

Ultimate Nutrition

L-Carnitine Tablets

L-carnitine is made in the body from the amino acids lysine and methionine, and is needed to release energy from fat. It transports fatty acids into mitochondria, the powerhouses of cells. In infancy, and in situations of high energy needs, such as pregnancy and breast-feeding, the need for L-carnitine can exceed production by the body. Therefore, L-carnitine is considered a "conditionally essential" nutrient.

L-Carnitine is a physiological substance, essential for energy production and for fat metabolism. L-Carnitine can be synthesized in the human liver, but insufficient amounts may be produced in infants, in adolescents and in adults under certain physiological conditions.

Carnitine is a nutrient responsible for the transport of long-chain fatty acids into the energy-producing centers of the cells (known as the mitochondria). In other words, carnitine helps the body convert fatty acids into energy, which is used primarily for muscular activities throughout the body. The body produces carnitine in the liver and kidneys and stores it in the skeletal muscles, heart, and brain. Research shows that people who supplement with L-carnitine while engaging in an exercise regimen are less likely to experience muscle soreness.

L-Carnitine turns fat into energy. Fatty acids are one of the primary energy sources for the body. β -oxidation is the process by which fatty acids are broken down for the ultimate production of energy. Although fatty acids need to enter the mitochondria (the 'furnace' of the cell) for β -oxidation, they are unable to penetrate the inner mitochondrial membrane. L-Carnitine is essential to transport long chain fatty acids across the mitochondrial membrane for subsequent fat breakdown and energy production.

L-Carnitine has also been shown to buffer the bound CoA to free CoA ratio and removes toxic concentrations of acyl-CoA thereby helping to ensure that energy production can continue. Another important function of L-Carnitine is the ability to shuttle short chain fatty acids from inside the mitochondria to the cytosol. Due to its fundamental role in energy metabolism, L-Carnitine is typically used to support all bodily functions that have a high energy demand.

In their bodies, human adults store about 20 grams of L-Carnitine, primarily in skeletal muscle, in the liver, and in the heart. L-Carnitine is not metabolized or degraded, but excreted in the urine, mostly in the form of Acetyl-L-Carnitine. Therefore, lost L-Carnitine has to be replenished by biosynthesis, by the consumption of foods of animal origin or by consumption of dietary supplements.

SELECTED REFERENCES:

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