



## L- Carnitine

Stock #1632-6 (30 capsules)

L-carnitine is an amino acid utilized by the body for proper energy and fat metabolism. Carnitine absorbs molecules of fatty acids into the mitochondria of a cell to be converted into energy for the body, especially for muscles, which includes the heart. An article in *The New England Journal of Medicine* confirmed the need for sufficient carnitine levels to ensure healthy energy and fat metabolism, which in turn, can help reduce the risk of heart disease, aid weight loss, and also improve athletic ability.

With 95% of the body's store of carnitine found in heart and skeletal tissue, it's no wonder research indicates a severe and chronic deficiency of carnitine can disrupt energy production in the heart and thus, may be linked with various heart problems such as angina, cardiomegaly, cardiac arrest, congestive heart failure, coronary artery disease, and intermittent claudication. The *Physician's Desk Reference* reports carnitine helps improve "tolerance of ischemic heart disease, myocardial insufficiencies and elevated blood fats."

Other advantages of supplementation include regulating heart arrhythmias, relieving angina, enhancing heart function, increasing resistance to stress, and improving the body's tolerance for exercise. Recent studies suggest carnitine may also help neuromuscular diseases such as certain types of myopathies or problems of the heart, muscular dystrophy, myotonic dystrophy, and limb-girdle muscular dystrophy. Research indicates such neuromuscular diseases result in a higher rate of carnitine loss via the urine, thus requiring higher carnitine levels for sustaining health.

Research shows carnitine significantly reduces elevated blood fats by lowering LDL and triglyceride levels and raising HDL levels. Diabetic patients receiving l-carnitine supplements experienced a significant reduction in total serum cholesterol and triglyceride levels. Also, because carnitine facilitates fatty acid metabolism, supplementation may help prevent diabetic ketoacidosis—acidosis resulting from an accumulation of ketones (fat waste-products) in the blood stream.

Carnitine's conversion of fatty acids into energy also aids the liver by negating the harmful effects of these fats. A study published in the *American Journal of Clinical Nutrition* advised that alcohol mars the body's ability to manufacture carnitine, thus compromising fatty acid conversion. When consuming alcohol or high fat diets, greater levels of carnitine are required to manage the excess toxins produced. L-carnitine supplements help prevent levels from dropping and keep fatty acid deposits from accumulating in the liver, as well as in the heart and other muscles. Furthermore, this same study showed taking one gram of L-carnitine daily helped to enhance fatty acid metabolism and improve alcohol-induced fatty liver.

Other research studies have proven that infertile men have low levels of carnitine in their sperm. Apparently, low energy production in the sperm results in the inability to travel through the body to impregnate the awaiting egg.

Carnitine has also been shown to increase the effectiveness of vitamins C and E.

Carnitine can be produced by the body in the presence of sufficient levels of B<sub>1</sub>, B<sub>6</sub>, iron and lysine. However, as carnitine is readily supplied in meat, especially dark turkey and red meats, vegetarians are more prone to develop a deficiency. Carnitine production is often hampered by "crash" diets, environmental pollutants, prolonged fatigue, and inefficient digestive function.

Amino acid supplements are sold in two forms called the D- and L-series. Amino acids in the L-series are considered to be in the same natural form as they occur in living plant and animal tissue, thus making these types of amino acids more compatible to human biochemistry. Consumers should be sure to use only the "L" form of carnitine, as the "DL" form actually interferes with carnitine function.