

## SR-CoQ<sub>10</sub> with PQQ

Introduced 2010



### What Is It?

PQQ (pyrroloquinoline quinone) is a novel cofactor with antioxidant and B vitamin-like activity. It is naturally present in vegetables and in the human body, including breast milk, and possesses unique neuroprotectant and cardioprotectant properties. MicroActive CoQ<sub>10</sub> is a water-soluble, submicron particle-sized CoQ<sub>10</sub> generated using a patented process that complexes each CoQ<sub>10</sub> molecule with a beta-cyclodextrin molecule. CoQ<sub>10</sub> is bound to the lipophilic end of the molecule, while the other end is hydrophilic, facilitating dispersion and transport. At the cellular surface, the complex dissociates, liberating a single CoQ<sub>10</sub> molecule for efficient absorption. The extended 24-hour release of MicroActive® CoQ<sub>10</sub> also allows for convenient, once-daily dosing. Clinical research indicates superior absorption compared to solubilized and crystalline CoQ<sub>10</sub>, with low inter-subject variance.\*

**Nerve and Cognitive Health:** Numerous studies have indicated that PQQ supports nerve health. Mechanistic investigations suggest that PQQ supports several signal transduction pathways that are important in maintaining mitochondrial homeostasis and oxidative metabolism. Like CoQ<sub>10</sub>, PQQ is a powerful antioxidant that supports mitochondrial function. PQQ also promotes healthy levels of nerve growth factor and supports synaptic and intracellular neuronal responses by maintaining healthy N-methyl D-aspartate (NMDA) receptor activity. The NMDA receptor is the primary conduit for excitatory glutamate neurotransmission and is regarded as an important target for maintaining neuronal health. Several studies suggest that PQQ may promote learning ability and memory. In a double-blind, placebo-controlled clinical trial conducted in 71 middle-aged individuals, PQQ supplementation over a 12 week period supported healthy cognitive performance, and a combination of PQQ and CoQ<sub>10</sub> provided greater support than PQQ alone.\*

### What Is The Source?

BioPQQ® pyrroloquinoline quinone disodium salt is manufactured in Japan using a patented natural fermentation process. It contains 2.7 mg sodium per capsule. MicroActive® CoQ<sub>10</sub>-cyclodextrin complex (SR-CoQ<sub>10</sub>) contains coenzyme Q<sub>10</sub> obtained naturally from fermentation and potato starch. Hypo-allergenic plant fiber is derived from pine cellulose.

### Recommendations

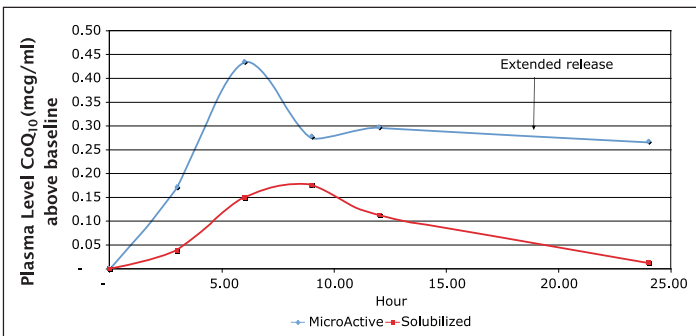
Pure Encapsulations recommends 2 capsules daily, in the morning, with a meal.

### Are There Any Potential Side Effects Or Precautions?

If pregnant or lactating, consult your physician before taking this product. At this time, there are no known side effects or precautions. Consult your physician for more information.

### Are There Any Potential Drug Interactions?

CoQ<sub>10</sub> may react with blood thinning medications. Consult your physician for more information.



**Figure 1.** SR-CoQ<sub>10</sub> absorption in human volunteers. Comparison of the mean plasma CoQ<sub>10</sub> concentrations after a single oral dose of either SR-CoQ<sub>10</sub> or solubilized softgel CoQ<sub>10</sub>

### Uses For SR-CoQ<sub>10</sub> with PQQ

**Cardiovascular Health:** PQQ and CoQ<sub>10</sub> provide antioxidant and mitochondrial support through different mechanisms, providing multifunctional support for cardiovascular health. Research indicates that both PQQ and CoQ<sub>10</sub> support heart muscle function and healthy cellular oxygen utilization. However, the mechanisms for this support differ. Studies suggest that PQQ promotes mitochondrial synthesis and function, while CoQ<sub>10</sub> promotes energy production as a core component of cellular respiration. These actions are particularly supportive of tissues that require a lot of energy, such as the heart muscle. Furthermore, they act as antioxidants, providing protection from free-radicals and helping to maintain the integrity of cellular membranes.\*


(continued)

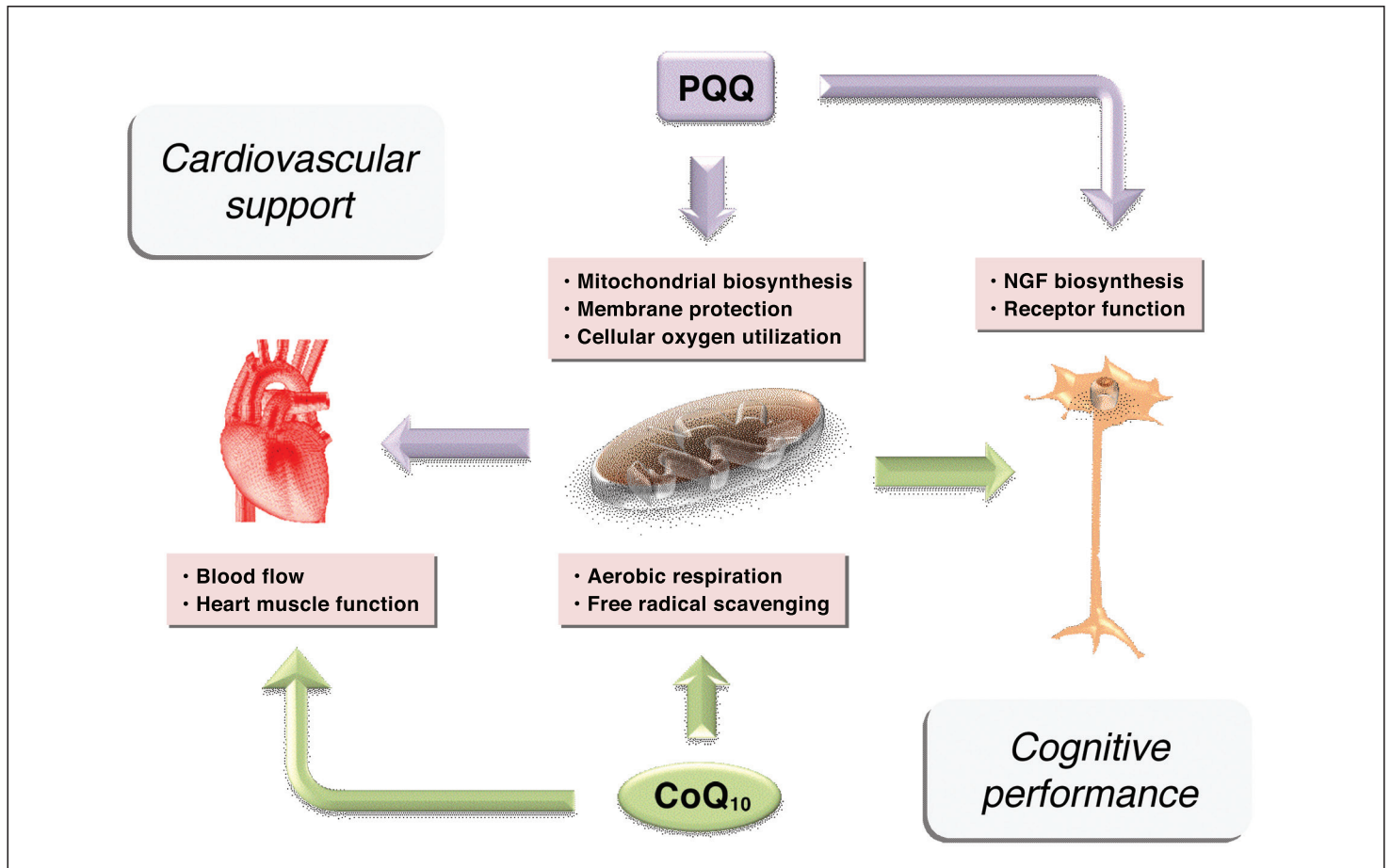
## SR-CoQ<sub>10</sub> with PQQ

two vegetarian capsules contain  **V 0**

coenzyme Q<sub>10</sub> (from MicroActive® CoQ<sub>10</sub>-cyclodextrin complex).....100 mg  
BioPQQ® pyrroloquinoline quinone disodium salt .....20 mg  
other ingredients: potato starch, hypo-allergenic plant fiber (cellulose),  
vegetable capsule (cellulose, water)

**2 capsules daily, in the morning, with a meal.**

 is a registered trademark of MGC (Japan).



**Figure 2.** Complementary mechanisms of PQQ and CoQ<sub>10</sub> in cardioprotection and cognitive support. PQQ promotes the synthesis of new mitochondria, in which CoQ<sub>10</sub> plays a direct role in bioenergetics and antioxidant protection in the cardiovascular and nervous systems. PQQ provides additional neurotrophic support through promoting nerve growth factor (NGF) synthesis and healthy glutamate receptor function.