

Nitric Oxide (NO)

Introduction

Nitric Oxide (NO) is different from Nitrous Oxide (N₂O); the latter can be toxic.

[The Nitric Oxide Society](#), which publishes the Journal Nitric Oxide states "NO has been shown to be involved in and affects (just to list a few major examples) neurotransmission, memory, stroke, glaucoma and neural degeneration, pulmonary hypertension, penile erection, angiogenesis, wound healing, atherogenesis, inflammation such as arthritis, nephritis, colitis, autoimmune diseases (diabetes, inflammatory bowel disease), invading pathogens, tumours, asthma, tissue transplantation, septic shock, platelet aggregation and blood coagulation, sickle cell disease, gastrointestinal motility, hormone secretion, gene regulation, hemoglobin delivery of oxygen, insulin signaling and diabetes, stem cell proliferation and differentiation, and bronchodilation".

NO is a water-soluble gas - like another oxidising agent Chlorine Dioxide, of which similar claims have been proposed. NO is one of the most important signalling molecules in the body, and it affects virtually every organ including the skin as tabulated in DermNet.

<https://dermnetnz.org/topics/nitric-oxide>

Some of the following claims are from Dr Nathan Bryant – biochemist – one of the Council members of the Nitric Oxide Society and who is on the Editorial Board of the Journal of Nitric Oxide. [No.1 Nitric Oxide Expert: This is the anti-aging cure no one is talking about! - YouTube](#)

Benefits

- NO is a water soluble gaseous hormone, which is made in the cells of all organisms, esp in response to inflammation.
 - Its main function is to relax the smooth muscles so your blood vessels relax and expand for better circulation including to the brain; it reduces aggregation of platelets to prevent thrombosis
 - Oxygenates the brain; Controls peristalsis and the function of sphincters; improves peripheral arterial disease.
 - Increases blood flow to kidneys and improves their function.
 - Neurotransmitter
 - Other medical interventions.
- <https://advanced.onlinelibrary.wiley.com/doi/10.1002/adv.202303259?msocid=2ea7718c806c6c702a9b67b981fb6dce>
- Nasal sprays of NO were advocated for hypoxic COVID19 patients because it is oxygenating and is antiviral, antibacterial and antifungal.

Storage

It is impossible to conserve the stability of most other vital substances, such as O₂, CO₂, blood sugar, pH, and temperature without well-functioning tissue perfusion. Because NO is so important for the diffusion of blood delivered agents to tissues and organs there has to be a ready supply of nitrates for conversion to NO. It is postulated that nitrates are [stored in](#)

[the bones, skin etc. as nitrates.](#)

Deficiency

Many age-related chronic Diseases are associated with NO deficiency

- Unfortunately, like with many other hormones, NO production decreases with age. ([graph](#)) – decline starts in your 30s.
- the organs which store nitrates degenerate – skin & bones
- Deficiency causes high blood pressure and related problems. Early symptom is penile erectile dysfunction.
- Metabolic disease & diabetes. Chronic kidney disease
- Alzheimer
- Neurological disorders, such as epilepsy, schizophrenia, drug addiction, anxiety, major depression, etc

Tips

Do

Unfortunately, with older people if the enzyme needed to produce NO is deficient, the following will have no effect.

- Sit in the sun 20 to 30 mins per day; hum; move. One way in which we can produce NO is by making guttural humming sounds, as in Brahmari or by chanting Om.
- Eat beetroot, leafy greens, dark chocolate, tea, beans, pulses and nuts if you are a vegetarian. Other sources are listed [here](#). See also *Other, including dietary* in [Biological functions of nitric oxide - Wikipedia](#)
https://en.wikipedia.org/wiki/Biological_functions_of_nitric_oxide
Turmeric increases bioavailability of NO
[-https://www.sciencedirect.com/science/article/abs/pii/S1089860323001167](https://www.sciencedirect.com/science/article/abs/pii/S1089860323001167)
- NO is generated by oxidation of the amino acid L-arginine . Eat L-arginine rich food – nuts, seeds, dairy, meat, whole grains
Wound healing occurred more rapidly in rats fed arginine-rich food.
- Mechanical stimulation of endothelial cells within vessels – ie massage releases NO.
- NO releasing NSAIDS – aspirin; paracetamol; Naproxenetc. Have NO-added versions.

Don't

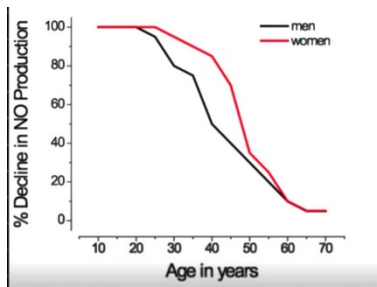
- Don't have too much sugar and carbohydrates
- Don't use mouthwash or too much toothpaste with fluoride since NO is also produced in the mouth and nasal cavities.

Excess

Taking nitrate and NO supplements can be damaging according to <https://dermnetnz.org/topics/nitric-oxide>

Hormesis is a biological phenomenon where a low dose of a potentially harmful stressor, such as a toxin or environmental factor, stimulates a beneficial adaptive response in an organism. But, in excess it becomes harmful. E.g. homeopathy uses a lot of toxic substances in high dilution.

Too much sun and excessive NO production can cause skin cancer and other problems.



RESOURCES

Readable summary

<https://publichealthpolicyjournal.com/nitric-oxide-a-remarkable-molecule-that-can-transform-your-health/>

In medical interventions:

<https://advanced.onlinelibrary.wiley.com/doi/10.1002/advs.202303259?msocid=2ea7718c806c6c702a9b67b981fb6dce>

Storage as nitrates in bones & skin

<https://pmc.ncbi.nlm.nih.gov/articles/PMC12073257/>

Articles on NO

<https://pmc.ncbi.nlm.nih.gov/articles/PMC12073257/>

<https://www.sciencedirect.com/topics/medicine-and-dentistry/nitric-oxide>

Therapeutic role of nitric oxide as emerging molecule

<https://www.sciencedirect.com/science/article/abs/pii/S0753332216308101>

Interview of Dr Nathan Bryant – biochemist – one of the Council members and on the Editorial Board of the Journal of Nitric Oxide. **No.1 Nitric Oxide Expert: This is the anti-aging cure no one is talking** <https://www.youtube.com/watch?v=zECoaEZRRFU>

00:00 Intro

blood flow, oxygen delivery, and overall longevity

Nitric Oxide Deficiency: linked to age-related chronic diseases such as erectile dysfunction, diabetes, and high blood pressure

02:17 Nathan's Mission

04:22 Decline in Nitric Oxide (NO) Production

Symptoms of Deficiency: Erectile dysfunction is often the first sign, followed by increased blood pressure and other cardiovascular issues

05:24 Symptoms of Low NO Levels

06:39 Diseases Linked to NO

08:05 What Prompted Nathan's Interest in NO?

10:19 Your Experience With Your Dad Setting You on This Path

11:52 Who Are You & Your Experience

12:58 Nitric Oxide Breakdown

How Nitric Oxide Works: It dilates blood vessels, allowing for better blood flow and oxygen delivery

14:09 Is Everything You See Just Aging?

Aging and Nitric Oxide: Nitric oxide levels decline with age, starting around 30, but this decline can be influenced by lifestyle

- 15:52 How to Measure Vascular Age
- 17:35 **Chronic Diseases Associated With NO Deficiency**
- 21:39 The Medical Industry Is Broken
Dr. Bryan expresses concern about the for-profit nature of medicine, suggesting it may not prioritize cures
- 27:25 Doctors Are Trapped in the Broken System
- 29:03 The Molecule of Longevity
Longevity: Nitric oxide is crucial for longevity because it helps mobilize stem cells, prevents telomere shortening, and improves mitochondrial function [
- 32:45 What Do You Think of Bryan Johnson?
- 34:23 **Can NO Be Overdosed?**
- 36:18 NO's Role in Increasing Telomere Length
- 38:18 Relationship Between NO and Oral Microbiome
The oral microbiome plays a significant role in nitric oxide production. Antiseptic mouthwashes can disrupt this process, leading to increased blood pressure
- 40:39 **Nathan's View on Antibacterial Products**
- 43:49 **Negative Impacts of Using Mouthwash**
- 45:53 **Oral Microbiome and Blood Pressure Connection**
- 48:10 **Link Between Oral Health and Cancer**
- 53:55 Ads
- 56:04 How to Improve Our Oral Microbiome
Improving Oral Microbiome: Avoid fluoride toothpaste and antiseptic mouthwash. Tongue scraping can be beneficial, but should not be combined with antiseptic mouthwash [*
- 58:06 Are Tongue Scrapers Beneficial for Oral Microbiome?
- 59:12 Relationship Between NO and Hormones
- 1:00:00 Should We Be Seeing Dental Hygienists?
- 1:00:31 Mouthwash Eliminates Benefits of Exercise
- 1:00:52 Foods to Boost Nitric Oxide Production
Food and Nitric Oxide: Avoid sugar and high-glycemic index foods. A balanced diet with good protein and fats is recommended
- 1:03:40 Wound-Healing Properties of NO
- 1:04:49 **Foods for NO Production**
Beetroots: Beetroots can enhance athletic performance due to their ability to improve nitric oxide production
- 1:05:22 *Beet the Odds*: Why Nathan Wrote a Book About Beetroots
- 1:08:52 **Growth of Interest in Antacid Medication**
Antacids: Dr. Bryan advises against long-term use of antacids as they inhibit stomach acid production, which is necessary for nutrient absorption
- 1:12:08 **Link Between NO Levels and Nasal Breathing**
- 1:14:51 **Humming Increases NO Levels**
Breathing: Nasal breathing activates nitric oxide production, improving oxygen uptake and lowering blood pressure
Humming: Certain frequencies of humming can also stimulate nitric oxide production
- 1:16:09 Things to Stimulate production of NO**
- 1:17:31 The Future of Medicine Relies on This
Sunlight: Exposure to sunlight can stimulate nitric oxide release
- 1:19:48 Are You Happily or Unhappily Mated?

Final Advice: Focus on lifestyle changes, including diet, exercise, and avoiding harmful products, to maintain healthy nitric oxide levels