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7 Strategies To Boost Mitochondrial Health

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The Importance of Mitochondrial Health

There are many diseases that are linked to mitochondrial dysfunction. These include diabetes, cancer, cardiovascular disease, ALS, Parkinson's disease, and possibly more.

Mitochondria are often characterized as the powerhouses of our cells, tasked with the production of ATP, the energy currency to drive all cellular processes.

In healthy cells, healthy mitochondria can use various substrates and various methods in the production of ATP. The most commonly known form is the citric acid cycle, also known as the Krebs cycle. Here, a single glucose molecule ultimately yields on the order of 36 ATP. Healthy mitochondria can also use ketone bodies derived in the liver from fatty acids in the absence of carbohydrates to produce energy in an enzymatic path that produces significantly less free radicals than the citric acid cycle.

Cancer cells have malfunctioning mitochondria, often referred to as ghost mitochondria. These altered mitochondria have lost many of their evolved enzymatic pathways, and can only ferment two types of fuel: glucose and glutamine. Fermentation is a primitive form of energy production and only yields 2 ATP per glucose molecule for example. This explains why cancer cells need vast amounts of glucose and/or glutamine in order to exist, grow, and divide at rapid rates.

This phenomenon is exploited in diagnostic techniques like a PET scan, where radioactively labeled glucose is taken up in very high proportion by cancer cells, and therefore makes tumors visible on imaging.

But mitochondria have many more important functions other than energy production. They are in fact at the root of cellular health. As postulated in the concept of metabolic therapy, mitochondria or their dysfunction rather, may be at the root of developing diseases like cancer, diabetes, heart, disease, and so on. This deviates from previous assumptions that cancer begins with damage to the DNA, which then causes uncontrolled cell division. Tests were done where a healthy nucleus with healthy DNA was implanted into a cancer cell with malfunctioning ghost mitochondria. The cell would continue to divide as a cancer cell despite its healthy DNA.

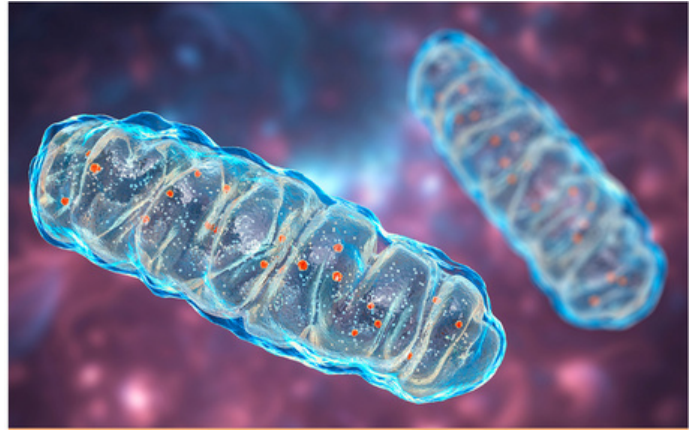
The researchers then took a healthy cell with healthy DNA and healthy mitochondria, and swapped its nucleus for a cancer cell nucleus with damaged DNA. The resulting cell continued to divide like a healthy cell. This experiment shows that the mitochondria seem to have the ultimate importance in determining what type of cell we are looking at.

A host of research publications have shown the importance of mitochondria for cell functioning and health.

Improving mitochondrial health, therefore results in improved overall health. Here are seven strategies to optimize the health of your mitochondria.

Here are 7 ways to boost *Mitochondrial* Health

Your Health



01.

Dietary Adjustments

Cut out seed oils and reduce simple sugars, limiting total carbohydrates to under 150g per day. Monitor HgA1C and fasting insulin levels to gauge metabolic health.



02.

Supplements

Consider supplements like CoQ10, R-alpha-lipoic acid, vitamin E, and vitamin D3, as they've shown promise in enhancing mitochondrial health. However, consult your primary care doctor before starting any new supplement regimen.

03.

Reduce Toxic Exposure

Minimize exposure to heavy metals, pesticides, herbicides, and unnecessary prescription drugs. Periodically discuss your medication intake with your doctor to assess what can be reduced or omitted.

Healthy *mítochondría*, healthy life

04.

Intermittent Fasting

Intermittent fasting, especially in excess of 16 hours can trigger autophagy of old mitochondria and stimulate the production of new mitochondria.

06.

Prioritize Quality Sleep

Sleep at least 7 to 9 hours per night. During sleep the neurons of your brain get rid of metabolic waste that can damage mitochondria, for example beta amyloid



05.

Strength Training

Build muscle. More muscle equals more and healthier mitochondria. Muscle building is an essential part of a healthy lifestyle. Not only does it help us look and feel good, but it also has some significant health benefits.



07.

Near Infrared Radiation (NIR)

Get sufficient NIR light. Near infrared radiation is what we perceive as warmth when we are exposed to sunlight. You can get near infrared radiation from direct or indirect sunlight, or from an LED/NIR bed or panel. NIR stimulates the production of melatonin in your mitochondria. This greatly improves mitochondrial health and functionality.

Prioritizing these strategies can bolster mitochondrial health, potentially leading to improved energy levels, better metabolism, cognitive function, and overall well-being. Remember, consulting with healthcare professionals before making significant lifestyle changes is crucial for personalized guidance and safety.

Avoid these 10 *ingredients* while Grocery Shopping



In an effort to maintain a healthier lifestyle, it is essential to be mindful of certain ingredients when grocery shopping. Key items to avoid, as listed by Jonas Kuehne MD

- ⊗ Artificial Sweeteners (such as aspartame, sucralose, saccharine, acesulfame-K, neotame)
- ⊗ Artificial Food Colors (like Blue 1, Red 40)
- ⊗ BHA or BHT
- ⊗ Hydrogenated Oil
- ⊗ Potassium Bromate
- ⊗ High Fructose Corn Syrup
- ⊗ Titanium Dioxide
- ⊗ Bleached Flour
- ⊗ Seed Oils (including soybean oil, cotton seed oil, canola oil, safflower oil, sunflower oil etc.)