



## THE POWER OF COQ10: FUEL FOR YOUR CELLULAR ENGINES

### Terry's Bottom Line

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We all need CoQ10. It is present in virtually every cell in your body. But aging, medications, genetics, and strenuous physical activity can greatly affect the levels of CoQ10 we have on hand.

Because it is required for vibrant health, I think everyone should consider adding CoQ10 or its active form, ubiquinol, to their regimens. The difference it can make is amazing:

- Strengthens heart muscles
- Reduces damage caused by statins
- Reduces migraine attacks
- Preserves cognitive health
- Stops dangerous oxidative damage
- Balances cholesterol levels

If you had to name an "engine" that powers the activity of virtually every cell in your body, it would be the mitochondria. Because it is ubiquitous, and found everywhere in the body, a crucial factor in fueling that engine is "ubiquinone". You're probably most familiar with its other name, coenzyme Q10, also known as "CoQ10". CoQ10 helps spark the process of moving the electrons in the mitochondria to create adenosine triphosphate (ATP), the natural "gasoline" or "battery" that powers our body at a microscopic level. Of all the cells in the body, the heart contains the most mitochondria, but the brain needs impressive amounts of CoQ10, too.

While the body creates CoQ10 in the liver, heart, and pancreas, we also get it from dietary sources. The top food sources include:

- Fattier fish, including: salmon, sardines, and tuna

- Peanuts
- Organ meats
- Whole grains

Regardless of the “ubiquitous” nature of CoQ10, deficiencies are fairly common. CoQ10 levels decline with age, intensive and regular physical activity or stress, prolonged illness, and statin use. In fact, one of the ways of tracking whether statin drugs are being metabolized in the liver is by noting a reduction in CoQ10 levels. One of the reasons this happens is because CoQ10 is carried by lipids – that is, it is a fat-soluble nutrient. You’ll notice that most of the foods that are considered rich in CoQ10 have some elements of natural fats or fatty acids that transport it into the body. After it is ingested, CoQ10 or “ubiquinone” becomes “ubiquinol” in the body. This is the active form, similar to the way vitamin B12 is converted from cyanocobalamin to methylcobalamin, its active form. And while CoQ10 is available as a supplement, so too is ubiquinol, often referred to as an active CoQ10, or “reduced” CoQ10.

But there is a catch with simply eating foods rich in CoQ10. They still only provide a small fraction of the CoQ10 that people may need for therapeutic levels. And deficiencies are serious. They can lead to dramatic cardiovascular and neurological health complications. Fortunately, treatment with CoQ10 can help alleviate them, too.

Inhibits oxidation of LDL cholesterol: CoQ10, like many nutrients, fights oxidative stress in the body. It stops the oxidation of LDL cholesterol and may boost the ability of vitamin E to stop free radical damage as well. In fact, it appears to boost the ability of vitamin E to stop free radical damage. Where cholesterol is concerned, stopping oxidation (and subsequent inflammation) is a key to stopping clogged arteries. Interestingly, a recent clinical trial added CoQ10 to the regimens of patients who were taking atorvastatin, and found that the combination was much more effective in preventing congestive heart failure than the drug used alone.

Helps prevent recurrence of heart failure: As I’ve mentioned earlier, heart cells have the highest concentration of mitochondria, and a great need for CoQ10. As is the case with many natural compounds, our levels of CoQ10 decline with age. But aging itself requires increased demands for CoQ10, especially in the cardiovascular system.

Additionally, as people age, muscle cells change. People lose their “fast-twitch” muscles, and gain “slow-twitch” muscles. The inability of the heart to pump blood healthily and vigorously could be due to a deficiency of CoQ10. A very recent multicenter clinical trial compared the outcomes of patients with moderate to severe heart failure over a 2-year period. The goal here was to see what kind of long-term effects daily CoQ10 supplementation could bring about. This was a large study, randomized and double-blinded, involving over 400 individuals. Short-term assessments at 16 weeks found no difference between the two groups. But after two years, the differences between cardiovascular and all-cause mortality were significant. The researchers concluded that “Long-term CoQ10 treatment of patients with chronic heart failure is safe, improves symptoms, and reduces major adverse cardiovascular events.”

Controls blood pressure: Clinical trials of CoQ10 to treat hypertension have been pretty positive, overall. One Australian clinical study found that it improved blood pressure numbers and markers of type 2 diabetes.

A review, averaging out the results of 12 clinical studies found that coenzyme Q10 has the potential to lower systolic blood pressure (the first or “top” number) by up to 17 mm Hg and diastolic blood pressure (the second or “bottom” number) by up to 10 mm Hg. For anyone with high blood pressure, or on the verge of high blood pressure, these are impressive results. Even better, the trials found no side effects.

Inhibits progression of Parkinson’s: Individuals with Parkinson’s disease have lower blood platelet and mitochondrial levels of CoQ10. Because of this, neurological studies of the compound have intensively focused on slowing the progression of the disease. But be aware that the results have been mixed. Earlier scientific and clinical study showed that it inhibited symptoms of the disease, but a recent randomized study published in JAMA found no benefit for individuals with Parkinson’s despite using high dosage levels. However, researchers in Japan have recently stated that CoQ10 significantly reduced the loss of nerve signaling in the brain in scientific research. While more work needs to be done, CoQ10 should still be considered for its potential neurological

benefits, and I wouldn't rule it out. Additionally, supplemental forms of CoQ10 and ubiquinol vary, and researchers are still determining which one is best absorbed and utilized by the body.

Relieves migraines: Migraine attacks may be due, in part, to problems with the way the mitochondria functions in the brain. As a spark plug for the mitochondrial engine, CoQ10 has been considered as an integrative treatment option for those who suffer from these debilitating headaches. In fact, combining CoQ10 with therapeutic levels of riboflavin (vitamin B2) shows great promise, because both nutrients appear to stabilize mitochondrial activity.

Reduces damage caused by statins: Statin drugs lower levels of an enzyme (coenzyme A reductase) that helps synthesize CoQ10 in the body. And because CoQ10 is carried by lipids in the body, which statins deplete, the drugs interfere with the natural actions of a compound that normally protects the heart and arteries. Aside from increasing the risk of heart attack, statins frequently lead to muscle pain and muscle loss, due to the mitochondria being starved of necessary CoQ10. Fortunately, supplemental CoQ10 can revise muscle toxicity, heart damage, and neurological complications brought on by statin use.

Promotes healthy aging and exercise recovery: Clinical research in Spain focused on healthy, older volunteers and tracked their progress through various exercises. Afterwards, their plasma levels of CoQ10 and oxidized cholesterol were measured. Those who performed the best in the physical exercises also had the highest levels of CoQ10.

Dosage levels for CoQ10: Dosage levels have varied in clinical research, depending on the health challenge being studied. For cardiovascular health, 300 mg of CoQ10 daily (in three, 100 mg amounts) have been found successful. In some of the Parkinson's studies, daily dosages have topped off at a relatively high 2,400 mg. Generally speaking, side effects and safety have not been an issue, aside from some occasional gastrointestinal discomforts, and potential for increased bleeding due to CoQ10's antiplatelet effects.

CoQ10 is required for good health

Deficiencies of CoQ10 have been noted in many health concerns, including cardiovascular disease, neurological conditions, breast cancer, fibromyalgia, and other degenerative conditions. It has been found to reduce the potential for diabetic neuropathy, inhibit cognitive and motor decline, and improve cholesterol balance, and reduce oxidative damage. As I've mentioned, the forms of CoQ10 vary – from the standard supplement to the active ubiquinol form – but both can be highly beneficial. Because it works so effectively through so many pathways, I believe that supplementation with CoQ10 or ubiquinol is one of the best things you can do for your health, every day.