

NAD+ — Research Summary

Research Use Only. Not for human consumption. For laboratory/research reference purposes only.

Part of the Prolific Peptides Research Library — a summary of published third-party research, provided for informational and research purposes only. This content is separate from product listings and does not constitute a claim about any Prolific Peptides product's effects.

1. What It Is

NAD⁺ (nicotinamide adenine dinucleotide) is a coenzyme found in every living cell, central to mitochondrial energy production (electron transport chain, ATP synthesis) and to DNA repair enzymes (PARPs) and sirtuin signaling. It is not a peptide, but is commonly stocked alongside peptides in longevity-focused RUO catalogs. Human tissue NAD⁺ levels are reported to decline by roughly 50% between ages 40 and 60, which underlies the research interest in NAD⁺ repletion.

Administration routes studied: intravenous (IV) infusion, subcutaneous/intramuscular injection, and oral precursor supplementation (nicotinamide riboside/NR, nicotinamide mononucleotide/NMN).

2. Reported Effects in Research Literature

This is one of the more heavily marketed compounds in the longevity space, and it's worth being precise in documentation about where the evidence actually is:

- Systematic review (2026, Ageing Research Reviews): A PRISMA-guided review screening human and rodent studies from 2010–2025 found that of 33 human studies (28 RCTs, 5 nonrandomized), interventions overwhelmingly evaluated oral NAD⁺ precursors (NR, NMN, niacin/nicotinamide) — no eligible outcomes trials evaluated intravenous or intramuscular NAD⁺ itself for anti-aging or wellness indications.
- Oral precursors (NR/NMN): Consistently demonstrated biochemical target engagement (raised circulating/cellular NAD-related metabolites) and were generally well tolerated over weeks to months. Effects on functional, metabolic, and vascular outcomes were heterogeneous — often null or endpoint-specific.
- IV NAD⁺ pharmacokinetics: A pilot study of a 6-hour IV NAD⁺ infusion (750mg) found no measurable change in plasma NAD⁺ or its metabolites until after 2 hours into the infusion — direct human pharmacokinetic data for infused NAD⁺ remains sparse.
- Preclinical (rodent): NAD⁺ augmentation was frequently associated with improvements across metabolic, mitochondrial, inflammatory, and functional outcomes, though effects varied by model and endpoint — a strong animal signal not yet matched by controlled human outcome data.
- Historical/clinical use: IV NAD⁺ has been used clinically in some settings for alcohol withdrawal, with reported clinical benefit noted in older literature, though rigorous modern trial data is limited.
- Neurological research interest: Preclinical Parkinson's and Alzheimer's models show cognitive/motor improvements with NAD⁺ repletion; NR trials for Parkinson's disease are ongoing. Uncontrolled clinical reports describe improvements in brain fog/fatigue, including in long-COVID contexts, but controlled trial data specific to this use is limited.
- Bottom line: NAD⁺'s mechanistic biology is well established, but the injectable/IV form specifically has a notably thin controlled human trial base compared to how it's marketed.

3. Clinical & Preclinical Study References

Massudi H, et al. Human tissue NAD⁺ decline with age. (2012). PMID: 22870241

Systematic review: "NAD⁺ supplementation for anti-aging and wellness: A PRISMA-guided systematic review of preclinical and clinical evidence." Ageing Research Reviews. 2026;103057.

Grant R, et al. "A Pilot Study Investigating Changes in the Human Plasma and Urine NAD⁺ Metabolome During a 6 Hour Intravenous Infusion of NAD⁺." PMC.

Randomized pilot trial comparing IV NR vs. IV NAD⁺ vs. oral NR vs. placebo (NCT06382688). medRxiv, 2024.

Reyna K, Heinzen G, Patel N, Ritter M, Siojo A, Legere H, Pojednic R. "Intravenous infusion of nicotinamide adenine dinucleotide (NAD⁺) versus nicotinamide riboside (NR): a retrospective tolerability pilot study in a real-world setting." Frontiers in Aging. 2026. PMC12907335

Regulatory/Safety Note: NAD⁺ injectable/IV products are not FDA-approved for anti-aging or wellness indications. Compounded NAD⁺ injections are not manufactured under FDA finished-drug-product oversight.

Verification Update: A retrospective real-world tolerability pilot (Reyna et al., 2026, *Frontiers in Aging*) directly comparing IV NAD+ vs. IV NR in a commercial clinic setting was identified and added — this is the most direct injectable-NAD+ human data published since the original review. It remains uncontrolled/retrospective and does not close the outcomes-trial gap the 2026 systematic review flagged.

This compound has not been evaluated by the FDA and is not intended to diagnose, treat, cure, or prevent any disease in humans or animals.

This document is for informational and research purposes only. It does not constitute medical advice, dosing guidance, or an endorsement of human or veterinary use. For full terms governing research use, see our RUO Policy at ProlificPeptides.com.

This summary may not be reproduced, excerpted, or used as product labeling or marketing copy without written permission from Prolific Peptides, LLC. Regulatory and research-status information reflects publicly available sources as of September 7, 2026, and may change.