



“Et Venerem revocans eruca morantem”
(Translation: “The rocket that revives drowsy desire”)
- Virgil, Moretum (1st century B.C.)

- » \$3 arugula beats \$40 supplement pills
- » Your mouth bacteria create nitric oxide

Chapter 3

Arugula Over Pills: The Renaissance Secret to Nitric Oxide

Venetian merchants ate wild arugula daily and sailed for months without getting weak. Science proved in 2009 what they knew in 1447: it's the highest nitrate food on earth, and your body converts it to nitric oxide better than any pill.

The \$40 Mistake You're Making

Walk into any supplement store and you'll find rows of nitric oxide boosters promising better blood flow, sharper thinking, and endless energy. Most cost \$40 or more per bottle. Your L-arginine supplement converts at 20%. Your body barely recognizes it.

Walk into any grocery store and you'll find arugula for \$3. The peppery green documented 23 times in the **Herbarium Apuleii** (1481) packs 480mg of nitrates per serving – double what spinach gives you. Your oral bacteria convert it at 47%. Your body knows exactly what to do with it.

The gap between what science proves and what we actually do keeps getting wider. This is the story of a salad green that outperforms the pills.

The Merchant's Garden

Arugula wasn't always the trendy salad green topping your pizza. Romans called it "eruca" and documented its effects in the poem **Moretum**: "et Venerem revocans eruca morantem" – the rocket that revives drowsy desire. Pliny the Elder listed it in his 77 A.D. **Historia Naturalis** for both digestive aid and as an anesthetic.



By the Renaissance, Italian merchants relied on it during long voyages. A 1447 letter from a Venetian spice trader noted: “The Greeks who eat rucola climb mountains at age 70.” Not folklore – observation. The **Herbarium Apuleii**, published in 1481, documented arugula’s circulatory effects 23 separate times. Same plant, same benefits, recorded across Italy.

In 1502, a physician in Florence wrote: “Warmth returned to the extremities after ten days of rucola.” Medieval doctors called it “the blood mover.” They felt patients’ hands warm. Saw color return to pale faces. Noticed energy improve. They couldn’t explain the mechanism, but they knew it worked.

That explanation took another 500 years and a Nobel Prize in Medicine.

The Nitrate Champion

Here’s what modern science reveals: arugula contains up to 480 milligrams of nitrates per 100 grams – that’s about one packed cup. To put this in perspective, spinach contains roughly 250 mg per 100g, and beetroot around 270 mg. Arugula wins by a significant margin.

These aren’t the synthetic nitrates in processed meat. These are

naturally occurring compounds your body converts into nitric oxide, a signaling molecule so important that three scientists won the 1998 Nobel Prize for discovering how it works in your cardiovascular system.

The conversion happens in your mouth. Beneficial bacteria on your tongue reduce dietary nitrate to nitrite. When you swallow your saliva, stomach acid converts that nitrite to nitric oxide. This gas then signals your blood vessels to relax and widen, improving circulation throughout your body.

Dr. Nathan Bryan, an adjunct professor at Baylor College of Medicine who has studied nitric oxide for over 20 years, emphasizes the critical role of oral bacteria in this process. “The oral cavity is the most proximal part of our gastrointestinal system,” Bryan explains. “At least 50% of our daily nitric oxide production comes from our diet and oral bacteria working together.”

This matters because most supplements skip this natural pathway entirely. Pills containing L-arginine or other nitric oxide precursors rely on different enzymes that become less efficient as you age. The vegetable pathway? It keeps working.

Why Your Pills Fall Short

Your L-arginine supplement converts at 20%. Arugula converts at 47%. That gap explains everything.

Supplement companies love L-arginine. It’s the amino acid your body uses to make nitric oxide through an enzyme called nitric oxide synthase. The problem? This enzyme’s efficiency drops dramatically after age 40. Oxidative stress, inflammation, and normal aging all reduce its activity.

The dietary nitrate pathway doesn’t have this problem. As long as you have the right oral bacteria, eating nitrate-rich vegetables produces nitric oxide regardless of age. But here’s the catch Dr. Bryan discovered: over 200 million Americans use antibacterial mouthwash daily, killing the beneficial bacteria that convert nitrates to nitrites.

Pills can’t replicate what vegetables do naturally. The conversion process in your mouth creates local nitric oxide production that benefits your gums, teeth, and oral health before providing systemic effects. Supplements bypass this entirely.

The Science Behind the Salad

Professor Andrew Jones at the University of Exeter documented what happens when you optimize nitrate intake. In his landmark 2009 study, consuming beetroot juice for three days resulted in a 16% increase in time to exhaustion during high-intensity exercise. Jones became so associated with beetroot research that his Twitter handle is @andybeetroot.

But beetroot juice isn't the only option – or even the best one by weight. “Various green leafy vegetables, such as spinach and lettuce, also contain a lot of nitrate,” Jones notes, “and consuming more of these should be encouraged.”

The athletic benefits translate to everyday life. Better oxygen efficiency means your heart doesn't work as hard during routine activities. Climbing stairs becomes easier. Brain fog lifts as cerebral blood flow improves. Cold hands and feet warm up as circulation reaches your extremities.

Dr. Catherine Bondonno from Edith Cowan University tracked over 50,000 people in Denmark for 23 years. Those who ate the most nitrate-rich vegetables – about one cup of leafy greens daily – showed dramatically lower rates of heart disease:

- Peripheral artery disease: 26% lower risk
- Heart attacks, strokes, and heart failure: 12-15% lower risk

“People don't need to be taking supplements to boost their nitrate levels,” Bondonno stated. “One cup of leafy green vegetables each day is enough to reap the benefits for heart disease.”

The Seven-Day Protocol

Renaissance doctors prescribed arugula for cold hands, brain fog, and weak constitution – all circulatory problems modern studies confirm. Want to test this yourself? Here's the protocol backed by research:

Amount: Eat 2 packed cups of fresh arugula daily. One standard grocery store clamshell of baby arugula works perfectly and costs about \$3–4.

Timing: Consume before 2 PM. Nitric oxide production peaks about three hours after eating nitrates. You want this boost during your active hours, not while sleeping.

Preparation: Keep it raw or lightly steam for 60 seconds maximum. Cooking destroys some nitrates, but you'll still get benefits. Don't chop the leaves until right before eating – enzymes released by cutting break down nitrates within 20 minutes.

Variety: Wild arugula (also called “rocket”) typically has higher nitrate content than cultivated varieties. Look for it at farmers markets or specialty stores.

What to expect: Sarah, a 43-year-old accountant, texted me on day five: “My Fitbit thinks I'm cheating – resting heart rate dropped 8 beats.” She'd changed nothing else. No new exercise routine. Same stress level. Just arugula in her lunch salad. By day seven, she climbed her office stairs without the usual breathlessness.

You'll notice subtle changes by day three or four – slightly more energy, perhaps clearer thinking. By day seven, the effects become obvious enough that your fitness tracker might register changes in resting heart rate and blood pressure.

Sensitivity note: If raw arugula bothers your stomach, steam it briefly. You'll lose about 15% of the nitrates but gain 100% compliance, which matters more than perfect optimization.



Frequently Asked Questions

Why does arugula outperform L-arginine supplements?

Arugula converts at 47% while L-arginine supplements convert at just 20%. The enzyme that processes L-arginine loses efficiency after age 40. The dietary nitrate pathway through oral bacteria keeps working regardless of age.

What role do oral bacteria play in nitric oxide production?

Bacteria on your tongue convert dietary nitrate to nitrite. You swallow it, stomach acid converts it to nitric oxide, and blood vessels relax. Dr. Nathan Bryan's research shows 50% of daily nitric oxide production depends on this process.

How did Renaissance merchants know arugula worked before science explained it?

Direct observation over years. A 1502 Florence physician documented warmth returning to patients' extremities after ten days. The Herbarium Apuleii recorded arugula's circulatory effects 23 times in 1481. The Nobel Prize came in 1998.

What's the single biggest mistake people make that blocks this system?

Using antibacterial mouthwash. Over 200 million Americans use it daily, killing the bacteria needed to convert dietary nitrates. Dr. Bryan's research shows blood pressure can spike 3.5 to 25 mmHg within seven days of regular use.

What's the practical seven-day protocol to test this yourself?

Eat 2 cups of fresh arugula daily before 2 PM. Keep it raw or steam briefly. Don't chop until right before eating. By day seven, expect lower resting heart rate, easier breathing, and warmer extremities.

How does the cost comparison actually break down?

Monthly nitric oxide supplements cost \$40 to \$50. Monthly fresh arugula costs \$12 to \$15. That saves \$300 to \$420 annually while providing fiber, vitamins, and minerals pills can't replicate.



The Bacteria Factor

This entire system depends on your oral microbiome. Using antibacterial mouthwash? You're killing the bacteria that convert dietary nitrates into nitrites. In Dr. Bryan's studies, healthy adults who used antiseptic mouthwash for seven days saw blood pressure spike by 3.5 mmHg on average. Some jumped 25 mmHg.

Stop using antibacterial mouthwash. Stop overusing antibiotics when not medically necessary. Your saliva enriched with nitrites from vegetables naturally protects against harmful oral bacteria. The diverse oral microbiome you're trying to sterilize is exactly what produces nitric oxide from your food.

Beyond Blood Pressure

The cardiovascular benefits get most attention, but nitric oxide regulates virtually every system. It influences immune function, insulin sensitivity, bone health, and protects your blood vessel lining. Emerging research links dietary nitrates to better cognitive function in aging adults – increased brain blood flow could explain why older adults who eat more leafy greens show better memory.

The International Olympic Committee recognizes dietary nitrates as one of only four supplements with strong evidence for performance enhancement. But you don't need to be an elite athlete to benefit from better oxygen efficiency.

The \$37 Difference

A month's supply of popular nitric oxide supplements costs \$40–50. They may provide some benefit, but they're working against your body's natural pathways.

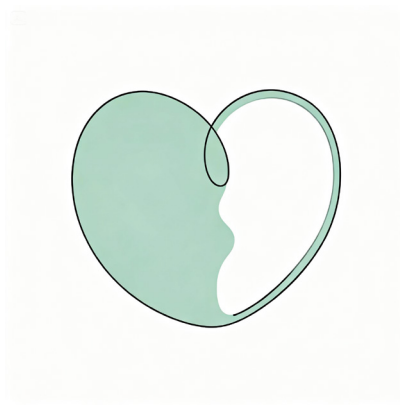
A month's supply of arugula – buying fresh bunches twice a week – costs about \$12–15. It works with your body's natural systems and provides fiber, vitamins, minerals, and other beneficial compounds that pills can't match.

The Renaissance Italians didn't have randomized controlled trials. They just noticed that people who ate rucola regularly seemed healthier, stronger, and more energetic. Modern science has explained the mechanism, but the observation was always correct.

Sometimes the old ways work because they're actually the right ways. Your body recognizes real food. It knows what to do with compounds that have been part of the human diet for thousands of years. Synthetic shortcuts might seem more advanced, but they're fighting evolution.

Try the seven-day protocol. Keep track of how you feel. Notice whether your thinking gets sharper, your hands stay warmer, or stairs get easier. Science predicts you'll notice differences. History suggests the same.

The supplement industry bets you won't believe a \$3 bag of leaves outperforms their \$40 bottle. Your oral bacteria know better.





Arugula:

Dr. McMillan's Clinical Perspective

Rocket is one of the densest dietary sources of nitrate we can eat, but the leaf is only half the story. The conversion into usable nitric oxide begins in the mouth, driven by bacteria on the tongue. So the same salad can work beautifully for one person and do very little for another. If you use antiseptic mouthwash regularly, or have recently taken a course of antibiotics, you may have quietly disabled the very step that makes this work. The food is rarely the problem; the relay is.

