

## **L-Carnitine**

### **An Important Substrate for Heart and Muscle Function**

#### **DESCRIPTION**

L-Carnitine supplement supplies 500 mg of pure, natural L-carnitine in capsule form.

#### **FUNCTIONS**

L-carnitine is necessary for fatty acid metabolism and energy production in cardiac and skeletal muscle. † It is involved in fatty acid oxidation as part of the carnitine shuttle. L-carnitine shuttles fatty acids from the cytosol (the cell fluid) into the mitochondria (the cell's powerhouses) for oxidation and energy production. L-carnitine is necessary in muscle whenever fat is utilized as an energy source. Heart muscle always uses fat for its continuous energy demands. Skeletal muscle begins using fat only after its glycogen reserves are exhausted. This happens after about one hour of continuous, strenuous exercise, e.g., long-distance running, bicycling, swimming, or mountain climbing. Widely distributed in foods from animal, but not plant sources, L-carnitine is also synthesized by the liver and kidney from two essential amino acids, lysine and methionine. Human skeletal and cardiac muscles contain relatively high L-carnitine concentrations which they receive from plasma, since they are incapable of L-carnitine biosynthesis themselves. About 95 % of the body's L carnitine stores are located in skeletal and heart muscle. L-carnitine is considered a conditionally essential nutrient. In healthy people, plasma L-carnitine levels are adequately maintained by the body's own synthesis and dietary sources. However, low L-carnitine plasma levels can be caused by hereditary (primary) L-carnitine deficiency syndrome, or by secondary L-carnitine deficiency. Oral L-carnitine is readily absorbed across the intestinal mucosa and into the bloodstream. It is then taken up from the portal vein into the liver and subsequently released into the systemic circulation. Most cells have a specific carnitine transporter. Dietary L-carnitine comes mainly from animal foods. Average non-vegetarian diets provide about 100 to 300 mg of L-carnitine per day. Vegetarian diets often provide only trace amounts, since vegetables, fruits, and cereals are negligible sources of L-carnitine.

#### **INDICATIONS**

L-carnitine may be a useful nutritional adjunct for individuals who wish to support heart muscle function or skeletal muscle performance.

#### **FORMULA (#R500)**

Each capsule contains:

L-Carnitine .....500 mg

#### **SUGGESTED USE**

One capsule per day or as directed as a physician. It is recommended that L-carnitine be taken with meals. Capsules may be pulled apart and the powder mixed with food or liquids if desired.

#### **SIDE EFFECTS**

No adverse side effects have been reported.

#### **STORAGE**

Store in a cool, dry place, away from direct light. L-carnitine readily takes on moisture from the air. After opening the bottle, replace the lid immediately, and keep the bottle tightly closed as much as possible. Keep out of reach of children.

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#### REFERENCES

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**For more information on L-Carnitine visit [douglaslabs.com](http://douglaslabs.com)**

† These statements have not been evaluated by the Food and Drug Administration.  
This product is not intended to diagnose, treat, cure, or prevent any disease.

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Your patients trust you.**