

How Potassium Can Help Your High Blood Pressure

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✓ Fact Checked

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STORY AT-A-GLANCE

- › Nearly half – 47% – of all Americans have high blood pressure costing about \$131 billion each year in direct medical costs
- › Many who have hypertension do not have it under control, which affects your microvascular system, triggering damage to your eyes, kidneys, heart and sexual performance
- › By ensuring you have enough potassium in your daily diet you may prevent hypertension or reduce your dependence on medication to control it

According to the Centers for Disease Control and Prevention (CDC), nearly one-half – 47% – of Americans have high blood pressure (hypertension).¹ Hypertension carries a high cost to your health. It is a major risk factor for cardiovascular disease and stroke,² which are in the first and fifth position for leading causes of death in the U.S.³

The financial burden is over \$131 billion each year in direct medical costs and lost work days, but does not include a number of other health conditions worsened by hypertension, including kidney disease and cognitive decline.

Only 1 in 4 of those with hypertension have their blood pressure under control.⁴

Unfortunately, while blood pressure monitoring has become commonplace at dentists' and eye doctors' offices, the CDC estimates 1 in 3 people are not aware they have hypertension.⁵

There are several ways to reduce your blood pressure without drugs, which I discuss below. Among them is balancing your potassium level, as this electrolyte has a significant effect on muscle contraction and arterial wall relaxation, but most Americans barely get half of the recommended daily allowance.⁶

What Is High Blood Pressure?

When your physician takes your blood pressure, he uses a sphygmomanometer to measure the amount of pressure your heart exerts to push blood through your arterial system. The top number represents the highest pressure and the bottom number is the lowest pressure needed. These numbers are related to the elasticity and diameter of your arterial walls.

When the pressure required to circulate your blood is high, it places an abnormal amount of stress on your heart muscle and smaller arteries, and reduces the amount of oxygen delivered to the smallest blood vessels in your body. Both of these consequences account for many of the secondary effects of hypertension.

Your blood pressure reading can vary throughout the day, so one high reading is not a concern. It is only when your blood pressure is consistently or chronically higher than normal that significant health conditions may occur.

The validity of your **blood pressure reading** will be affected by the size of the blood pressure cuff, the position of the cuff on your arm and whether you're nervous. Measuring your blood pressure in both arms at the same office visit may also give your vital information about your circulatory health.

A number of studies have revealed that a significant difference between your right and left arm pressure may indicate circulatory problems that raise your risk for stroke, peripheral artery disease or other cardiovascular problems.

While small differences between your arms is normal, researchers found when there is a difference of 5 points in the systolic reading (top number) it doubled the risk of dying

from heart disease in the following eight years.⁷ The difference suggests the presence of plaque in the artery supplying the arm with the higher pressure.⁸

In a meta-analysis evaluating mortality rates of over 17,000 participants with inter-arm systolic blood pressure differences, researchers found participants with less than 10 points difference compared to those with greater than 10 point difference between arms suffered a 58% increased risk of death from cardiovascular disease.⁹ However, when the difference increased to 15 points, the risk increased to 88%.

Potassium Level Impacts High Blood Pressure

Potassium is a naturally occurring mineral that your body uses as an electrolyte, or substance in solution that will conduct electricity, and is vital for normal functioning.

Diarrhea, vomiting, excessive sweating (such as when using a sauna) and some drugs may deplete or disrupt your potassium balance. But, the most common reason your potassium levels are not within normal limits is due to poor dietary choices.

The average reported intake of potassium from food is about half of the 4,700 milligrams (mg) recommended.¹⁰ Research demonstrates that these low levels of potassium may have a significant impact on blood pressure, especially as it relates to the amount of salt normally found in a Western diet.

Dr. Paul Whelton, professor of epidemiology at Tulane School of Public Health and Tropical Medicine, did an analysis in 1997 of over 29 trials that demonstrated low levels of potassium resulted in higher systolic blood pressure readings.¹¹ Studies performed since then have found similar results.^{12,13} According to Whelton's research:¹⁴

"The results support the premise that low potassium intake may play an important part in the genesis of high BP. Increased potassium intake should be considered as a recommendation for prevention and treatment of hypertension, especially in those who are unable to reduce their intake of sodium."

Potassium works in your body to relax the walls of your arteries, keep your muscles from cramping, and lowers your blood pressure.¹⁵ The reduction in blood pressure with added potassium has also been associated in studies with a reduced risk of stroke.¹⁶

The Many Benefits of Potassium

Research has found that women without hypertension who consumed the most potassium (nearly 3,200 mg/day) had a 21% reduced risk of stroke. Further, women who consumed the most potassium were 12% less likely to die during the study period than those who consumed the least.¹⁷ According to the study's lead researcher:¹⁸

"Potassium may play a role in improving blood vessel function in our brains. This could allow better oxygenation of our brain tissue, and prevent tissue death that occurs from lack of oxygen to the brain ...

The effect of potassium consumption on reduced stroke risk could also be due to a better diet overall, though we did not investigate this in our study."

Potassium should be the third most abundant mineral in the human body. Adequate amounts of potassium are also associated with quicker recovery from exercise and improved muscle strength.^{19,20} As an electrolyte, potassium helps to regulate the fluid balance in your cells and throughout your body.²¹

Fluid balance is essential to maintaining life, preventing dehydration at the cellular level and maintaining brain function.²² Potassium is important in the transmission of nerve impulses in your brain, spinal cord and peripheral nervous system.²³

Nerve impulses transmitting information from one nerve to the next happens as the result of electrical activity. This activity is what an electrocardiogram measures as it tracks heart activity.

Low levels of potassium have been linked with high levels of insulin and glucose, associated with metabolic syndrome and Type 2 diabetes.²⁴ These results have been

found in several studies,²⁵ leading researchers to recommend dietary choices that boost potassium levels and reduce the risk of type 2 diabetes.

Effects of High Blood Pressure on Your Body

Unfortunately, 20% of people who suffer with high blood pressure are unaware of the condition, significantly increasing their potential risk of health problems. With uncontrolled or poorly controlled hypertension, you increase the risk of significant health effects that reduce your quality of life and have a negative effect on the length of your life.

Hypertension increases your risk of stroke as it can cause blood vessels in your brain to rupture or clog more easily. In both instances, oxygen supply to a portion of the brain ceases and a stroke results.²⁶ The increased workload on the heart muscle may result in heart failure, and damage to the arteries supplying the heart muscle with oxygen may result in a heart attack.

Hypertension may damage the smaller arteries, reducing the amount of oxygen delivered and severely impacting the ability of organs to function, such as your kidneys and eyes. This may result in kidney failure and vision loss. The damage to smaller blood vessels is called microvascular disease and may lead to angina, or chest pain when the heart muscle doesn't get enough oxygen, and sexual dysfunction.

Atherosclerosis is another form of damage to the arterial system from hypertension that may result in peripheral vascular disease. The narrowing of the arteries may occur in the legs, arms, stomach and head, triggering pain and fatigue.

Sodium/Potassium Ratio Is Key

The key to relaxing your arterial walls and reducing your blood pressure is the sodium to potassium ratio. In the United States and many other developed countries, salt has been vilified as a primary cause of high blood pressure and heart disease. According to

research presented at last year's American Heart Association meeting,²⁷ excessive salt consumption contributed to 2.3 million heart-related deaths worldwide in 2010.

However, it's important to realize that most Americans and other Westerners get the majority of their sodium from commercially available table salt and processed foods – not from natural unprocessed salt. So, not only is the ratio between potassium and sodium important, so is the type of sodium consumed.

If you eat a lot of processed foods and not many vegetables, there's a good chance your sodium-to-potassium ratio is unbalanced. If you're not sure, try using cronometer.com/mercola, which allows you to enter the foods you eat and then calculates the ratio automatically. It's generally recommended that you consume five times more potassium than sodium, but most Americans get the opposite ratio, eating two times more sodium than potassium.

This ratio is more important than your overall salt intake. A better strategy to promote public health would be to forgo the strict sodium reduction element and focus recommendations instead on a high-quality diet rich in potassium, as this nutrient helps offset the hypertensive effects of sodium. Imbalance in this ratio can not only lead to hypertension (high blood pressure) but also contribute to a number of other diseases, including:

Kidney stones	Memory decline	Cataracts
Osteoporosis	Erectile dysfunction	Stomach ulcers
Rheumatoid arthritis	Stomach cancer	

Why a Balanced Diet Is Your Best Option

Getting nutrients from your food instead of supplements is preferable as your food contains more than a single nutrient and in different forms. For instance, potassium found in fruits and vegetables is potassium citrate or potassium malate, while

supplements are often potassium chloride. The citrate and malate forms help produce alkali, which may promote bone health²⁸ and preserve lean muscle mass as you age.²⁹

Bone loss may lead to brittle bones or even osteoporosis. While potassium in fruits and vegetables may help build bone health, potassium chloride may not. As researcher Dr. Bess Dawson-Hughes from Tufts University explains:³⁰

"If you don't have adequate alkali to balance the acid load from the grains and protein in a typical American diet, you lose calcium in the urine and you have bone loss ... When the body has more acid than it is easily able to excrete, bone cells get a signal that the body needs to neutralize the acid with alkali ... And bone is a big alkali reservoir, so the body breaks down some bone to add alkali to the system."

Research by Dawson-Hughes found that people who were in the neutral range for net acid excretion, meaning they had a fairly healthy balance for bone and muscle health, were eating just over eight servings of fruits and vegetables a day along with 5.5 servings of grains.

When they rounded this out, it came to about half as many grains as fruits and vegetables. For many Americans a simple recommendation to increase your alkali (and potassium) while reducing acid is to eat more vegetables and fewer grains.³¹

Other Drug-Free Methods to Control Blood Pressure

Here are several suggestions to help keep your blood pressure under control and reduce your risk of organ damage.

Address insulin and leptin resistance to impact magnesium and nitric oxide — High blood pressure is associated with insulin resistance, which results from eating a diet too high in sugar. As your insulin level rises, so does your blood pressure. Insulin stores magnesium, but if your insulin receptors are blunted and your cells grow

resistant to insulin, you can't store magnesium so it passes out of your body through urination.

Magnesium stored in your cells relaxes muscles. If your magnesium level is too low, your blood vessels will constrict rather than relax, and this constriction raises your blood pressure.

Fructose also elevates uric acid, which drives up your blood pressure by inhibiting the nitric oxide in your blood vessels. (Uric acid is a byproduct of fructose metabolism. In fact, fructose typically generates uric acid within minutes of ingestion.) Nitric oxide helps your vessels maintain their elasticity, so nitric oxide suppression leads to increases in blood pressure.

If you're healthy, and want to stay that way, the general rule is to keep your total fructose intake to 25 grams per day or less. If you're insulin resistant and/or have high blood pressure, keep your total fructose to 15 grams or less per day until your condition has resolved.

Eat real food – A processed food diet, loaded with net carbohydrates (non-fiber carbs like sugar, fructose and grains) and trans fat (margarines and vegetable oils) is a recipe for hypertension. Instead, make whole, ideally organic foods the focus of your diet.

Also remember to swap non-fiber carbs for healthy fats such as avocados, butter made from raw, grass-fed organic milk, organic pastured egg yolks, coconuts and coconut oil, raw nuts such as pecans and macadamia, grass-fed meats and pasture raised poultry. To learn more about healthy eating, please see my [optimal nutrition plan](#).

Mind your sodium to potassium ratio – According to Lawrence Appel, 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. According to Appel,³² "Higher levels of potassium blunt the effects of sodium. If you can't reduce or won't reduce sodium, adding potassium may help. But doing both is better."

Indeed, maintaining a proper potassium to sodium ratio in your diet is very important, and hypertension is but one of many side effects of an imbalance. A processed food diet virtually guarantees you'll have a lopsided ratio of too much sodium to potassium.

Making the switch from processed foods to whole foods will automatically improve your ratios. Include foods high in potassium such as sweet potatoes, tomatoes, spinach, beets, black beans, wild caught salmon, edamame, butternut squash, Swiss chard, apricots, cantaloupe, mushrooms and tuna.³³

Load up on veggies – Juicing is a simple way to increase the amount of vegetables in your diet, and many NO₃-rich veggies (which raise your nitric oxide level) are suitable for juicing, such as beets, kale, celery, spinach, carrots and more. Allicin-rich garlic, leeks, shallots and chives also help improve your blood pressure, and are easy to add to salads and various dishes.

Optimize your vitamin D level

Boost your animal-based omega-3 intake – The best way to boost your omega-3 is to eat plenty of oily fish that are low in mercury and other pollutants. Good options include wild caught Alaskan salmon, sardines and anchovies. Alternatively, take a high-quality krill oil or fish oil supplement. Krill oil has advantages over fish oil, which is why I prefer it.

Consider intermittent fasting – **Intermittent fasting** is one of the most effective ways I've found to normalize your insulin/leptin sensitivity. It's not a diet in conventional terms, but rather a way of scheduling eating in such a way as to promote efficient energy use.

Essentially, intermittent fasting means eating your calories during a specific window of the day, and choosing not to eat food during the rest. When you eat, your body reacts by elevating insulin and leptin.

Exercise regularly – A comprehensive fitness program can go a long way toward regaining your insulin sensitivity and normalizing your blood pressure. To reap the greatest rewards, I recommend including high intensity interval exercises in your routine.

I also recommend training yourself to breathe through your nose when exercising, as mouth breathing during exercise can raise your heart rate and blood pressure, sometimes resulting in fatigue and dizziness.

Avoid smoking and other forms of pollution – Smoking is known to contribute to high blood pressure, as are other forms of air pollution, even noise pollution. To address these, avoid smoking, consider using ear plugs during sleep if you live in a noisy neighborhood (provided you cannot move), and take steps to improve your indoor air quality.

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.

Address your stress – The connection between stress and hypertension is well documented, yet still does not receive the emphasis it deserves. In fact, it has been shown that people with heart disease can lower their risk of subsequent cardiac events by over 70% simply by learning to manage their stress.

Suppressed negative emotions such as fear, anger and sadness can severely limit your ability to cope with the unavoidable every day 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 that 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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