

# NAD+ Vitality

## DESCRIPTION

NAD<sup>+</sup> is a coenzyme used by several different types of enzymes, such as the sirtuins (SIRTs), adenosine diphosphate (ADP), ribose transferases (ARTs) and the cyclic ADP-ribose (cADPR) synthases. Through these activities, NAD<sup>+</sup> metabolism and its intermediate metabolites regulate a broad spectrum of functions, such as energy metabolism, DNA repair, regulation of inflammation, immune cell function, mitochondrial function, cognitive and neuronal health, and insulin sensitivity and glucose homeostasis. Maintaining a healthy ratio of coenzymes NAD<sup>+</sup>/NADH affects many aspects of health, including the dynamics between metabolism and immune cell functions.

However, NAD<sup>+</sup> levels and NAD<sup>+</sup>/NADH ratios decline with age. These lower levels are associated with many of the symptoms that were previously considered an unavoidable part of aging. Many now recognize the relationship between NAD<sup>+</sup> and insulin sensitivity, stress management, circadian rhythm and neurodegeneration.<sup>1</sup>

The proprietary RiaGev<sup>®</sup>-WS<sup>™</sup> blend of Bioenergy Ribose<sup>®</sup> in NAD<sup>+</sup> Vitality has been shown to increase NAD<sup>+</sup>, NMN and NR levels in the blood.

## FUNCTIONS

- **Energy & Mitochondrial Function**  
Production of adenosine triphosphate (ATP), the energy currency of the body related to mitochondria metabolic processes, is impacted by NAD<sup>+</sup> levels and the ratio of NAD<sup>+</sup>/NADH. NAD deficiency is associated with lower energy levels and mitochondrial dysfunction or damage. Mitochondrial damage is associated with type 2 diabetes, cardiovascular disease and some cancers.<sup>2</sup>
- **Sirtuins and DNA Repair**  
Sirtuins, a group of proteins involved in the metabolism and aging of cells, serve as cellular responses to oxidative and genotoxic stress. Appropriate levels of NAD<sup>+</sup> and NAD<sup>+</sup>/NADH ratios are necessary for sirtuins and sirtuin activity.<sup>3,4</sup> Maintaining adequate levels of NAD<sup>+</sup> can positively impact DNA regeneration and repair through

NAD<sup>+</sup>'s capacity as a substrate for the sirtuins as well as the poly (adenosine diphosphate-ribose) polymerases (PARPs).<sup>5,6,7</sup>

- **Cognitive Support**  
Restoring NAD<sup>+</sup> levels proved beneficial in animal models for Alzheimer's disease, with study results indicating NAD<sup>+</sup> plays a role in the prevention of neurodegeneration and protection against free radicals. Multiple NAD<sup>+</sup>-dependent processes are involved in neuroplasticity — where neurons in the brain develop new learning and memory pathways — when previous synaptic junctions were damaged or lost.<sup>6,7</sup> The effects of NAD<sup>+</sup> availability may also help improve sleep and subsequently mental clarity.<sup>7</sup>
- **Insulin Sensitivity**  
NAD<sup>+</sup> and NAD<sup>+</sup>-dependent sirtuins also modulate insulin sensitivity and glucose homeostasis. An overexpression of SIRT1 reportedly improved glucose intolerance and dyslipidemia. SIRT1 was shown to regulate glucose and lipid metabolism, as well as increase NAD<sup>+</sup> contents and SIRT1 activity in adipose tissue to help prevent diet-induced insulin resistance.<sup>8</sup>
- **Immune Balance and Inflammation**  
NAD<sup>+</sup> is an intermediate for many immune responses and its availability can have impacts on resolution of inflammatory conditions. While more research is needed, most studies show that increased NAD<sup>+</sup> levels have anti-inflammatory effects. Inflammageing, an age-related increase in pro-inflammatory markers for chronic inflammation, decreased in many cases by increasing the availability of NAD<sup>+</sup> through NAD<sup>+</sup> precursors.<sup>9</sup> Recent studies also show NAD<sup>+</sup> contributes to anti-tumor T-cell responses.<sup>9</sup>

## INDICATIONS

NAD<sup>+</sup> may be a beneficial adjunct therapy for those wishing to increase levels of NAD.

*(Continued on following page)*

## FORMULA (WW #10433)

### 1 Vegetarian Capsule Contains:

Vitamin C .....	218 mg
Niacin.....	67.5 mg
Bioenergy RiaGev®-WS™ .....	750 mg
(A proprietary blend of Bioenergy Ribose® and nicotinamide ascorbate)	

Other Ingredients: Hypromellose (capsule), microcrystalline cellulose, vegetarian leucine.

Gluten-Free, Soy-Free, Vegetarian

## SUGGESTED USE

As a dietary supplement, adults take 1 capsule daily, or as directed by a healthcare professional.

## CAUTION

If pregnant, nursing or taking medication, consult your healthcare practitioner before taking any supplement.

## STORAGE

Store in a cool, dry place, away from direct light and out of reach of children

## REFERENCES

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9. Navarro, Maria N., et al. "Nicotinamide adenine dinucleotide metabolism in the immune response, autoimmunity and inflammation." *British Journal of Pharmacology*, vol. 179, no. 9, 2021, pp. 1839–1856, <https://doi.org/10.1111/bph.15477>.

†These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

Manufactured For:

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