

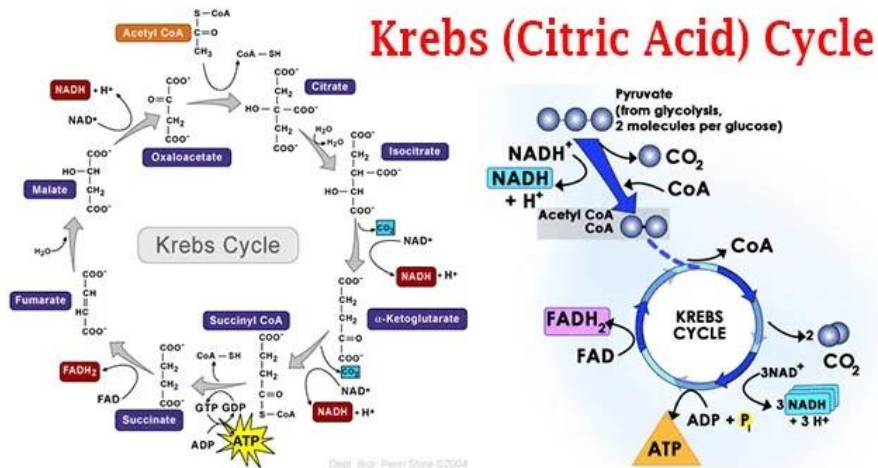
Product Call - NMN

With Tina Malsom and Mary Esther Gilbert, MSc HN, BSc NSP

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1. What is NAD+?

- Stands for the nicotinamide adenine dinucleotide molecule, which is constantly being converted from the precursor NMN (nicotinamide mononucleotide) molecule during the energy production cycle in the cells.



<https://microbiologyinfo.com/krebs-citric-acid-cycle-steps-by-steps-explanation/>

- NAD+ Is a critical coenzyme found in every cell in the body, involved in countless metabolic processes, and is the engine that drives metabolism.
- Is an essential component in the body's ongoing energy production process.
- Acts as a signaling molecule and a carrier or vehicle for delivering essential components to the cells.
- Communicates with the DNA.
 - Acts as a cellular fuel, increasing cellular energy.
 - Drives mitochondrial action, improving energy metabolism.
 - Drives intracellular communications.
 - Is a coenzyme or "helper" molecule, activating other enzymes to help stimulate actions for producing the energy required for every single cellular action, such as:
 - DNA repair.
 - Generating new nerve cells.
 - Cellular communications in intracellular and intercellular signaling.
 - Attenuating inflammatory responses.
 - Boosting the immune functions.

- Aiding in muscle repair.
- Aiding in cardiovascular (heart and blood vessel) functions.
- Improving insulin sensitivity.
- Improving sensitivity to stress.

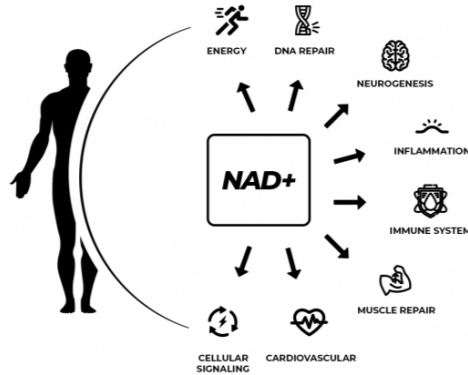
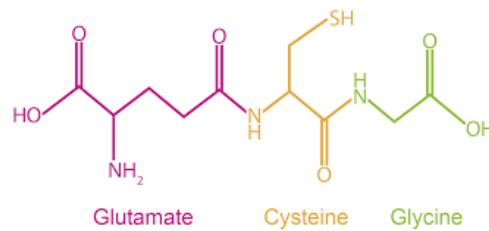
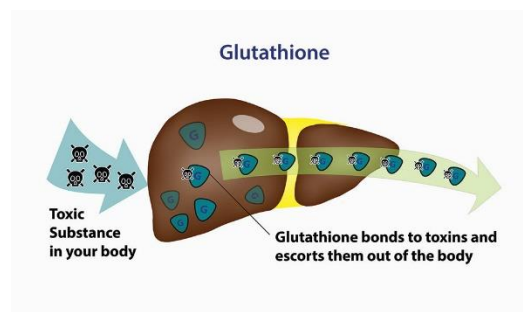


Image: <https://elixhealth.eu/nad-plus/>

2. What is glutathione?



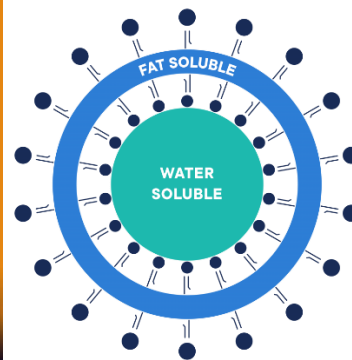
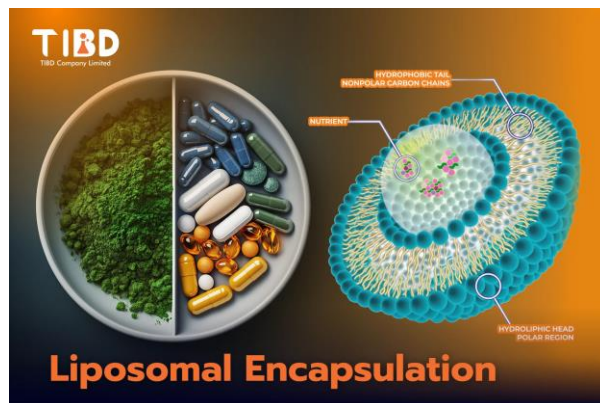
- Called the body's "master antioxidant", is naturally produced in the body by the liver.
- Is a tripeptide, composed of three amino acids: cysteine, glycine, and glutamic acid.
- Protects cells and DNA from degenerative oxidative stress.
- Aids liver detoxification of synthetic pollutants and other harmful substances.
- Binds to toxins, pollutants, heavy metals such as mercury, and facilitates the elimination from the body through its detoxifying organ channels.



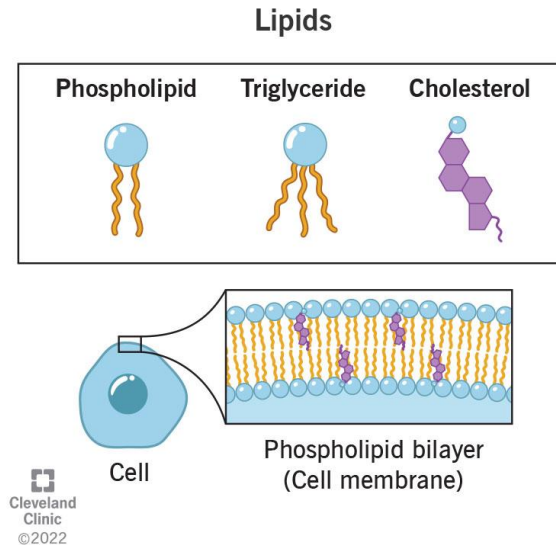
- Supports immune system functions, including fighting infection.
- Supports skin firmness and cell regeneration.
- Glutathione levels decrease due to aging, poor diet, chronic stressors.
- A factor influencing glutathione levels in the body and its ability to produce it depends on the presence of specific nutrients, which deficiencies affect the ability to digest protein:
 - Omega-3 fatty acids.
 - Whole food-derived B complex.
 - Whole food-derived vitamins C and E.
 - Cruciferous vegetables such as broccoli containing the phytonutrient sulforaphane may increase glutathione and related antioxidant enzymes.
 - Green tea has been shown to increase blood glutathione levels.
 - Sulfur-rich fruits and vegetables were found to increase glutathione in the body (Minich, 2019).

3. What does liposomal mean?

- A technology (liposomal encapsulation) that uses microscopic fatty phospholipid bubbles (liposomes) to enclose nutrients in supplements or drugs, protecting them from the stomach acid, and aiding absorption into the small intestine and then into the bloodstream, improving bioavailability.



<https://www.tibdglobal.com/en/product/liposomal-encapsulation-service/>
<https://plantacorp.com/liposomal-encapsulation-technology-for-a-food-supplement-alternative/>



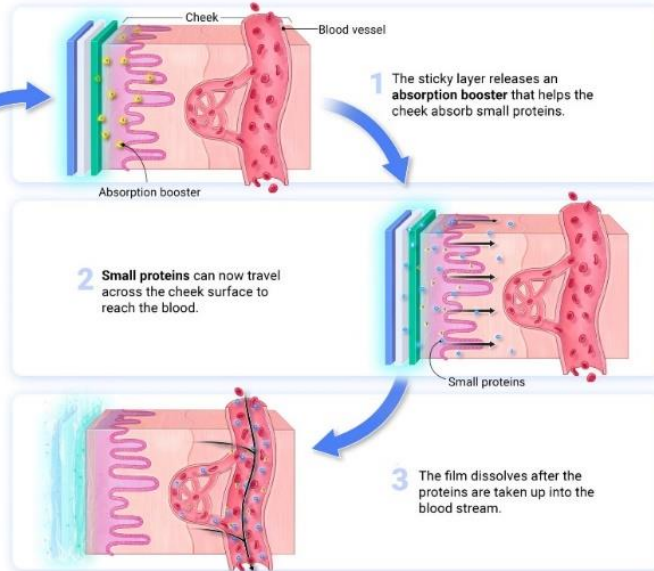
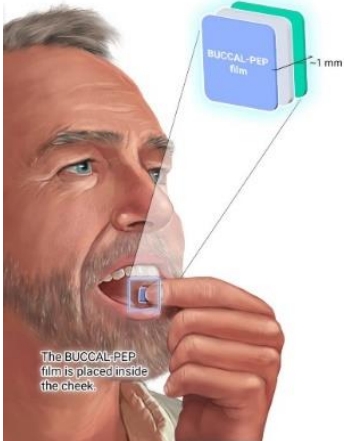
- Commonly used for vitamins such as C and D3, minerals, and glutathione supplements.
- Liposomal glutathione showed decreases in the biomarkers for oxidative stress and enhanced immune functions (Sinha, 2018).

4. Why would a thin strip be better for a product than a pill or a shot?

- Oral dissolving films are created through a film technology using liposomal encapsulation, designed to enhance absorption, reach the bloodstream within minutes, and therefore improve nutrient bioavailability.
- The saliva in the mouth rapidly dissolves the thin, edible film, which ingredients are rapidly absorbed through the oral mucosal cells via a liposomal (fat-soluble) carrier, a nutrient delivery system that bypasses the digestive tract.
 - The micro liposomal encapsulation consists of fat-like molecules that allow immediate absorption, bypassing the digestive system and eliminating the process where the liver breaks down fats into fatty acids before they are released into the bloodstream.
- These micro-emulsifying films also improve the absorption of fat-soluble vitamins D3 and E. (Chaves, 2023)

Understanding the BUCCAL-PEP film

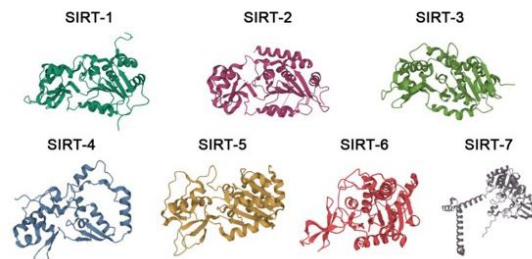
BUCCAL-PEP is working on a novel approach to deliver peptide (small protein) therapies to the blood stream, through a small film placed inside the cheek.



<https://buccal-pep.eu/2025/07/30/the-buccal-pep-film-at-a-glance/>

5. Why does NAD diminish as you age?

- As with so many factors that contribute to aging, the body's capacity for generating NAD+ depends on one's level of nutritional quality and its nutrient density, one's detoxifying capacity, physical activity, level of regular hydration, the amount of sunlight to which one is exposed to daily, and levels of stress.
- NAD+ fuels and modulates the **"longevity sirtuin proteins"**, a family of seven sirtuins (SIRT-1 – SIRT-7), that protect chromosomes from aging, and are known as "guardians of the genome".
 - Sirtuins SIRT-1 and SIRT-6 are critical guardians of the telomeres.
- Plant phytochemicals are natural activators of sirtuin activity by increasing the nicotinamide adenine dinucleotide NAD+ pool, which is essential for sirtuin function. By activating these enzymes, phytochemicals help to:
 - Improve diabetes and obesity.
 - Reduce aging-related decline.
 - Help prevent neurodegenerative diseases.



Images: <https://www.nad.com/news/sirtuin-modulating-compounds-influencing-the-function-of-key-proteins-for-longevity>

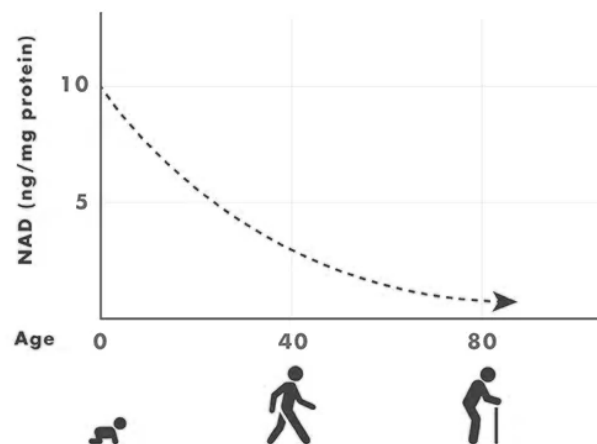
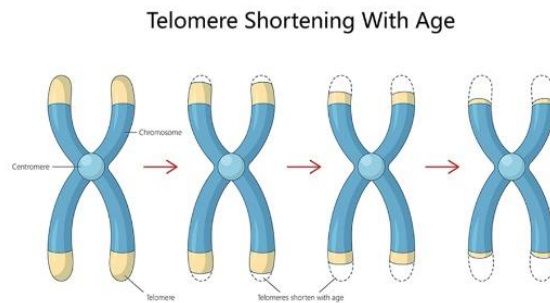


Image: <https://elixhealth.eu/nad-plus/>

- The APLGO drops contain a vast array of phytochemical complexes known to prevent the degeneration of chromosomes and their telomeres, especially LFT:



<https://www.hubmeded.com/blog/telomeres-and-aging>

- The plant phytochemical class of polyphenols are natural activators of all seven sirtuins (SIRT-1 – SIRT-7).
 - Modulate DNA repair and inflammation.
 - Modulate metabolism, mimicking the effects of caloric restriction.
- Key phytochemicals also include resveratrol, curcumin, quercetin, fisetin, and berberine.
 - Resveratrol – grapes, berries, peanuts, strongly activate SIRT-1.
 - Curcumin – turmeric, influences SIRT-1 and SIRT-3.
 - Quercetin – onions, kale, modulate SIRT-1, providing anti-inflammatory and antioxidant effects.
 - Fisetin – strawberries, regulate SIRT-1, improving lipid or fat metabolism.
 - Berberine – affects SIRT-1 for improving signaling pathways.
 - Kaempferol – triggers SIRT1 for anti-aging, antioxidant effects (Wicinski, 2023)

6. Why is vitamin C such a big deal?

- Delays or slows aging.
- Is the most potent antioxidant of all other vitamins.
- Known to reduce oxidative stress (cell damage due to chronic stress or toxic conditions associated with rapid aging).
- Works with NMN synergistically, supporting and protecting cellular work.
- While NMN raises NAD⁺ levels, studies show that together, Vitamin C and NAD⁺ more effectively boost cellular energy production and reduce oxidative damage.
- Combined with NMN, has been shown to help repair skin damage or photoaging, caused by excessive deep UVB sunlight radiation (Zhang, 2007) (Zhang, 2025).

Reference

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