Mostly Inaccurate.”](#) You must also take care to reduce the effect of identified factors that contribute to high blood pressure. These include insulin and leptin resistance,<sup>25</sup> elevated uric acid levels,<sup>26</sup> lead exposure<sup>27</sup> and air<sup>28</sup> and sound pollution.<sup>29</sup> Below are several additional lifestyle strategies that can help lower your blood pressure naturally.

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**Optimize your vitamin D level** — Vitamin D deficiency is associated with both arterial stiffness and hypertension.<sup>30</sup> For optimal health, maintain a vitamin D level between 60 and 80 nanograms per milliliter year-round.

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**Mind your sodium-to-potassium ratio** — According to Dr. Lawrence Appel,<sup>31</sup> lead researcher on the DASH diet and director of the Welch Center for Prevention,

Epidemiology and Clinical Research at Johns Hopkins, your diet as a whole is the key to controlling hypertension – not salt reduction alone. He believes a major part of the equation is this balance of minerals – i.e., most people need less sodium and more potassium, calcium and magnesium.

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**Consider intermittent fasting** – [Intermittent fasting](#) is one of the most effective ways I've found to normalize your insulin/leptin sensitivity, which is a root cause of hypertension.

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**Exercise regularly** – A comprehensive fitness program can go a long way toward regaining your insulin sensitivity and normalizing your blood pressure. If you are insulin resistant, you'll also want to include weight training. When you work individual muscle groups, you increase blood flow to those muscles, and good blood flow will increase your insulin sensitivity.

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**Walk barefoot** – Going barefoot will help you ground to the earth. Experiments show that walking barefoot outside (also referred to as Earthing or grounding) improves blood viscosity and blood flow, which help regulate blood pressure. So, do yourself a favor and ditch your shoes now and then.

Grounding also calms your sympathetic nervous system, which supports your heart rate variability. This in turn promotes homeostasis, or balance, in your autonomic nervous system. In essence, anytime you improve heart rate variability, you're improving your entire body and all of its functions.

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**Address your stress** – The connection between stress and hypertension is well documented, yet still does not receive the emphasis it deserves. Suppressed negative emotions such as fear, anger and sadness can severely limit your ability to cope with the unavoidable everyday stresses of life. It's not the stressful events themselves that are harmful, but your lack of ability to cope.

The good news is, strategies exist to quickly and effectively transform your suppressed, negative emotions, and relieve stress. My preferred method is the [Emotional Freedom Techniques \(EFT\)](#), an easy to learn, easy to use technique for

releasing negative emotions. EFT combines visualization with calm, relaxed breathing, while employing gentle tapping to "reprogram" deeply seated emotional patterns.

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**Essential oils** – Several essential oils can also be helpful, including lavender, ylang-ylang, marjoram, bergamot, rose, frankincense, rosemary, lemon balm and clary sage. In one study,<sup>32</sup> scientists found exposure to essential oil for one hour effectively reduced stress as measured by a reduction in the participants' heart rate and blood pressure.

The effect was only temporary, however. In another, similar study,<sup>33</sup> inhalation of a blend of lavender, ylang-ylang, neroli and marjoram essential oils was associated with a reduction in blood pressure and cortisol secretion, which is often elevated during stress.

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