



PHARMATROPIA

NITRIC OXIDE



**Dietary supplement formulated
to support the body's
production of Nitric Oxide (NO)**

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Introduction to Nitric Oxide Capsules

Nitric oxide (NO) is a gas naturally produced by the body, acting as a signaling molecule in various physiological processes. It is synthesized primarily in the endothelial cells lining blood vessels, where it promotes vasodilation (widening of blood vessels). This improves blood flow, reduces blood pressure, and supports oxygen and nutrient delivery to tissues. NO's importance was recognized in 1998 when Louis Ignarro, Robert F. Furchgott, and Ferid Murad received the Nobel Prize in Physiology or Medicine for their discoveries about NO's role in the cardiovascular system (Nobel Prize 1998).

NO is produced from L-Arginine through the action of nitric oxide synthase (NOS) enzymes. Factors like aging, poor diet, or stress can reduce NO production, making supplementation with amino acid precursors like those in Pharmatropia Nitric Oxide a popular choice.





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In-depth look at Key Ingredients

- L-Arginine base (400mg):
 - L-Arginine is the primary substrate for NO synthesis, converted into NO by endothelial NOS .
 - It supports vasodilation, which may improve blood flow and reduce blood pressure.
 - Research suggests L-Arginine supplementation (1,500-5,000mg daily) can improve endothelial function and reduce hypertension.
- L-Citrulline malate (65mg):
 - L-Citrulline is converted into L-Arginine in the kidneys, increasing plasma L-Arginine levels more effectively than direct L-Arginine supplementation in some cases.
 - It is particularly effective for athletes, as studies show 2,400-6,000mg daily can enhance NO synthesis and improve exercise performance.
- L-Ornithine alpha-ketoglutarate (AKG) (35mg):
 - L-Ornithine participates in the urea cycle and can be converted into L-Arginine, supporting sustained NO production.
 - Alpha-ketoglutarate enhances the bioavailability of L-Ornithine, potentially improving its efficacy.

This combination ensures a steady supply of NO precursors, addressing both immediate and long-term needs for NO production.



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Potential Health Benefits

- Pharmatropia Nitric Oxide may offer a range of benefits based on the role of NITRIC OXIDE and its precursors in the body. These include:
 - Enhancing Nitric Oxide Production
 - The synergistic blend of L-Arginine, L-Citrulline, and L-Ornithine AKG supports the body's ability to produce NO, ensuring optimal levels for physiological functions.
 - Supporting Cardiovascular and Circulatory Health
 - NO promotes vasodilation, which may reduce blood pressure and improve heart function. A 2022 review found L-arginine supplementation effective for hypertension.
 - Improving Exercise Performance and Recovery
 - Enhanced blood flow delivers more oxygen and nutrients to muscles, potentially improving endurance and reducing fatigue. L-Citrulline has been shown to enhance athletic performance when taken daily for 7-16 days.
 - Promoting Oxygen and Nutrient Delivery to Muscles
 - Improved vasodilation supports muscle energy production, reducing fatigue during physical activity.



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Potential Health Benefits

Enhancing Memory, Focus and Mental Clarity

- Emerging research suggests NO may support cognitive function by improving cerebral blood flow, though evidence is preliminary.

Boosting Vitality, Stamina and Endurance

- Increased circulation and oxygenation may enhance energy levels and physical stamina, benefiting active individuals.

Supporting Detoxification and Immune Health

- NO has antimicrobial properties and may support immune function. L-Arginine also aids liver detoxification through the urea cycle.

Promoting Brain Health and Recovery from Traumatic Brain Injury (TBI)

- NO may improve cerebral blood flow, aiding neuroprotection and recovery from TBI, though more research is needed.

Supporting Brain Function in Neurodegenerative Conditions

- Preliminary studies suggest NO's role in neural signalling may benefit conditions like Alzheimers, but evidence is limited.



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Dosage and Precautions

Dosage

- **Dosage:** Start with 1-2 capsules daily to assess tolerance, gradually increasing to 4-8 capsules in the morning and evening.
- **Timing:** Take with meals to enhance absorption.
- **Duration:** Long-term use (6-12 months) may be needed for optimal results, as NO levels stabilize over time.
- **Storage:** Store in a cool, dry place away from direct sunlight

Precautions

- Not for individuals under 18 years.
- **Medical Conditions**
- Avoid if you have low blood pressure or heart conditions unless under medical supervision.
- **Medication Interactions**
- Do not use with blood-thinners, nitrates for chest pain, or PDE5 inhibitors (e.g., Viagra).
- **Adverse Effects**
- Discontinue use if side effects like dizziness, nausea, or allergic reactions occur.
- Consult a healthcare professional before use, especially if pregnant, nursing, or on medications.



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Understanding Nitric Oxide

Nitric oxide (NO) is a gas naturally produced by the body, acting as a signaling molecule in various physiological processes. It is synthesized primarily in the endothelial cells lining blood vessels, where it promotes vasodilation (widening of blood vessels).

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NO is produced from L-arginine through the action of nitric oxide synthase (NOS) enzymes. Factors like aging, poor diet, or stress can reduce NO production, making supplementation with amino acid precursors like those in Pharmatropia Nitric Oxide a popular choice.

How Pharmatropia Nitric Oxide Works:

The supplement's ingredients work together to enhance NO production through direct and indirect pathways.

- L-Arginine base (400mg)
- L-Citrulline malate (65mg)
- L-Ornithine alpha-ketoglutarate (AKG) (35mg)

Disclaimer:

The benefits are based on the general properties of NO and its precursors. Individual results may vary, and some benefits (e.g., cognitive and neurodegenerative support) require further research. This unregistered product has not been evaluated by SAHPRA for quality, or safety or intended to diagnose, treat, cure, or prevent any disease. Please consult your health practitioner before consuming any of our products. Consult your doctor if you are pregnant or breastfeeding.



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Scientific Studies

1998 Nobel Prize in Physiology or Medicine

Awarded to Louis Ignarro, Robert F. Furchgott, and Ferid Murad for discovering Nitric Oxide's role as a cardiovascular signalling molecule. Their work showed NO regulates blood vessel dilation, laying the foundation for NO-based therapies.

<https://www.nobelprize.org/prizes/medicine/1998/summary/>

Dietary supplements for improving nitric-oxide synthesis

This review discusses the role of nitric oxide in cardiac health and exercise performance, focusing on supplements like L-arginine and L-citrulline that can enhance NO synthesis.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC9710401/>

Dietary Arginine and Citrulline Supplements for Cardiovascular Health

This narrative review examines the effects of L-arginine and L-citrulline on blood pressure, arterial stiffness, and athletic performance, providing insights into their cardiovascular benefits.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC10005484/>

Acute L-arginine supplementation reduces the O₂ cost of moderate-intensity exercise and enhances high-intensity exercise tolerance

This study found that L-arginine supplementation reduces the oxygen cost during moderate exercise and improves tolerance to high-intensity exercise, suggesting benefits for athletic performance.

<https://doi.org/10.1249/MSS.0b013e31819d81b6>

L-Citrulline Supplementation Improves Blood Pressure and Endothelial Function in Hypertensive Postmenopausal Women

- This study demonstrated that L-citrulline supplementation improves brachial artery flow-mediated dilation and reduces aortic blood pressure in hypertensive women.
- <https://doi.org/10.3390/nu15051268>



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Oral supplementation with a combination of L-citrulline and L-arginine rapidly increases plasma L-arginine concentration and enhances NO bioavailability

This study showed that combining L-arginine and L-citrulline rapidly increases plasma L-arginine levels and enhances NO bioavailability, suggesting a synergistic effect.

<https://doi.org/10.1016/j.bbrc.2014.10.029>

L-Citrulline Supplementation Reduces Arterial Stiffness and Aortic Blood Pressure in Overweight Middle-Aged Women

This study found that L-citrulline supplementation reduces arterial stiffness and aortic blood pressure in overweight women, indicating cardiovascular benefits.

<https://doi.org/10.3390/nu15051268>

L-arginine

This page discusses L-arginine's role in nitric oxide production, its potential benefits for heart health and exercise performance, and possible side effects.

<https://www.webmd.com/vitamins/ai/ingredientmono-875/l-arginine>

L-Citrulline: Uses, Side Effects, Interactions, Dosage, and Warning

This resource explains how L-citrulline is converted to L-arginine in the body, its potential benefits for cardiovascular health, and safety information.

<https://www.webmd.com/vitamins-and-supplements/l-citrulline-uses-and-risks>

What are the benefits of nitric oxide supplements?

This article discusses the potential benefits of nitric oxide supplements for heart health, exercise performance, and other conditions, while also noting the lack of conclusive evidence for some claims.

<https://www.medicalnewstoday.com/articles/326381>