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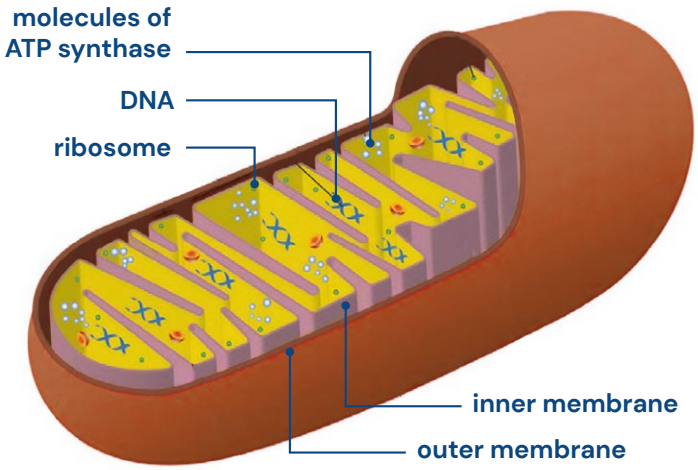
new

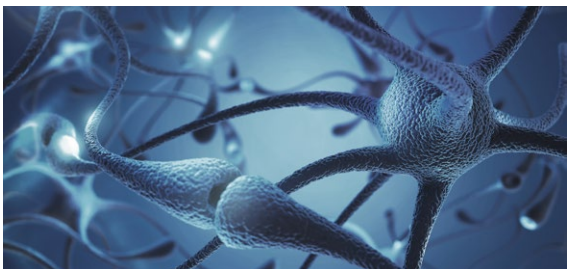
# Mitochondrial dysfunction drives age-related diseases


## Mitochondria are the power generators of our cells



# Carbohydrates & Fatty Acids + Oxygen → ATP

Nutrients are converted into ATP in the presence of Oxygen. ATP is the "currency" to power the cell's metabolic activities.



**Neurons need ATP**

**› Neuronal Activity**
**› Neuronal survival**
**› Neurotransmission**
**› Ca++ homeostasis**

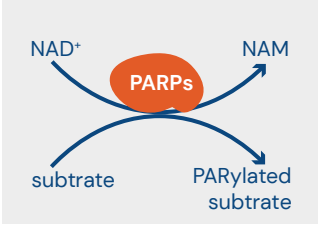
Neurodegenerative diseases are correlated with mitochondrial dysfunction:
- reduced function of the electron transport chain with leakage of free radicals
- disrupted mitochondrial biogenesis

# CogniFuel, The answer to brain aging

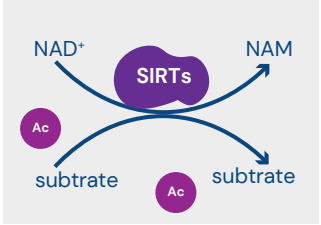
| | | |
|---|---|---|
| **indication** | Prevention and treatment of various neurological disorders and neurodegenerative diseases<br>Cognitive disorders<br>Mitochondrial dysfunction and optimisation | |
| **dosage** | 3 x 1 caps per day | |
| **packaging** | 90 vegecaps per container | |
| **composition** (amount per 3 vegecaps) | Centella Asiatica<br>Coffea (Whole Coffee Fruit Extract)<br>Vit B3 (as Nicotinamide riboside)<br>PQQ | 1000 mg<br>200 mg<br>200 mg<br>20 mg |


## component 1: NAD+

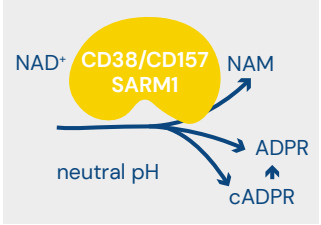
NAD+ is a **vital redox co-factor,** a key substrate for different enzymes.




Genomic integrity
Healthy aging

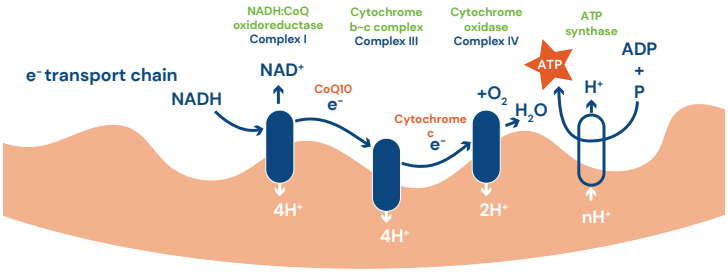



Metabolism, neuroplasticity, healthspan/lifespan




Mitochondria transfer, immunity, social behavior

NADH provides **electrons** to the electron transport chain. The efficiency to generate ATP depends on the ratio NAD+/NADH.




**NAD+ depletion** is observed during normal aging and in neurodegenerative diseases like Alzheimer's disease (AD), Parkinson's disease (PD), Huntington's disease (HD), Amyotrophic lateral sclerosis (ALS).

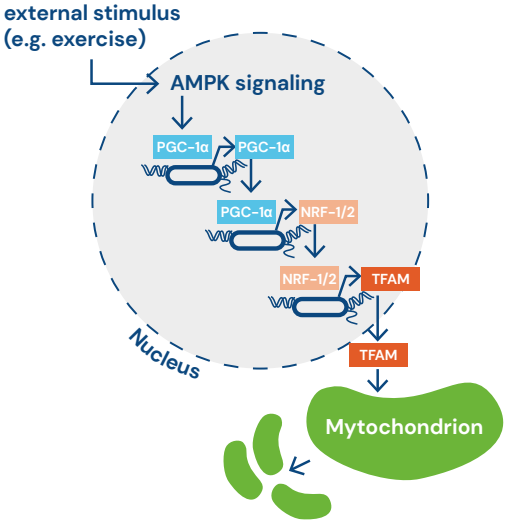
**NAD+ restoration** with NAD+ precursor Nicotinamide Riboside as a therapeutic strategy.

## component 2: PQQ

PQQ (Pyrroloquinoline Quinone Disodium Salt) is a powerful **redox-agent** and participates to the **electron transport chain.**

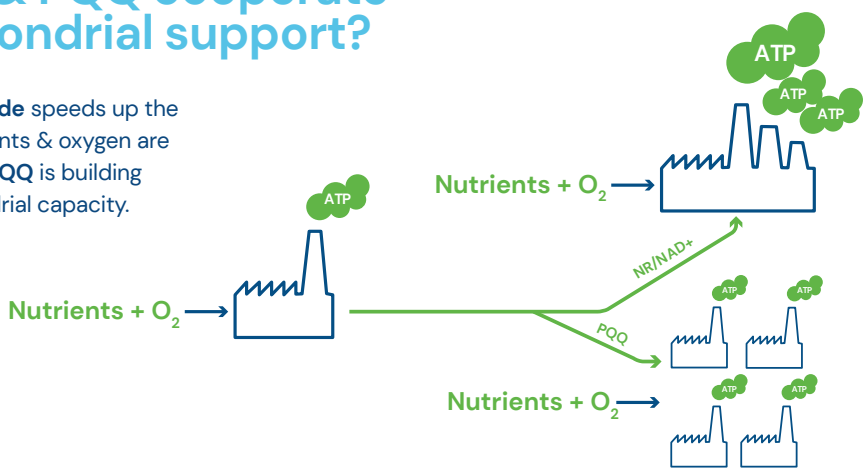
PQQ promotes the **generation of new mitochondria**, the biogenesis, via increased expression of PGC-1α.

Endurance training is the most effective external trigger to induce mitochondrial biogenesis.




# How do Nicotinamide Riboside & PQQ cooperate in mitochondrial support?

**Nicotinamide Riboside** speeds up the process where nutrients & oxygen are converted into ATP. **PQQ** is building additional mitochondrial capacity.



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