L-Carnitine

The Metabolic Support Nutrient

By Cristiana Paul, M.S.

Designs for Health, which for many years has been a leading supplier of carnitine products to the medical community, is pleased to announce a new delivery form of this important nutrient to our proud line of carnitine products:

1. **Supersaturated L-Carnitine liquid: CarniClear™** (raspberry/mint flavor) 2500 mg per teaspoon
2. Highly concentrated powder: L-Carnitine Tartrate (pleasant lemon-like tart flavor), 2800 mg per teaspoon
3. Carnitine Synergy capsules: 400 mg elemental Carnitine from L-Carnitine Tartrate combined with 100 mg Acetyl-L-Carnitine

High pharmaceutical standards of production ensure the highest purity and quality of these carnitine products.

CarniClear™ supersaturated carnitine liquid is a pleasant naturally flavored non-acidic liquid form of carnitine, conveniently delivered in two sizes: 8 oz economy and 1 oz for travel. This product is both the most convenient and most affordable way of delivering the multi-gram dosing of carnitine that is often prescribed by health care practitioners. In addition to the pure base L-Carnitine, CarniClear™ also contains small amounts of highly purified glycerine, 500 mcg of vitamin B12 and 100 mg of vitamin B5 (Pantothenic Acid).

Pure base carnitine is carnitine in its natural state not bound to anything. For carnitine to be supplied as a powder, it must first be bound to an acid such as tartaric or fumaric acid.

Vitamin B5 was added to support a necessary step in fat metabolism, the synthesis of Coenzyme A, which is essential for the transport of fat by L-Carnitine.

Vitamin B12 is an important cofactor in many metabolic pathways, including endogenous carnitine synthesis. Diets low in animal meat are deficient in Vitamin B12, as well as carnitine.

L-Carnitine is a compound naturally occurring in all foods, but significant amounts are only found in dark meats (due to high concentration of mitochondria), for example: lamb (190 mg/4 oz), beef (143 mg/4 oz), poultry(13 mg/4oz), fish (3-10 mg/4oz), cheese(1-13 mg/4oz), rice (0.3 mg/4oz), tomato (0.1 mg/4oz). Approximately 20 mg/day of Carnitine is synthesized in the human body (kidney and liver) from methionine and lysine, requiring other cofactor nutrients such as iron, vit C, vit B3 and B6. Many metabolic states may require more than this synthesized amount. See below. Carnitine supplementation may be needed especially for vegetarian diets or when dark meats are consumed in small amounts, because neither preformed carnitine nor its precursor amino acids are ingested in adequate amounts to support optimal health.

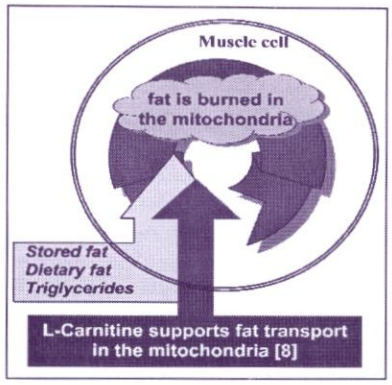

Fig 1. METABOLIC ROLE OF L-CARNITINE

How to Take Carnitine

In general, L-Carnitine will be absorbed faster and with higher peak plasma when ingested on an empty stomach, because it does not compete for absorption with other amino acids or peptides. When taken on an empty stomach, plasma levels of carnitine will remain elevated for 3-4 hours. If high blood concentrations throughout 24 hrs are desired, carnitine should be taken multiple times per day in doses of 1-2 g, for example first thing in the morning and around 2-3 hrs after any meal or snack. It is not recommended late in the day due to its energizing effect. Do not take too much too fast, or it may have a laxative effect.

Carnitine would be especially useful to take right before exercise, for both resistance and endurance training. When taken with meals, it will achieve a lower but more prolonged elevated plasma level, about 7-8 hours, supporting at first the metabolism of the fat ingested with meals and subsequently that of the fat released from the adipose tissue.

It's important to keep in mind that when consuming an excessively high carbohydrate diet, fat release from the adipose tissue is impaired by high levels of insulin. In this case, fat cannot be transported into the mitochondria with the help of carnitine and burned, because it does not have a chance to get in the bloodstream in the first place. The only benefit that L-carnitine can have in this case, would be to support the transport of the fat absorbed from the meals into the mitochondria for burning. As a result, carnitine may reduce the chance of gaining body fat, during a diet high in carbohydrates and fat, but fat loss is very unlikely in this metabolic situation. So, in order to maximize fat loss and benefit from L-carnitine supplementation, the amount of daily carbohydrate intake should be minimized and adjusted to match general activity levels and exercise type and duration.

L-carnitine absorption and retention in muscle is enhanced by phosphatidyl choline (available from DFH in the form of Phosphatidyl Choline 40%, Phosphatidyl Choline softgels and Krill Oil).[7]