NAD+

Nicotinamide Adenine Dinucleotide (Cellular Coenzyme)

What It Is & What It Does

NAD+ is a coenzyme required by every cell for energy metabolism and DNA repair. Tissue NAD+ levels drop by roughly 50% between young adulthood and middle age (Cell Metabolism), which is the basis for research interest in restoring it through injection, IV infusion, or precursor supplementation.

What The Research Shows

- A 2025 randomized controlled trial in long-COVID patients (published in eClinicalMedicine) used nicotinamide riboside (an NAD+ precursor, not direct NAD+) and raised blood NAD+ levels 2.6-3.1-fold, but found no statistically significant improvement in cognition, fatigue, sleep, or mood versus placebo on the primary endpoints.
- That same trial's post-hoc exploratory analysis found that participants who stayed on NR for at least 10 weeks showed within-group improvements in executive functioning, fatigue severity, sleep quality, and depressive symptoms — changes not seen during the placebo phase, though this was exploratory, not the trial's primary confirmed result.
- A 2022 review in Age and Ageing identified NAD+ precursor therapy as a biologically plausible candidate for age-related cognitive decline based on PARP-enzyme DNA-repair mechanisms, while explicitly calling for larger trials before drawing conclusions.
- Important distinction: nearly all human RCT data in this space is on oral/precursor forms (NR, NMN), not direct injectable NAD+. No rigorous randomized trial of IV or injectable NAD+ specifically for cognitive or fatigue outcomes currently exists — that data gap is real and worth knowing before assuming precursor results transfer directly.

Reported Side Effects

- Flushing, chest tightness, or nausea, particularly with rapid IV administration
- Injection site discomfort
- Headache reported in some users

Regulatory Status

Not FDA-approved as a drug product for anti-aging, cognitive, or fatigue indications. Sold and administered in wellness/research settings; not evaluated for safety or efficacy in that specific context by FDA.