

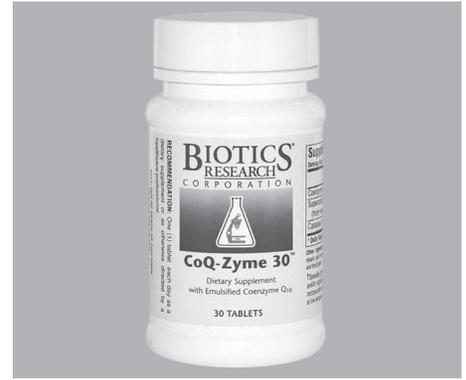
Biotics Research Corporation

Technical Support

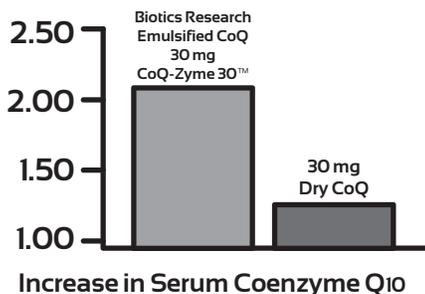
Products # 2615 & # 2616

CoQ-Zyme 30™

 NPN#: 80007114



Based on a double blind clinical study, daily ingestion of **1 tablet (30 mg) of Biotics Research Corporation's emulsified CoQ10 for 4 weeks was demonstrated to increase plasma CoQ10 levels by 210%**, equivalent to 90-100 mg of dry CoQ10. Furthermore, dry CoQ10 powder increased serum levels in only 57% of subjects, while the Biotics Research Corporation emulsified CoQ10 produced an increase in serum CoQ10 levels in 80% of the subjects.^{1,2} Cost comparison indicates that **CoQ-Zyme 30™** is more than **double** the cost effectiveness, when compared to dry, non-emulsified CoQ10.



Nutritional Support for Energy Production

Coenzyme Q10 (CoQ10), also known as ubiquinone, plays a critical role in mitochondrial respiration, as a necessary component for ATP (energy) production. In addition to intra-mitochondrial processes, it also plays a vital role in extra-mitochondrial processes, including its regulatory action in the NADH oxidoreductase (Complex I) function of the plasma membrane^{3,4} as well as its function in the redox potential of both the Golgi complex and the plasma membrane.^{5,6} Consequently, its role is vital to the cellular energy generating systems.⁷ As the only lipid soluble antioxidant synthesized endogenously,⁸ its absence or an inadequate supply results in diminished energy production and suboptimal cellular function. In the body,

CoQ10 is present in all cells; however the heart and skeletal muscle are particularly dependent upon it.

Coenzyme Q10 and Cardiac Health

There are over eighty drugs, the most notable being statin drugs, which are known to have a negative impact on the body's ability to produce CoQ10.⁹ Consequentially, an increase in the daily requirement of CoQ10 may be obligatory. Statins block the enzyme HMG-CoA reductase, which is a functional component in the body's ability to synthesize CoQ10. A reduction in CoQ10 of between 16-54%¹⁰ with statin therapy has been clearly documented. CoQ10 is also speculated to improve the integrity of the vascular tissue indirectly, via its inhibition of oxidative damage to LDL.¹¹

The conversion of the energy present in the diet into the body's own energy (ATP) is dependent upon CoQ10. Because the cells of the heart have a high dependence on ATP, they contain a copious quantity of mitochondria, which function to support both the contractile role and the cardiac output.¹² Supplemental CoQ10 exerts a positive influence on the performance of the heart.¹³ It is well documented that an exhausted supply of CoQ10 results in a negative impact on mitochondrial energy.¹⁴ CoQ10 supplementation has also demonstrated numerous other cardiovascular benefits via its action of increasing both myocardial and cardiac mitochondrial competence, as well as 'myocardial tolerance' towards the stress of hypoxia/reoxygenation.¹⁵ A depleted supply of CoQ10 may thus result in a negative impact on mitochondrial energy.¹⁶

Coenzyme Q10 as an Antioxidant

Exogenous CoQ10 has been demonstrated to offer a protective cellular effect against oxidative stress,¹⁷ as well as to improve

arterial endothelial function of the peripheral circulation in patients with Type II diabetes and dyslipidemia.¹⁸ Interestingly, recent data reveal that CoQ10 affects the expression of genes involved in human cell signaling, metabolism, and transport.¹⁹ CoQ10 intake has also been demonstrated to inhibit the oxidation of LDL, thus functioning in the 'maintenance of optimal cellular and mitochondrial function.'^{7,20}

The body readily converts CoQ10, (ubiquinone) to the reduced form, ubiquinol, which predominates when there is a net generation of ATP in the cell. In addition to improving oxidation via its production of high energy phosphates, and as a consequence of its free radical scavenging activities,²¹ CoQ10 functions as a potent intracellular antioxidant, and possesses powerful activity against free radical species.²² Numerous studies have demonstrated the antioxidant benefits of CoQ10 supplementation, including its role in reducing the level of mitochondrial reactive oxygen species and decreasing DNA damage.²³

Coenzyme Q10 and Immune Function

The cells and tissues involved in immune function are highly dependent upon energy, thus require an adequate supply of CoQ10 for optimal function. It is a known fact that immune function declines with advancing age, demonstrated in studies with elderly animals. In these studies, a suppression of the immune response was associated with a marked decline in CoQ10 levels in thymic tissue.²⁴ Studies have also demonstrated an immuno-supportative role with the use of oral CoQ10. For example, a suboptimal concentration of CoQ10 has been observed in asthmatic patients, which



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.