Biotics Research Corporation Product Showcase

Stamina Caps™

Dietary Supplement

For Healthcare Professionals Only

Multivitamin to support physical stamina and mitochondrial energy conversion

Specific nutrients in combination may play a role in increasing endurance and promoting energy production, while also enhancing metabolism. The combination of minerals contained in the formula **Stamina Caps**™ include *Thiamin, Pantothenic Acid, L-Carnitine, Octacasanol, Coenzyme Q10* and ***Organik-15***™, which in combination may serve to aid in energy production and increase stamina.

Thiamine - Thiamin is a required entity (cofactor) in the metabolism of carbohydrates and branched-chain amino acids, as a part of the coenzyme cocarboxylase, also referred to as thiamin pyrophosphate (TPP).[1] All degrees of thiamin deficiency involve loss in muscle and/or nerve tissue, in addition to weight loss. An increased thiamine need coincides with an increased carbohydrate diet or an increase in muscular activity.[2] Thus, thiamine requirement depends primarily on the carbohydrate intake and on the body's metabolic requirement. Thiamin decrease, in addition to other B vitamins, has also been associated with impaired cellular immunity, while decreased antibody response has been associated with decreased levels of B-complex vitamins.[3] Large dietary intakes of carbohydrates and a high metabolic rate increase the need for thiamin. In contrast high lipid ingestion is thiamin sparing.

Pantothenic Acid - Pantothenic acid is an essential part of the enzyme Coenzyme A, which is involved in a number of *de novo* reactions, including the synthesis of essential fats, cholesterol and steroid hormones, the synthesis of the neurotransmitter, acetylcholine, and the synthesis of the hormone melatonin.[4] Since pantothenic acid cannot be synthesized *in vivo*, it must be obtained directly from the diet. A deficiency in pantothenic acid results in fatigue, listlessness, insomnia, sullenness and depression.[5] It has been discovered that in times of CoA deficiencies, mitochondrial ß-oxidation is spared at the expense of peroxisomal ß-oxidation, resulting in energy production at the expense of detoxification,[6] thus indicating its significance in times of extended exercise or increased bodily stress, as in the case of chronic illness. Non-nutritional benefits include an increase in the energy metabolism of skeletal muscle tissue and a reduction in polymorphonuclear neutrophil (PMN) response to stimulatory peptides and cytokines.[7] Additionally, the requirement for pantothenic acid may be increased with the use of oral contraceptives containing estrogen and progestin.[8]

Coenzyme Q10 - Coenzyme Q10 or ubiquinone is omnipresent in the body, and serves as both donors and acceptors of reducing equivalents from NAD, in a reversible manner.[5] Selective studies have shown that supplemental CoQ10 is cardioprotective, cytoprotective and neuroprotective.[9] Kwong, LK, *et al.* determined that CoQ10 supplementation resulted in a decrease in protein oxidative damage, with a corresponding increase in antioxidant potential.[10] Additionally, illness has reportedly been associated with a reduction of CoQ10, due to an increased oxidation of CoQ10, with the percent of oxidized CoQ10 correlating to the duration of the illness.[11] It is thus feasible to assume that depleted energy resulting from illness may benefit from CoQ10 supplementation.

For additional information please contact us:

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Product #: 7700
Contains: 100 Capsules
NDC #:55146-07700

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L-Carnitine - Carnitine plays an essential role as a cofactor in carbohydrate metabolism. Although carnitine is synthesized *in vivo* in the liver, kidneys and brain from the amino acids lysine and methionine, and is not considered an essential amino acid, it is considered a conditionally essential amino acid, since deficiencies are eminent. The result of this conditionally essential deficiency is an inability to transport fatty acids into the mitochondria for oxidation.[12]

Diets deficient in L-Carnitine have been associated with mitochondrial energy deficient, resulting in general muscle fatigue and weakness[13] and low levels of L-Carnitine have been associated with muscle spasms.[5] Free and total carnitine of muscle is noted to decrease after training, particularly endurance training, which was prevented by administration of oral L-Carnitine.[14] In a study examining the influence of L-Carnitine on muscle tissue disruption, the authors concluded that exercise induced purine catabolism markers, including xanthine oxidase, hypoxanthine and serum uric acid, as well as cytosolic proteins, were significantly ($P \leq 0.05$) reduced with L-Carnitine supplementation. MRI scans determined that the percentage of muscle disruption was 41-45% less in L-Carnitine group versus the placebo group.[15] In a separate study, L-Carnitine was shown to significantly reduce pain, tenderness and creatine kinase (CK) following induced usage of the quadriceps muscles, as compared to placebo. The authors accredited these results to the vasodilatation property of L-Carnitine, which served to both improve the "energetic metabolism of the hypoxic/damaged muscle and to enhances wash-out of the algogenic metabolites."[16]

A separate study determined that utilization of L-Carnitine in pharmacological doses mimics the biological and therapeutic properties of glucocorticoids, resulting in activation of the glucocorticoid receptor-alpha, as well as regulation of glucocorticoid-responsive genes. The authors reported that in lipopolysaccharide stimulated human primary monocytes, L-Carnitine supplementation suppressed tumor necrosis factor-alpha (TNFα).[17]

ⓄOrganik-15™ and rice derived **Octocasanol** both supply raw materials needed for increased energy and endurance. **ⓄOrganik-15**™ supplies methyl donors and acceptors, which are necessary for the synthesis of creatine in the muscles. Extra creatine in the muscle has been shown to help maintain the muscular ATP concentration.[18, 19, 20]

The combined minerals in **Stamina Caps**™ are suitable to use for energy augmentation in athletes, or in to increase energy and stamina in persons with diminished vigor and resilience, as in the case of injury or muscular dysfunction.

Supplement Facts

Serving Size: 2 Capsules — **Servings Per Container: 50**

	Amount Per Serving	% Daily Value
Thiamin (B_1) (as thiamin mononitrate)	100 mg	6,667%
Pantothenic Acid (as calcium pantothenate)	100 mg	1,000%
L-Carnitine Hydrochloride	100 mg	*
Octacosanol (from rice)	2,000 mcg	*
Coenzyme Q_{10}	1 mg	*
ⓄOrganik-15™ (vegetable culture †)	200 mg	*

***Daily Value not established**

Other ingredients: Cellulose, gelatin, water, glycerin, and magnesium stearate (vegetable source).

† **ⓄOrganik-15™** is a biologically active vegetable culture containing naturally associated and/or organically bound methyl related compounds and phytochemicals including polyphenolic compounds.

RECOMMENDATION: Two (2) capsules each day as a dietary supplement or as otherwise directed by a healthcare professional.

KEEP OUT OF REACH OF CHILDREN

Store in a cool, dry area.

Sealed with an imprinted safety seal for your protection.

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