



L-Carnitine Tartrate

L-carnitine is an amino acid derivative needed to release energy from fat. L-carnitine transports long-chain fatty acids into mitochondria, the cell's principal power generators. Although L-carnitine is made primarily in the liver and kidneys from the amino acids lysine and methionine, in situations of high-energy demands the need for L-carnitine can exceed production by the body. Therefore, L-carnitine is considered a "conditionally essential" nutrient that may need to be supplemented. L-carnitine tartrate is a more stable form of L-carnitine and is more resistant to the destabilizing effects of moisture than pure L-carnitine USP.

- **Important for Energy Metabolism:** The highest concentrations of L-carnitine are found in tissues that primarily use fatty acids as their chief dietary fuel. It also transports short- and medium-chain fatty acids out of mitochondria for metabolic use. L-carnitine plays an important role in modulating body energy metabolism. Heart and skeletal muscle contain abundant amounts of L-carnitine that is essential for meeting tissue energy demands by transporting fatty acids to the mitochondria.
- **Causes of Deficiency:** Tissue L-carnitine levels decline with age. Under certain circumstances, the body's need for L-carnitine exceeds its production capacity making L-carnitine an essential nutrient. L-carnitine synthesis requires iron, vitamin C, vitamin B₆, and niacin. One of the earliest symptoms of vitamin C deficiency is fatigue, thought to be caused by reduced production of L-carnitine. A number of medications may cause L-carnitine deficiency, including the anti-seizure drug, valproic acid, and nucleoside analogues such as AZT used to treat people with HIV infection. The cancer chemotherapy agents, ifosamide and cisplatin, have been associated with L-carnitine insufficiency.
- **Individuals Most at Risk:** Insufficient L-carnitine production can be inadequate in patients with kidney disease, diabetes, liver dysfunction, hyperlipidemias, and cardiac problems, thus requiring supplementation. L-carnitine levels are low in people with cancer and may contribute to the weight loss, muscle wasting and general weakness often encountered. L-carnitine has been shown to improve energy, nutritional status, lean body mass, and quality of life in patients with advanced cancer.

This product supplies a stable, natural form of L-carnitine and is free of synthetic D- or DL- carnitine, a potentially harmful form. L-carnitine is very safe and well-tolerated. There have been no reported toxicities associated with ingestions of large quantities of L-carnitine. Doses in excess of 3000 mg per day have been associated with a fishy body odor, skin rash and diarrhea. The usual daily dose of L-carnitine ranges from 1 gram twice a day for support of cardiovascular function to 2 grams three times a day for cancer-related wasting and fatigue. A dose of 500 to 1000 mg a day with food is usually recommended as a general supplement.

This product was made in a GMP and ISO 9001:2000 registered facility.

Supplement Facts

Serving Size 1 Capsule • Servings Per Container 60

Amount Per Capsule	
L-Carnitine (as L-carnitine tartrate)	500 mg*

*Daily Value not established.

Other ingredients: Carboxymethylcellulose sodium, vegetarian capsule (hydroxypropyl methylcellulose, water), silicon dioxide, and magnesium stearate.