



# Cellular Energy

## Nutrients to Support Energy Production in the Cells

Inside each cell of the body there are tiny, energy producing factories called mitochondria. Using a bio-chemical process known as the Krebs cycle, the mitochondria utilize fuel (fats and carbohydrates) and oxygen to create an energy storage molecule called adenosine triphosphate (ATP for short). ATP, powers the life processes within each cell. Without ATP, cells cannot function.

When the cells produce energy efficiently, they are inherently healthier. This, of course, makes the whole body function better. Increased cellular energy not only improves energy levels for better physical and mental performance, it also speeds healing of damaged tissues, enhances resistance to infections and helps the body overcome chronic and degenerative diseases.

Cellular Energy is a blend of nutrients that support mitochondrial function. It can benefit aged and weak individuals, support recovery from chronic illness and debility, and aid athletes who wish to enhance physical performance. People who experience fatigue, lack of stamina or feelings of weakness may benefit from this blend. Specifically, cellular energy may be helpful in fibromyalgia, AIDS, chronic fatigue syndrome, high triglyceride levels, prevention and recovery from heart disease and post partum weakness.

Here is a description of some of the component materials for energy production found in Cellular Energy:

### Manganese, Zinc and Magnesium

These minerals are used to make enzymes that move each stage of the Krebs cycle forward. Enzymes are critical to energy production, because they act as catalysts to enable chemical reactions to take place at low temperatures. Different enzymes are required at each stage of the energy production cycle, and each stage must be finished before the next begins.

In addition, manganese and magnesium support muscular and skeletal systems. Zinc universally supports all body systems either as an integral part or as a component of enzymes and hormones.

### B-Vitamins

Included in the formula are vitamin B1 (thiamine mononitrate), vitamin B2 (riboflavin), niacin (as niacinamide) and pantothenic acid. These vitamins are also essential to energy production inside the cell.

### L-Carnitine

The amino acid L-carnitine draws fatty acid molecules into the mitochondria, where they are burned to produce energy. In doing so, the level of blood triglycerides is reduced. A deficiency of the amino acid l-carnitine can result in the buildup of fat in muscles, heart and liver. Athletes use l-carnitine to improve their endurance.

### Coenzyme Q10

This important co-enzyme is responsible for transporting energy from one enzyme to another during cellular energy production. It is so critical that, even by itself, CoQ10 can help with heart disease. The muscles of the heart have more mitochondria and need more CoQ10 than other cells in order to keep on pumping continuously. Co-Q10 is also an antioxidant and reduces inflammation. It can be helpful for preventing heart disease and for maintaining healthy gums.

### Vitamin E

An antioxidant vitamin that protects the cardiovascular system. Vitamin E also helps the body utilize oxygen at the cellular level.

### Alpha Ketoglutaric Acid

This substance is used in the production of cellular energy in the citric acid cycle. It can be helpful in alleviating fatigue and increasing stamina. It helps in the formation of carnitine and helps detoxify ammonia from tissues of the central nervous system. Excess ammonia can cause headaches, migraines, fatigue, irritability and nausea. Alpha ketoglutaric acid also helps remove excess nitrogen from the system. It can be helpful in autism, exposure to toxic nitrogen compounds, liver disease and Reyes syndrome.

### Alpha Lipoic Acid

This antioxidant aids the production of glutathione and enhances liver detoxification.

### Dimethylglycine HCl

Known as DMG for short, this substance has been used by athletes to improve oxygen utilization in exercise. It reduces muscle stiffness and soreness. It also supports the immune system and aids cellular detoxification. It may even be beneficial for autism.

### Ferulic acid

An antioxidant compound found in many foods. There is some research suggesting it may enhance immunity and athletic performance.

### Suggested Use

Take 1 capsule two or three times daily. Drink plenty of pure water and add Proactazyme Plus for extra enzyme activity.

### Selected References

*PDR for Herbal Medicine* published by Medical Economics Company.  
*The Comprehensive Guide to Nature's Sunshine Products* by Tree of Light Publishing.

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