

UNDERSTANDING

NAD⁺

Nicotinamide adenine dinucleotide (NAD⁺) is a vital cofactor present in all living cells, essential for a multitude of metabolic processes. It functions primarily as a carrier of electrons in redox reactions, crucial for the production and transfer of energy in cells. NAD⁺ is involved in key metabolic pathways such as glycolysis, the citric acid cycle, and oxidative phosphorylation.

Beyond its metabolic roles, NAD⁺ is fundamental for DNA repair, cellular signaling, and gene expression regulation through its interaction with enzymes like sirtuins and poly (ADP-ribose) polymerases. The decline in NAD⁺ levels with age is associated with various age-related diseases, highlighting its potential in interventions aimed at enhancing health and longevity.

Benefits Include:

- * Promotes healthy brain function
- * Slows cognitive decline
- * Decreases chronic fatigue and boosts energy levels
- * Regenerates the cells and enhances metabolism
- * Slows aging and reduces body inflammation

MITOCHONDRIAL ENERGY PRODUCTION: NAD⁺ is an essential coenzyme in mitochondrial respiration, where it participates in the transfer of electrons during the electron transport chain. This process generates ATP, the primary energy currency of cells. NAD⁺ acts as a crucial mediator in the conversion of nutrients into energy within the mitochondria. Maintaining optimal NAD⁺ levels is essential for efficient energy production and overall mitochondrial function.

MITOCHONDRIAL METABOLISM: NAD⁺ acts as a cofactor for enzymes that facilitate these processes. Adequate NAD⁺ levels are necessary for these metabolic pathways to operate effectively, supporting the production of energy and essential cellular building blocks.

NEUROPROTECTION: NAD⁺ has been implicated in various mechanisms of neuroprotection. It plays a role in maintaining the health and function of neurons, including the repair of damaged DNA in neurons, and promoting the production of neuroprotective factors. Some research suggests that boosting NAD⁺ levels may have neuroprotective effects and help mitigate the impact of neurodegenerative diseases.

AGING: NAD⁺ has garnered significant attention in the field of aging research. It is involved in regulating various processes associated with aging. NAD⁺ levels tend to decline with age, and this decline is thought to contribute to the aging process. Increasing levels of NAD⁺ can slow down aging.