NAD+ Supplements Boost Your Blood Levels. Your Cells May Not Care

7 MIN READ

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BY GREG PRESTO

NAD+ powers every cell you have. But supplementing it isn’t as simple as the biohackers say.

The sales pitch for NAD+ supplementation sounds like a Marvel-esque super soldier serum: Inject this molecule that your body loses with age, or take one of the precursors that makes your body manufacture it, and you’ll have more energy, less brain fog, better performance in the gym, and be your young self again.

In mice and rats, **multiple studies have shown that it’s basically true**. Increasing the blood levels of this molecule, which is used in making energy for every cell, delays signs of aging, protects heart health, and boosts metabolism.

That’s great news for rodents. For us humans, the evidence isn’t as ironclad. Even when certain supplements increase NAD+ levels in the blood, the anti-aging results we’re after (more energy, better performance in the gym) haven’t shown up in clinical studies. And an increase in the NAD+ pool in the body has been **linked to the growth of tumors**.

But many biohackers swear by these supplements, undergoing daily injections that can cost $300-500 per month. And more people are interested than ever: In 2025, **the Vitamin Shoppe reported** that searches for NAD+ on its website had jumped by 500 percent.

Should you join them? In this article, I’ll break down what NAD+ is, what it does, and what the science says about supplementing it, with expert input from Sapna Patel, M.D., the William Robinson Endowed Chair in Cancer Research at the University of

Colorado School of Medicine, and Brandon Richland, M.D., a board certified plastic surgeon in Newport Beach, California, who prescribes NAD+ to his patients.

NAD+ Fast Facts:

- NAD+ is essential for cellular energy production, DNA repair, and enzyme function.
- Studies suggest NAD+ levels decline with age.
- Animal studies have shown promising anti-aging results for supplementing with NAD+ and its precursors, but human trials haven't backed up the energy and performance benefits supplementers are after.
- NMN, a precursor of NAD+, was reinstated as a lawful dietary supplement by the FDA in September 2025.
- Exercise, especially heavy resistance training, can help maintain NAD+ levels naturally.

What NAD+ Does, and Why We Lose It With Age

Nicotinamide adenine dinucleotide, or NAD+, is essential to the function of every cell in your body.

That's because it's key in your mitochondria's ability to make energy for your cells to use: The "powerhouses of the cell" convert nutrients from food and glucose from your blood into a fuel source that your cells can use, called adenosine triphosphate, or ATP. And **the process that makes ATP requires NAD+**; so without NAD+, your cellular energy would be *nada*.

It's also **used in other reactions in the body**:

- Creating cholesterol and fatty acids,
- Oxidizing other fatty acids
- Repairing damaged DNA.

NAD+ also acts as a substrate for certain enzymes, meaning it's the material on which the enzyme acts to perform its function. One such family of enzymes are sirtuins, whose activity increases with calorie restriction, and are considered one of the reasons that calorie-restricted diets are associated with longer lifespan.

We have less NAD+ as we age because our bodies' production of the molecule dwindles while our needs for it rise: **There's more activity by enzymes that need NAD+ in order to react**, and our DNA is damaged, so more is needed for repair. With less NAD+ on board, we've got less energy, and the decline **may also contribute to the aging process itself.**

Should You Supplement? What the Human Trials Show

Since NAD+ is essential to the function of every cell, and we've got less of it as we age, it's natural to think that adding more to the system as a supplement should help, says Dr. Patel.

But more NAD+ on board doesn't necessarily mean our body can use more, she cautions. While **our bodies make some NAD+ directly,** production is limited to specific cells. Most cells rely on a recycling system called a "salvage pathway" to get NAD+. This means that when NAD+ is broken down in processes that use it, your cells can use the waste product to make more.

It's similar to how creatine facilitates energy production: Your cells use adenosine triphosphate, or ATP, for power. When that process happens, a phosphate drops off

the ATP molecule. Creatine grabs it and makes a new ATP molecule.

“Ideally, we break [NAD+] down, we recycle, we break it down, we recycle. But as we age, the breaking down process happens a little faster than the recycling process,” Dr. Patel explains. “If all you do is put in more NAD+, and you don’t address the recycling problem pretty quickly, what you’ve done is overwhelmed the recycling machinery.”

So when you add more NAD+ to the system, or when using NAD+ precursors like NR and nicotinamide mononucleotide (NMN), scientists have found that **the amount of NAD+ in the bloodstream goes up**. In rat models, that increase in blood levels **has been shown** to boost muscular strength, performance, and recovery. But in humans, the benefits aren’t as clear: A research review **published in *Nature Metabolism* in October 2025** found that the evidence that increased NAD+ in the bloodstream carries over to the performance and energy boosts we’re looking for in the gym isn’t quite there yet.

Even though the clinical evidence is lacking, many people who supplement with NAD+ do feel more robust. At Richland’s clinics, patients who start with a 25 mg NAD+ injection report that they “have a little bit more energy, reduced brain fog, and sort of better cognition.”

“For the first couple of weeks, those are the biggest results we’re seeing,” Richland tells us. He’s been prescribing injectable NAD+ supplements to his patients for more than a year. Patients start with the 25 mg dose, and sometimes go up to a daily dose of 50 mg, injecting themselves at home. In addition to the short-term results, he says, “more long-term, you start to see better muscle function, and metabolic improvements.”

Supplementing with Vitamin B3, another NAD+ precursor, **has also been shown to help with sleep quality**.

How to Boost NAD+ Naturally (For Free)

NAD+ levels aren't determined just by age; they can be improved (and maintained) with certain lifestyle changes:

- **Heavy strength training:** In **one study**, overweight individuals who started lifting twice per week boosted the NAD+ levels in their muscle cells by more than 100 percent. In **another study**, 12 weeks of combined strength and cardio training boosted NAMPT, one of the catalysts for the NAD+ recycling process, by 25 percent in young people, and 30 percent in older people.
- **Eat your niacin:** One of the precursors of NAD+ is Vitamin B3, or niacin. When people are critically low on NAD+ (a deadly disease called pellagra), **niacin is used as treatment**. Though *over*-eating it can cause uncomfortable, flushed feelings, make sure to hit your **recommended daily amount**: 16 mg for men, 14 mg for women. Foods rich in niacin include chicken breast, fatty fish like salmon and tuna, avocado, anchovies, and peanuts.
- **Eat foods with tryptophan:** The NAD+ that your body naturally makes is predominantly made from this amino acid—the same one that famously makes you tired after eating turkey. In addition to the Thanksgiving feast, you can get tryptophan from chicken, oats, eggs, and seeds. One study found that **eating 5 grams per day** increased NAD+ markers. That's about the amount you'd find in 4.5 ounces of chicken breast, or 5 eggs.

People have also seen boosts in NAD+ from fasting, but the studies on it require **more than two days** without eating. Cold exposure has **boosted NAD+ levels in mice**… but you're not a mouse.

If you do consider supplementing, know that NAD+ injections aren't cheap; at Richland's clinic, injections cost around $100 per week. But the injections, and the

precursors, are generally considered safe. NMN, which previously had been banned as a dietary supplement, was **reinstated by the U.S. Food and Drug Administration in** September, with final confirmation letters sent to manufacturers in December. The clinical evidence isn't there yet. Anecdotal results vary.

To make sure you stay safe, Patel advises talking to your doctor if you are interested in direct NAD+ supplementation, or its precursors. There may be medications you're taking or conditions you're at risk for that NAD+ could interfere or interact with:

- **Blood pressure medications:** NAD+ **lowers your blood pressure**. So if your doctor's already lowering it with another medicine, they should know about any efforts to boost NAD+.
- **Blood thinners, like warfarin**: In **one case study**, a woman on an extended-release dose of niacin and one of these drugs had complications from the niacin changing how her body metabolized the medicine.
- **Diabetes medication**: NAD+ precursors have been shown to **create glucose intolerance** in mice, not in humans. But they **do increase blood sugar in humans** , so tell your doctor if you're prediabetic or diabetic before taking these supplements.
- **Cancer treatment:** NAD+ can fuel cancer growth. So if you're in treatment, Patel says, talk to your oncologist.

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WRITTEN BY:



Greg Presto