

NITRIC OXIDE

Benefits of nitric oxide

Nitric Oxide is the natural performance booster that strengthens your heart, lungs, and nerves, along with every cell in your body. It also allows you to prolong your exercise, and prolonged exercise increases NO levels in your body. It's a virtuous cycle that can lead to improved athletic performance and better health.

NO is a short-lived, gaseous molecule that is produced in your cells. Once released into the bloodstream, it signals the body to perform certain functions such as vasodilatation opening up the blood vessels and capillaries to increase blood flow and deliver oxygen and critical nutrients throughout your body at the time it needs them most. Do you ever wonder why people suffering from chest pain are often prescribed and instructed to take nitro-glycerine? It's because the body uses nitro-glycerine to produce high levels of NO quickly by opening the coronary arteries and increasing the flow of blood to the heart.

For the athlete seeking enhance performance, endurance and strength, as well as faster recovery, the availability of NO in the body is critically important. As any endurance athlete can tell you, a triathlon or other long-distance event becomes a competition between body parts over demand for the blood supply. The skin wants the blood circulating to dissipate heat, but the muscles are screaming for the oxygen and nutrients that the blood carries. Meanwhile, the stomach needs blood to digest food and make those nutrients available in the first place. It's not hard to see how ample NO, with its ability to increase circulation, would be critical to athletic performance.

But as additional research is beginning to show us, NO doesn't stop with cardiovascular benefits. It now appears that NO is the "master signalling molecule" throughout the body and that maintaining sufficient levels through exercise and nutrition not only improves cardiovascular condition but also optimizes the function of every body system; this leads to superior athletic results and greater wellness, quality of life, and even longevity.

When you exercise, your body goes through a remarkable process during which it releases NO into your bloodstream. NO is a "signalling molecule." Its sole function is to send out various biological signals that regulate the activity of cells and instruct the body to perform certain functions. Some of the benefits that your body gains from NO include increased blood flow to muscles and organs as well as better cardiovascular and enhanced lung functions, but that is just the tip of the iceberg. It turns out that NO benefits nearly every cell and system in the body.

NO is primarily manufactured in the endothelium, which is the layer of cells lining the interior surface of the blood vessels. The endothelial tissue, which separates the blood from the smooth muscles of the vessel walls, is extremely thin and fragile. It's easy to see what occurs when such a vast, crucial network gets what it needs to function at its biological peak. When your endothelium is well nourished, it produces NO at optimal levels. The NO then rapidly spreads through the cell membranes to the underlying muscle cells, causing the arteries to dilate and blood to flow unimpeded to the heart and other organs. Because NO functions on a localized basis, it is released by billions of cells throughout the body, enhancing overall functioning. The longer NO circulates in the body, the greater benefit it provides to your cells, cardiovascular system, lungs, nervous system, and organs and the more optimal their functionality will be. The more efficiently each of your cells functions, the more you will be able to produce peak speed, strength, and endurance as part of your athletic endeavors.

Also, the desirable effects of NO aren't limited to athletes. On the contrary, this molecule is quickly becoming regarded as a critical component of a pro-wellness lifestyle for all people, ranging from athletes to the sedentary. Some of the benefits of sufficient levels of NO include:

- Helping to increase cardiovascular capacity and circulation and enhancing oxygen and nutrient delivery to cells.
- Helping cells get rid of waste products.
- Regulating the muscle tone of blood vessels and having a major impact in controlling blood pressure.
- Stopping blood platelets from forming clots, which helps prevent arterial blockages and heart attacks.
- Transmitting messages between nerve cells, a process known as neurotransmission.

NO helps slow the accumulation of atherosclerotic plaque in the blood vessels. This artery hardening build-up of cholesterol and fats that narrow or block the arteries is a major precursor to coronary heart disease, leading to heart attack and stroke. Our research strongly suggests that NO's ability to combat this plaque helps produce healthy levels of cholesterol by working in concert with medications commonly prescribed for people with high cholesterol.

NO also help the immune system fight bacterial infections, viruses, and parasites, and even decreases the growth of certain types of cancer. NO is crucial to memory function, as the brain uses it to help neurons store and retrieve long-term memories and transmit information. As an anti-inflammatory agent, NO is being studied for its potential role in reducing the swelling and discomfort of osteoarthritis and rheumatoid arthritis. Author: **Dr. Louis Ignarro**

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