

“Mood Food” NAD | P21 Mouth Spray 4x 12x 30x

Background

According to the World Health Organization (WHO) (2022) brain health allows a person to realize their full potential over their life course, regardless of the presence or absence of disorders.⁹ Despite the importance of brain health, it is often minimized in relation to other health discussions. For example, it is estimated that forty percent of dementia cases are preventable by simple lifestyle changes, e.g., diet, exercise, and neuroprotective supplements.¹⁰ Modern definitions of brain health incorporate holistic cognitive, affective, physical, and behavioral elements, with mental health and wellbeing emphasized.¹¹ “Mood Food” NAD | P21 Mouth Spray 4x 12x 30x is a powerful cognition, learning, memory, and mood supplement formulary designed to promote neuroprotective properties and overall brain health.

Research

Nicotinamide adenine dinucleotide (NAD⁺) is a significant coenzyme for redox reactions, playing an important role in energy metabolism.¹ Put simply, a redox reaction is one that transpires between an oxidizing agent and a reducing agent, e.g., the oxidizing agent loses electrons, and the reducing agent gains electrons in the reaction. NAD⁺ exerts both direct and indirect effects on multiple cell functions including cellular senescence, chromatin remodeling, DNA repair, immunity, and metabolic pathways.¹ P21 works as an inhibitor of cell cycle progression and anti-proliferative effector in normal cells, notably as a mediator of p53 tumor suppressor action.^{2,3} The protein hinders the movement of cyclin-dependent kinase (CDK)–cyclin complexes and proliferating cell nuclear antigen (PCNA), leading to suppression of apoptosis (e.g., programmed cell death).^{2,3} Researchers face challenges developing p21 for therapeutic intervention as the protein is a tumor suppressor yet performs as an oncogene in certain cell environments.³

Natural aging results in a decline in NAD⁺ levels leading to changes in enzyme function and biosynthetic adjustments follow.¹ The connection between NAD⁺ and age-related markers such as telomere attrition and mitochondrial dysfunction has been studied and the coenzyme’s reduction is associated with progression of age-related diseases such as arthritis, atherosclerosis, cognitive decline, diabetes, and hypertension.^{4,5} In relation to brain health, cognitive function, and mood enhancement, attenuation of NAD⁺ levels are linked to axonal degeneration, a forerunner to multiple age-related neuronal disorders.^{6,7} There is increasing evidence that NAD⁺ is important for maintaining a healthy brain and nervous system and may offer neuroprotective properties to delay or treat neurodegenerative diseases.¹

Although p21 is mostly implicated in cancer research, Li et al. (2010) found evidence of the p21 protein to promote development of neurogenesis and maturation of nascent neurons in mice.⁸ As a peptidergic compound, the p21 protein appears to mimic neurotrophins functionality, and, by extension, stimulate neurogenesis and development of nascent brain cells into functional neurons.⁸ The authors suggest these implications yield potential therapeutic options to improve cognition and enhance learning and memory.⁸

Conclusion

There is evidence to suggest that NAD⁺ coenzyme levels are associated with age-related markers such as telomere attrition and mitochondrial dysfunction and the protein p21 plays a role in DNA damage responses, additionally associated with differentiation, senescence (biological aging), and apoptosis (programmed cell death). Combined in a synergistic mouth spray supplement formulary, the two function as a potent brain health and mood enhancement dietary aid. This formula enables a cascade of important protein to protein interactions that promotes neuroprotective properties while optimizing cognition, learning, and memory. Research is ongoing to better understand mechanisms of action, however, both the NAD⁺ coenzyme and the protein p21 are associated with anti-aging elements, possibly preventative treatment for neurodegenerative diseases.

References

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Summary

There is evidence to suggest that NAD⁺ coenzyme levels are associated with age-related markers such as telomere attrition and mitochondrial dysfunction and the protein p21 plays a role in DNA damage responses, additionally associated with differentiation, senescence (biological aging), and apoptosis (programmed cell death). Combined in a synergistic mouth spray supplement formulary, the two function as a potent brain health and mood enhancement dietary aid. This formula enables a cascade of important protein to protein interactions that promotes neuroprotective properties while optimizing cognition, learning, and memory. Research is ongoing to better understand mechanisms of action, however, both the NAD⁺ coenzyme and the protein p21 are associated with anti-aging elements, possibly preventative treatment for neurodegenerative diseases.