

NAD+

History and Background

NAD⁺ (Nicotinamide Adenine Dinucleotide) is a coenzyme found in all living cells that plays a crucial role in energy metabolism, DNA repair, and cellular aging. NAD⁺ levels naturally decline with age. The use of supplemental NAD⁺ and its precursors gained popularity in longevity and anti-aging medicine in the 2010s-2020s. While NAD⁺ precursors (NMN, NR) are commonly taken orally, direct NAD⁺ administration via injection or IV has become popular despite ongoing debate about efficacy.

Primary Uses

NAD⁺ is investigated for anti-aging and longevity support, improved energy metabolism, enhanced mitochondrial function, DNA repair and cellular health, cognitive enhancement, addiction recovery support, and improved athletic performance and recovery.

How It Works

NAD⁺ is essential for cellular energy production (ATP synthesis), acts as a substrate for sirtuins (longevity proteins), supports PARP enzymes involved in DNA repair, and is required for mitochondrial function. Proponents suggest that increasing NAD⁺ levels may slow aspects of aging, improve cellular function, and enhance overall vitality. However, direct NAD⁺ injection efficacy is debated since NAD⁺ doesn't easily cross cell membranes.

Standard Protocol

Dosing: IV infusions: 500-1000mg per session. Injections: 100-1000mg per day. Nasal spray: 30mg daily. Start lower and increase based on response.

Administration: IV infusion (most common), subcutaneous or intramuscular injection, nasal spray formulations available.

Timing: IV sessions typically weekly or bi-weekly initially, then monthly. Injections often morning to align with circadian metabolism.

Titration Schedule:

Standard IV Dose: 500-1000 mg per session

Injection Dose: 100-1000 mg per day (subcutaneous or IM)

Nasal Spray: 30 mg per spray, once daily

Frequency: IV: weekly to monthly. Injections: 1-2x weekly or daily

Duration: Initial intensive phase: several weeks with frequent dosing. Maintenance: monthly or as-needed sessions. Long-term protocols vary widely.

What to Expect

Positive Effects (Week 1-2)

Reported benefits include: improved energy within hours to days, enhanced mental clarity and focus, better physical performance and recovery, improved mood and sense of well-being. Note: Individual responses vary dramatically, and placebo effects may be significant.

Timeline to Results

Acute effects (energy): hours to 1-2 days. Sustained benefits: 2-4 weeks with regular dosing. Long-term cellular benefits: theoretical, require months. Scientific evidence for many benefits remains limited.

Dose Response

Higher IV doses (1000mg) may produce stronger acute effects. Optimal dosing not well-established. Some experts question whether direct NAD⁺ administration is effective at all.

Pros

Generally well-tolerated
May provide acute energy boost
Supports important cellular processes theoretically
Non-invasive options (nasal spray) available
Growing interest in longevity medicine
May support addiction recovery (some evidence)
Can be combined with other longevity interventions

Cons

Limited scientific evidence for many claimed benefits
IV NAD⁺ effectiveness questioned by some experts ("silly" per some researchers)
Very expensive, especially IV infusions
Effects may be largely placebo
IV infusions can cause discomfort during administration
Optimal dosing and protocols not established
Long-term safety data limited
Direct NAD⁺ may not effectively reach intracellular targets
Oral precursors (NMN, NR) may be equally or more effective and cheaper

Who Should Consider It

Individuals interested in longevity optimization, those experiencing age-related energy decline, people in addiction recovery programs (under supervision), athletes seeking performance edge, biohackers willing to experiment with emerging therapies.

Who Should Avoid It

Those expecting dramatic proven results, individuals on tight budgets (very expensive), people preferring evidence-based treatments only, those uncomfortable with IV procedures.

NAD+ supplementation for anti-aging remains experimental. Many claimed benefits lack strong scientific support. Oral NAD+ precursors may be more cost-effective. Consult healthcare providers before use.

