

COMPOUND GUIDE

NAD+ — Nicotinamide Adenine Dinucleotide

1000mg Pre-filled Pen · reusable pen included · ready to use — no reconstitution · SubQ · Injectable form not FDA-approved

Quick Start



NAD+ IS NOT A PEPTIDE

NAD+ (nicotinamide adenine dinucleotide) is a coenzyme, not a peptide. It is grouped with research peptides in many injectable research contexts due to its availability as a lyophilised injectable powder. It is the same molecule regardless of formulation; "buffered NAD+" simply contains a pH stabiliser that reduces injection-site stinging.



WHAT IT IS

NAD+ is an essential coenzyme found in every cell. It is the primary electron carrier in cellular respiration (ATP production), a substrate for PARP DNA repair enzymes, and a regulator of sirtuin (SIRT1-7) longevity pathways. Cellular NAD+ levels decline with age, which is one rationale for NAD+ supplementation research.



ROUTES OF ADMINISTRATION

Research studies use multiple routes: **SubQ injection** (50–100 mg 2–3x per week), **IV infusion** (250–1,000 mg per session, clinic-administered), **IM injection**, **intranasal**, oral precursors (**NMN or NR** — the strongest published human RCT base), and pre-mixed injection pens. Oral NR and NMN are the most evidence-supported delivery routes for systemic NAD+ elevation.



REGULATORY STATUS

Injectable NAD+: not FDA-approved. Oral NR (Nicotinamide Riboside): classified as GRAS/NDI supplement in the US. Oral NMN: the FDA excluded NMN from the dietary supplement definition in 2022–2023. No WADA ban on NAD+ itself. For injectable research purposes only.



Dosing by Route

ROUTE	DOSE	FREQUENCY	NOTES
SubQ (injectable)	50–100 mg	2–3x per week	Most accessible injectable route; some injection-site stinging common
IV Infusion	250–1,000 mg	Weekly or biweekly	Clinic-administered; fastest delivery; common nausea side effect at high doses
Oral NR	300–1,000 mg	Once or twice daily	Strongest human RCT base; GRAS supplement; converts to NAD+ in cells
Oral NMN	250–600 mg	Once daily	600 mg shows largest NAD+ rise (Yi 2022 dose-response RCT); excluded from supplements 2022–23



BUFFERED VS UNBUFFERED NAD+

Buffered NAD+ contains a pH stabiliser (e.g. sodium bicarbonate) that reduces the injection-site stinging experienced with unbuffered NAD+. The molecule and biological effects are identical. If stinging is significant with unbuffered, buffered formulations are worth exploring.



Using Your Pre-filled Pen



READY TO USE — NO RECONSTITUTION

The LA LAB NAD+ 1000mg Pre-filled Pen ships pre-filled and pre-mixed in a reusable dial-a-dose pen — no powder to mix, no BAC water, no drawing up. Attach a pen needle, dial your researched dose and inject SubQ. Each pen holds 1000 mg NAD+; at a typical 50–100 mg SubQ research dose that is roughly **10–20 doses per pen**. Kit includes the reusable pen (pre-filled), 10 alcohol wipes and 5 pen needles.

Step-by-Step

01

Bring to room temperature

Take the pen from the fridge a few minutes before use and wipe the pen tip with an alcohol swab (10 included).

02

Attach a pen needle

Screw on a fresh pen needle (5 included). Remove the outer and inner caps and keep the outer cap for safe removal later.

03

Prime (first use)

On first use, dial a 1–2 unit test dose and press until a droplet appears at the needle tip — this clears any air from the pen.

04

Dial your dose
Turn the dial to your researched dose per the Dosing-by-Route table above. NAD+ can sting on injection — a buffered pen feels smoother.

05

Inject slowly, SubQ
Swab the site, pinch a fold of skin, insert at 90°, press the plunger fully and hold ~10 seconds before withdrawing. Inject SLOWLY — a fast NAD+ push increases stinging and flushing.

06

Remove needle & refrigerate
Unscrew and safely discard the needle after each use (never store the pen with a needle on). Re-cap the pen and store at 2–8°C, protected from light.

 Mechanism of Action

ATP PRODUCTION

NAD+ and NADH cycle as electron carriers in the mitochondrial electron transport chain. NAD+ accepts electrons from glycolysis and the TCA cycle, then donates them to Complex I, driving ATP synthesis via oxidative phosphorylation.

DNA REPAIR (PARP)

PARP-1 (poly-ADP ribose polymerase) uses NAD+ as a substrate to add poly-ADP ribose chains to DNA repair proteins at strand-break sites. Low NAD+ impairs this DNA damage response.

SIRTUINS (SIRT1-7)

NAD+-dependent deacylases that regulate gene expression, metabolism, and stress response. SIRT1 deacetylates PGC-1α (mitochondrial biogenesis), FOXO transcription factors, and NF-κB. Sirtuin activity requires NAD+.

CD38 CONSUMPTION

CD38, an enzyme expressed on immune cells, is the primary consumer of NAD+ in aged tissue. CD38 levels increase with age and chronic inflammation, contributing to the age-associated decline in tissue NAD+.

 Key Human Studies (Oral Precursors)

STUDY	COMPOUND	DESIGN	KEY FINDING
Martens 2018	NR (Niagen)	RCT; 12 adults; 6 weeks	Whole blood NAD+ elevated 60% vs baseline; well tolerated
Conze 2019	NR	RCT; dose-response	Dose-dependent NAD+ elevation; up to 2.7× at 1,000 mg/day
Dollerup 2018	NR	RCT; 40 obese adults; 12 weeks	NAD+ elevated; no significant metabolic effect at this dose
Yi 2022	NMN	RCT; dose-response (100/300/600 mg)	600 mg/day produced largest NAD+ rise; dose-response relationship confirmed
Brakedal 2022	NR	RCT; Parkinson's disease; 12 weeks	Significantly elevated brain NAD+ on MRS; tolerated in neurodegenerative disease context

 Storage

STATE	TEMPERATURE	DURATION	NOTES
Pre-filled pen (sealed)	2–8°C (refrigerator)	Per batch expiry on the pen	Store upright, protected from light; do not freeze the pre-filled pen
Pre-filled pen (in use)	2–8°C (refrigerator)	Until finished, within batch expiry	Store with NO needle attached; re-cap between doses; keep out of light
Short-term (travel)	<25°C	Up to 48 hours	NAD+ is more heat-sensitive than typical peptides; minimise time at room temperature



DISCLAIMER
This document is an educational research reference only. Injectable NAD+ is not FDA-approved. Oral NR and NMN have published human RCT evidence for NAD+ elevation but not for specific therapeutic outcomes. By purchasing from LA LAB you confirm you are 18+ and that products are for research purposes only.