

## Supplement Sampler Coenzyme Q-10

### **Best Indications**

- **Congestive heart failure (CHF)** - Adding coenzyme Q-10 to treatments decreases hospital stays and symptoms and improves quality of life, according to many studies. Studies also indicate it is helpful with shortness of breath, insomnia, and peripheral swelling. It is less helpful with exercise tolerance and has not been as effective in altering ejection fraction ([Natural Medicines Comprehensive Database](#), accessed 9/2011). Most sources recommend its use in combination with standard CHF medications via an 'integrative' approach. See below for study.
- **Hypertension** - Again, coenzyme Q-10 can be beneficial in conjunction with medications for blood pressure management, and it allows for a decrease in blood pressure medications required. ([Eur J Clin Nutr 2002;56:1137-42](#)). It is also helpful with isolated systolic hypertension (26% decrease) after 12 weeks of treatment ([South Med J 2001;94:112-7](#)). See below for review study.
- **Migraine prevention** - Coenzyme Q-10 decreases the frequency of headaches by about 30% and the number of days with headache-related nausea by about 45% in adults ([Neurology 2005;64:713-5](#)). It also reduces migraine frequency in children who have low levels of coenzyme Q-10 ([Headache 2007;47:73-80](#)). It can take up to 3 months for significant benefit.
- **Statin-induced myopathy** - Preliminary clinical research indicates coenzyme Q-10 might decrease muscular adverse effects caused by statin drugs, but not all studies have shown benefit ([Am J Cardiol 2007;99:1409-12](#)).
- **Post myocardial infarction (heart attack)** - When started in patients within 72 hours of MI and administered for 1 year, coenzyme Q-10 appears to significantly lower the risk of cardiac events including non-fatal MI and cardiac death. ([Mol Cell Biochem 2003;246:75-82](#)).
- **Parkinson's disease** - Some evidence shows that high doses of coenzyme Q-10 slows functional decline in people with early Parkinson's disease, and the effect appears to be dose dependent ([Arch Neurol 2002;59:1541-50](#)).
- **HIV/AIDS** - Coenzyme Q-10 seems to improve immune function in people with HIV/AIDS ([Biochem Biophys Res Commun 1991;176:786-91](#)).

### **Mechanism of Action**

Coenzyme Q-10 is a vitamin-like fat-soluble compound present in virtually all cells and in especially high concentrations in the heart, liver, kidney, and pancreas. Its primary functions include activity as an antioxidant, a cell membrane stabilizer, and as a cofactor in many metabolic pathways.

Supplementation with coenzyme Q-10 reduces the levels of oxidative substances in conditions that overproduce them, repletes levels of coenzyme Q-10 in conditions that cause a deficiency, and improves mitochondrial activity in conditions associated with mitochondrial dysfunction. Coenzyme Q-10 is made in small amounts by the body, and small quantities are contained in meat and seafood. However, it is a supplement that is not easily obtained in the diet. Peak levels are reached 5-10 hours after it is ingested, and it has a half-life of 34 hours.



## Coenzyme Q10

### **Best Studies**

1. A meta-analysis of clinical trials showing efficacy of treatment of congestive heart failure with coenzyme Q-10. Statistically significant improvement in stroke volume, ejection fraction, cardiac output, and end diastolic volume index was seen in the coenzyme Q-10 group. The average patient in the coenzyme Q-10 group had a better score with regard to stroke volume and cardiac output (76 and 73% respectively) compared to the placebo group. ([Mol Aspects Med 1997;18 Suppl:S159-68.](#))
2. Three clinical trials with a total of 96 participants were evaluated for the effects of coenzyme Q10 on blood pressure compared to placebo. Treatment with coenzyme Q-10 in subjects with systolic BP > 140 mmHg or diastolic BP > 90 mmHg resulted in mean decreases in SBP of 11 mmHg (95% CI 8, 14) and DBP of 7 mmHg (95% CI 5, 8). Due to the possible unreliability of some of the included studies, it is uncertain whether or not coenzyme Q-10 reduces blood pressure in the long-term management of primary hypertension. ([Cochrane Database Syst Rev 2009 Oct 7;\(4\):CD007435.](#))

### **Dose**

- Congestive heart failure: 100-200 mg daily.
- Hypertension: 100 mg twice daily.
- Migraine prevention: 100 mg three times daily. In children, a dose of 1-3 mg/kg has been used.
- Statin-induced myopathy: 100-200 mg daily.
- Post myocardial infarction: 60 mg twice daily.
- Parkinson's disease: 300 mg, 600 mg, 1200 mg, and 2400 mg daily in 3-4 divided doses have been used.
- HIV/AIDS: 200 mg daily.

### **Side Effects**

In less than 1% of patients coenzyme Q-10 can cause nausea, vomiting, diarrhea, appetite suppression, heartburn and epigastric discomfort. Side effects can be minimized if total daily doses exceeding 100mg are divided and administered two to three times a day.

### **Interactions**

- There can be an increased incidence of hypotension when combining with herbs and supplements that cause hypotensive side effects (cat's claw, stinging nettle, L-arginine, and others) or antihypertensive medications.
- Statin drugs, red yeast rice, tricyclic antidepressants and beta-blocker medications may reduce coenzyme Q-10 levels.
- Coenzyme Q-10 is similar to Vitamin K2 and can cause decreased warfarin efficacy.
- Elevated cholesterol levels are associated with artificially increased levels of serum coenzyme Q-10.

### **Cost**

Monthly cost is \$30 for 100 mg per day.

*Brought to you by Srivani Sridhar MD, Adam Rindfleisch MPhil, MD, and your colleagues in the UW Department of Family Medicine Integrative Medicine Program.*

*Date created: September 2011*

*Date revised: July 2012*