

# Nefcarnit<sup>®</sup>-E

Levocarnitine 500mg + Vitamin-E 200mg Tablets

## **Product Description:**

Each tablet contains

- Levocarnitine: 500 mg
- Vitamin E: 200 mg

## **General Information:**

**Nefcarnit-E** is a combination medication, a dietary supplement containing Levocarnitine as an amino acid derivative in individuals that do not produce enough amounts in the body & Vitamin-E, used as an antioxidant

## **Biochemistry and Pharmacokinetics:**

Synthesis of carnitine begins with methylation of the amino acid L-lysine by S adenosylmethionine (SAME). Magnesium, vitamin C, iron, vitamins B3 and B6, and alpha-ketoglutarate – along with the cofactors responsible for creating SAME (methionine, folic acid, vitamin B12, and betaine) – are all required for endogenous carnitine synthesis.

## **Absorption:**

Evidence indicates L-carnitine is absorbed in the intestine by a combination of active transport and passive diffusion. Reports of bioavailability following an oral dose have varied substantially, with estimates as low as 16-18 percent and as high as 54-87 percent. Oral supplementation of L-carnitine in individual dosages greater than 2 g appears to offer no advantage, since the mucosal absorption of carnitine appears to be saturated at about a 2-g dose.

## **Distribution:**

Maximum blood concentration is reached approximately 3.5 hours after an oral dose and slowly decreases, with a half-life of about 15 hours.

## **Excretion:**

Elimination of carnitine occurs primarily through the kidneys. The heart, skeletal muscle, liver, kidneys, and epididymis have specific transport systems for carnitine that concentrate carnitine within these tissues. Despite evidence indicating increased levels of free carnitine and carnitine metabolites in the blood and urine following an oral dose, no significant change in red blood cell carnitine levels was noted in healthy subjects, suggesting either a

slow repletion of tissue stores of carnitine following an oral dose or a low capability to transport carnitine into tissues under normal conditions.

### **Pharmacodynamics:**

Levocarnitine is a carrier molecule in the transport of long chain fatty acids across the inner mitochondrial membrane. It also exports acyl groups from subcellular organelles and from cells to urine before they accumulate to toxic concentrations. Lack of carnitine can lead to liver, heart, and muscle problems. Carnitine deficiency is defined biochemically as abnormally low plasma concentrations of free carnitine, less than 20  $\mu\text{mol/L}$  at one week post term and may be associated with low tissue and/or urine concentrations. Further, this condition may be associated with a plasma concentration ratio of acylcarnitine/levocarnitine greater than 0.4 or abnormally elevated concentrations of acylcarnitine in the urine. Only the L isomer of carnitine (sometimes called vitamin BT) affects lipid metabolism. The "vitamin BT" form actually contains D, L-carnitine, which competitively inhibits levocarnitine and can cause deficiency. Levocarnitine can be used therapeutically to stimulate gastric and pancreatic secretions and in the treatment of hyperlipoproteinemias.

### **Mode of Action:**

Nefcarnit-E has both L-Carnitine and Vitamin E that work together to treat different conditions. Vitamin E is an antioxidant and scavenges radicals in body cells preventing damage that can be due to free radicals like the development of cancer and other diseases. It prevents red blood cells from undergoing haemolysis. Other functions of vitamin E in the body include thickening of hair, balancing cholesterol and hormones, vision improvement, repair of damaged skin, improving physical endurance.

L-Carnitine supplements for the low amounts produced by the body to get sufficient quantity. L-Carnitine is utilized in the body for the slowing of body processes that result in cell damage. Nefcarnit-E activates the synthesis of L-Carnitine by the body. It is also involved in the metabolism of long-chain fatty acids by working as a carrier molecule in the mitochondria. This encourages the production of energy from the fatty acids.

### **Indications:**

- Muscle cramps diabetic patients, CKD, Dialysis patients
- Erythropoietin resistant anemia
- Muscle injury & Oxidative stress

### **Dosage and administration:**

The dosage for Nefcarnit-E depends on the severity of the condition being treated. The recommended dosage of Nefcarnit-E is:

- One tablet is taken two times a day