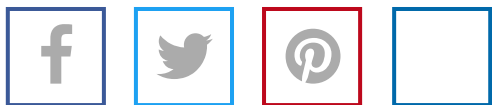


Boost Nitric Oxide Levels to Improve Health



Dr. Julian Whitaker

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We knew about the health benefits of nitric oxide long before scientists were aware of its presence in the human body. Nitroglycerin, a drug that works on nitric oxide pathways, was adopted as a medical therapy for angina and [high blood pressure](#) in the 1880s, but another century passed before anyone had any inkling of why it worked.

The discovery of nitric oxide and its biological activities was so astounding that the 1998 Nobel Prize was awarded to the three pharmacologists who identified and furthered our understanding of this dynamic molecule. Let's take a look at the multiple roles and benefits of nitric oxide and how you can increase its production to improve numerous aspects of your health.

Multiple Roles and Benefits of Nitric Oxide

Nitric oxide is a key signaling molecule throughout the body. Produced by the endothelial cells lining the arteries, it penetrates the underlying smooth muscles and acts as a potent vasodilator that relaxes the arteries. Therefore, nitric oxide plays a critical role in blood pressure and overall circulation. It also keeps the endothelium in shape by curbing inflammation and oxidative stress.

Unfortunately, atherosclerosis, the underlying cause of heart disease and other vascular disorders, is characterized by endothelial dysfunction and a limited capacity to produce nitric oxide. It's a vicious cycle. Diseased arteries can't generate enough protective nitric oxide, and low nitric oxide levels set the stage for further damage, hypertension, and increased risk of cardiac events.

This explains why nitroglycerin is such an effective therapy for angina. It triggers nitric oxide production, which dilates narrowed coronary arteries, improving circulation and delivering much-needed oxygen to the heart muscle. Restoring nitric oxide availability also lowers blood pressure and helps treat [erectile dysfunction](#). In fact, the popular erectile dysfunction drugs Viagra, Cialis, and Levitra work on nitric oxide pathways to increase blood flow to the penis and substantially improve erections.

Additionally, this essential compound is generated in the brain, where it's involved in neurotransmission. That's why nitric oxide benefits also include protection against dementia and other neurodegenerative disorders. Nitric oxide is synthesized in the white blood cells as well and is used as a weapon against bacteria, fungi, parasites, and aberrant cancer cells.

In the gastrointestinal tract, it relaxes smooth muscle cells and helps regulate intestinal peristalsis and the secretion of mucus and gastric acid. Nitric oxide is also involved in insulin signaling, bone remodeling, respiratory function, ATP (energy) utilization, and mitochondrial biogenesis, or the creation of new cellular "energy factories." Since there are so many benefits of nitric oxide, it makes sense for all of us to boost our production of this essential compound.

Increase Nitric Oxide Levels With Lifestyle Changes

Because nitric oxide is synthesized from the amino acid arginine, dietary recommendations for boosting nitric oxide often include protein-rich meat and poultry. But recent research suggests that [vegetables](#) may be your best bet. Plant foods, particularly beets and leafy greens like kale, Swiss chard, arugula, and spinach, are rich in dietary nitrates and nitrites—compounds that stimulate the production of nitric oxide in the body. Coupled with its abundance of protective potassium, it's not surprising that a plant-based diet is associated with lower blood pressure and reduced risk of stroke, heart attack, diabetes, and a variety of other health concerns.

Another way to up your intake of dietary nitrates is to drink beet juice. Studies have shown that two cups a day, which contain about six times the typical daily intake, can lower blood pressure, increase stamina during exercise, and, in older people, boost blood flow to the brain. I've been drinking beet juice myself and it's not as bad as it sounds—especially if you dilute it and add a

[natural sweetener](#). Start with a daily cup of diluted beet juice, flavored with stevia or xylitol, if desired, and build up to two cups per day over time.

I also recommend consuming more tea, onions, grapes, and other foods abundant in flavonoids, which preserve nitric oxide by shielding against [free radical](#) damage. You should also be aware that high-fat, high-carb diets tend to increase blood levels of asymmetric dimethyl-arginine (ADMA), a naturally occurring inhibitor of nitric oxide production, so go easy on fatty foods and high-glycemic carbohydrates.

Lastly, don't forget to engage in exercise most days of the week. Exercising muscles require extra oxygen and nutrients, and this prompts endothelial nitric oxide release, which relaxes the arteries and increases blood flow. Habitual physical activity keeps these mechanisms in shape and protects against disease and aging of the vascular system.

Supplements That Enhance Nitric Oxide Synthesis

On the supplement front, [antioxidants](#) are important because they protect the endothelium and guard against nitric oxide degradation, so make sure you're taking an antioxidant-rich daily multivitamin. There are also a few supplements that help enhance nitric oxide synthesis, thereby increasing its levels in the body. They include Pycnogenol® (a standardized extract of French maritime pine bark), Indian gooseberry (also known as amla), and quercetin.

In Summary

Whether you're concerned about heart disease, hypertension, erectile dysfunction, or any of the other health concerns I mentioned, or you're simply interested in preventing these and other challenges down the road, I encourage you to take steps to increase your nitric oxide levels and get on the road to optimal health.

Now it's your turn: Which of these nitric oxide benefits are most appealing to you?

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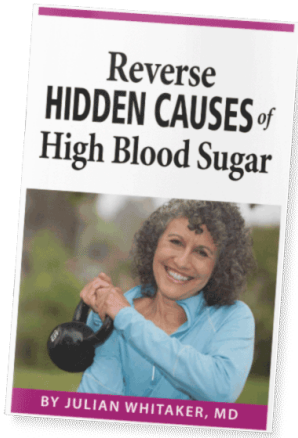
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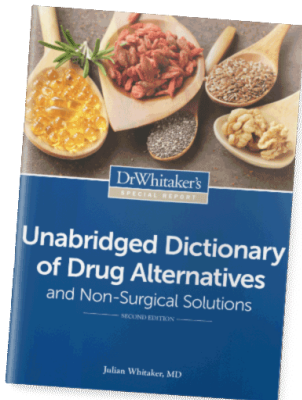
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