



## What are Mitochondria?

Mitochondria are bean-shaped organelles that float freely inside almost every cell in our body. They have the unique characteristic of having a double membrane which is the site of many life-sustaining biochemical reactions. Mitochondria are delicate and easily damaged. Many Health conditions and even aging have been associated with mitochondrial dysfunction. MitoQ is a revolutionary targeted antioxidant that is formulated to release CoQ deep inside mitochondria, right where it is needed the most. Alongside a healthy diet and exercise, this can help protect your mitochondria from both free radical and environmental damage.

Although mitochondria were discovered over 100 years ago, scientists have only recently begun to decipher the many life-giving, and life-taking, secrets of these bean-shaped organelles.

Mitochondria are roughly the size of bacteria and float in the cytoplasm of almost every cell in the human body. They possess the unique characteristic of having a double membrane which allows them to perform a number of different biochemical reactions; one of the most important is cellular respiration. Cellular respiration is the most efficient way for the body to convert carbohydrates, fats, and proteins from the food we eat into fuel for cells. This fuel is called adenosine triphosphate or ATP.

ATP is considered by biologists to be the energy currency of life. Cells that require the most energy - such as the brain, heart, skeletal muscles, and the eye - contain the most mitochondria. Mitochondria have their own DNA and RNA so can increase their numbers in response to increased energy demands of the cell, such as after repeated muscle contraction.

Scientists now know that mitochondria are more than just the powerhouse of the cell. They are vital for calcium regulation, cell specialisation, DNA and RNA production, cell growth, and also cell death. They send messages to the nucleus and other structures in the cell which modify cellular activities. The ability of cells to correctly “hear” these messages determines how well our bodies grow, repair themselves and fight off infection.

Dysfunctional mitochondria send incorrect messages, disrupt ATP production, and produce more waste in the form of free radicals. Defective mitochondria replicate their own damaged DNA into new mitochondria, eventually displacing all well-performing mitochondria. Many health conditions and even aging have been associated with mitochondrial dysfunction.

Scientists are only just realising how vulnerable mitochondria are to subtle changes in their environment. Pollution, drugs, and low concentrations of antioxidants such as coenzyme Q10 can all affect performance.

MitoQ’s special formulation releases CoQ deep inside mitochondria, replenishing levels of this vital antioxidant right where it is needed the most. Along with a healthy diet and exercise, MitoQ can help protect your mitochondria from both free radical and environmental damage.

## **Bibliography**

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