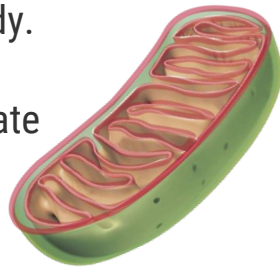


# AstaReal® Natural Astaxanthin

## The Essential Mitochondrial Nutrient for Healthy Ageing

### What are **mitochondria**?

They are the "**engines**" in almost all cells of the body. They convert food "fuel" into adenosine triphosphate (ATP), the biological energy that powers all activities of the body.

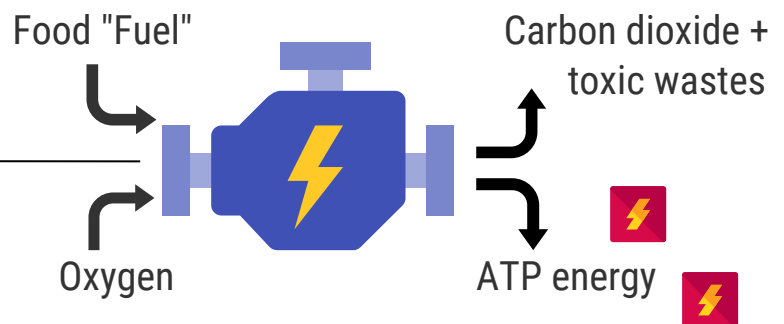


### What does **nutrient** mean?

It provides nourishment to the body, maintaining its health and normal physiological functions. A **mitochondrial nutrient** provides these effects to the mitochondria.




**The cell (like a car)**




**The mitochondrial "engine"**

### Quick Facts

**Mitochondria** weigh 10% of your body and produce *as much ATP as your body weight* everyday for daily activities.


**Daily ATP** =  ~70 kg





Due to high energy demand, each heart muscle cell contains **5000 mitochondria** which occupy **40% of intracellular space**

### Ageing

causes **accumulation of toxic wastes** which can be aggravated by **lack of mitochondrial nutrients**

 **Increase** in oxidative stress and inflammation

 **Lower** number of mitochondria

 **Worsening** of mitochondrial health due to accumulation of toxic wastes



### Mitochondria dysfunction

Decrease in mitochondrial energy output

## Mitochondrial Dysfunction

may lead to **age-related conditions** such as



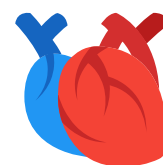
**Vision impairment**



**Cognitive decline**



**Loss of mobility**



**Cardiovascular disorder**

## Healthy Mitochondria

How do you maintain mitochondrial health?



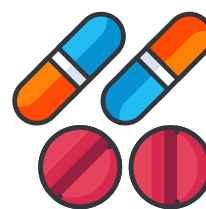
### Physical Exercise

induces hormones that boost the number of mitochondria and enhance energy production



### A Balanced Diet

ensures supply of daily nutrients including natural antioxidants to alleviate oxidative stress



### Targeted Nutrition

Mitochondrial nutrients protect the integrity of mitochondrial structure and functions

## AstaReal® Natural Astaxanthin

**It acts as the "engine oil" that "lubricates" and protects the energy production process in mitochondria**



**Quenches inflammatory responses** which turn mitochondria into suicidal toxic factories

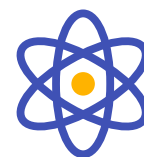


### Boosts mitochondrial numbers

by enhancing the activity of PGC-1alpha, a master regulator of mitochondrial biogenesis



**Reduces oxidative stress** with antioxidant power 110X stronger than vitamin E and 800X stronger than CoQ10



### Promotes fat utilization

by protecting the "forklift" (an enzyme called CPT1) which loads "fuel tanks" (fats) onto "carriers" (carnitine molecules) to be shuttled into mitochondria



### Protects mitochondrial membrane

by preventing harmful peroxidation of membrane lipids and loss of membrane integrity

