celia
Research Protocols

Longevity

NAD+ 500mg

About

NAD+ is a vital coenzyme being studied for its role in cellular energy production, mitochondrial function, and healthy aging. It may also support DNA repair, cognitive performance, and neuroprotection.

***These products are for research use only and are not intended for human consumption, medical use, therapeutic use, or diagnostic purposes.** They are not to be used in foods, drugs, cosmetics, dietary supplements, or any products intended for humans or animals. Peptides are not sterile, have not been tested for safety or efficacy in humans, and must not be injected, ingested, inhaled, applied to the skin, or administered in any form. No product sold is intended to treat, cure, mitigate, or prevent any disease.

What's Included

- One vial, concentration: 500mg/4mL
- One vial will last 1 month

Reconstitution kit

- (20) 29-30G subq needles
- (1) 5mL syringe
- (1) 25G needle with syringe
- (1) 10 mL reconstitution solution

Clinical Research Potential Benefits:

- May support cellular energy and metabolic function
- May enhance DNA repair and promote longevity
- May improve cognitive performance and neural plasticity
- May help reduce neuroinflammation

Clinical Research Suggested Use:

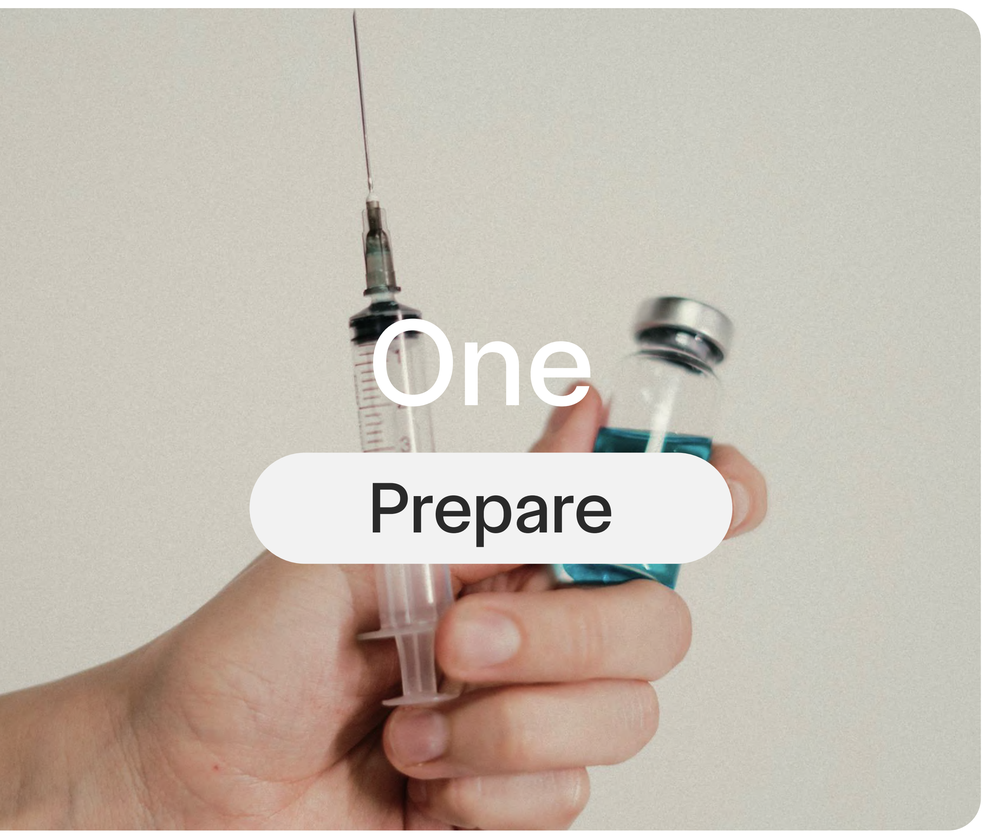
- Administer 3 days per week in the AM
- Month 1: Draw 20 units (25mg)
- Month 2: Draw 40 units (50mg)
- After 6 weeks: decrease to 2 days per week
- Duration: 12 months
- Reconstitute: add 4mL of the pre-filled reconstitution solution to the to the vial
- Injection type: subcutaneous injection

*Can be administered IM if experiencing redness, itching or swelling at the injection site

Reconstitution & Administration*

*Instructions start on page 2

NAD+ Reconstitution



STEP 1: Remove plastic covers, clean vial and reconstitution solution top with alcohol pad for 15 seconds

STEP 2: Using the large syringe from your administration kit, pull out 4mL of reconstitution solution

- It may take a few repetitions to load your syringe with the 4mL , with no air pockets

STEP 3: Once you've loaded your syringe, slowly inject the 9mL of reconstitution solution into your NAD+ vial:

- On its side to not damage the bonds of the product
- Do not shake, gently swirl if needed
- Allow the solution to sit for at least 5 minutes

***Supplies:** 5 mL syringe (large), 25G needle, reconstitution solution, NAD+ vial, Alcohol pad

STEP 1: Clean the injection area with an alcohol pad

STEP 2: Inject subcutaneously (see pg 3)

- Repeat 2-3x days per week in the AM
- Duration: 12 months
- One vial will last one month

Injection Steps

Subcutaneous Injection steps:

1 Choose & Clean the Injection Site

- Use the abdomen (3 inches from the belly button), thigh, or upper arm. Rotate sites to prevent irritation. Clean the area with an alcohol swab and let it dry.

2 Inject

- Pinch 1 to 2 inches of skin, insert the needle at a 90° angle, and slowly push the plunger down.

3 Remove the Needle & Dispose

- Pull the needle out at the same angle, apply light pressure with gauze (don't rub), and dispose of the syringe in a sharps container.

4 Monitor for Reactions

- Mild redness or soreness is normal. Seek medical help if you experience severe pain, swelling, or an allergic reaction.

Intramuscular Injection steps:

1 Choose & Clean the Injection Site

- Use the thigh (vastus lateralis), upper arm (deltoid), or glute (ventrogluteal or dorsogluteal muscle).
  - Rotate sites to prevent soreness. Clean the area with an alcohol swab and let it dry.

2 Inject

- Stretch the skin taut, hold the syringe like a dart at a 90° angle, and insert the needle quickly and smoothly. Slowly push the plunger down to inject.

3 Remove the Needle & Dispose

- Pull the needle straight out, apply light pressure with gauze (don't rub), and dispose of the syringe in a sharps container.

4 Monitor for Reactions

- Mild soreness or redness is normal. Seek medical help if you experience severe pain, swelling, or an allergic reaction.

NAD+ Mechanism of Action

- **Mitochondrial Energy Production:**
  - NAD+ functions as a critical redox cofactor in cellular energy metabolism. Within the mitochondrial electron transport chain, NAD+ accepts and donates electrons through oxidative phosphorylation, driving ATP generation and sustaining cellular energy balance. This process is essential for mitochondrial efficiency and overall metabolic vitality.

- **DNA Repair and Longevity Pathways:**
  - NAD+ serves as a required substrate for poly(ADP-ribose) polymerase (PARP) enzymes involved in DNA repair and genomic stability. It also activates sirtuin deacetylases (SIRT1–SIRT7), key regulators of mitochondrial biogenesis, inflammation control, circadian rhythm, and metabolic homeostasis. Through these pathways, NAD+ supports cellular longevity and resilience under stress.

- **Neurocognitive and Neuroprotective Support:**
  - By maintaining neuronal redox balance and activating sirtuin signaling, NAD+ enhances neuronal energy metabolism, neurotransmitter synthesis, and synaptic function. These effects promote cognitive clarity, mitochondrial protection, and improved neuronal recovery following oxidative or metabolic stress.

- **Immune Regulation and Inflammatory Control:**
  - NAD+ helps preserve immune function by counteracting depletion caused by CD38 enzyme activity, which increases with age and inflammation. Sustaining intracellular NAD+ levels supports immune cell metabolism, cytokine regulation, and mitochondrial-driven immune responses, reducing inflammatory burden and supporting immune resilience.

- **Cellular Homeostasis and Aging Defense:**
  - As a master metabolic cofactor, NAD+ integrates energy metabolism, DNA repair, and cellular defense systems. Restoration of NAD+ levels enhances mitochondrial communication, promotes autophagy, and combats metabolic decline associated with aging and chronic disease.