

CoEnzymeQ10

“CoEnzymeQ10 is an antioxidant and is continually going through an oxidation-reduction cycle. Ubiquinone converts to ubiquinol and back and forth.”

I don't know if you have seen the commercial on TV with a medical doctor saying, “The best form of CoQ is...” So, don't be surprised when your patients ask you, “What's the best form of CoQ10, ubiquinone or ubiquinol?”

Ubiquinone is the oxidized stable form used by Biotics Research Corporation. Ubiquinol is a reduced form of CoQ10, which is unstable, and therefore, must be supplied as a softgel or a low concentrated micro-encapsulation. Ubiquinol is a fat-soluble substance. Therefore, it must have fats present to be dissolved and absorbed into your system. Suppliers of ubiquinol suggest that the body cannot convert ubiquinone to ubiquinol. But that's not what the scientists that use it say.

You see, ubiquinone converts to ubiquinol and back and forth. CoEnzymeQ10, which I will refer as CoQ in our discussion, is an antioxidant and as such is continually going through an oxidation-reduction cycle. The CoQ molecule gains an electron and forms ubiquinol and loses



an electron to form ubiquinone. Reduction is the addition of an electron (or a decrease in oxidation state). Oxidation is the loss of an electron (or an increase in oxidation state). According to CoQ experts, ubiquinol is oxidized or converted to ubiquinone in the stomach. Once absorbed into the lymph system, ubiquinone is converted back into ubiquinol. Once in the inner membrane of the mitochondria, where energy is made, the oxidized form, ubiquinone is in great demand. So, the reduced form of CoEnzymeQ10, ubiquinol, is rapidly converted back to the oxidized, ubiquinone.

In a study, ubiquinol was found to improve congestive heart failure in subjects at doses of 900 mg per day. However, the study's author Peter Langsjoen (Biofactors 32, 2008) reported it was the plasma level of CoQ that favored the clinical outcome. In an interview with Kirk Hamilton, PA-C, he reported, “Many patients absorb CoQ quite well, and if they are doing well with a good plasma level on ubiquinone, there is no reason to switch to ubiquinol. Our practice is to use supplemental CoQ in all patients with impaired heart muscle function.”

Biotics' micro-emulsified CoQ (ubiquinone), unlike the typical dry powder form that was the source of comparison with ubiquinol, has demonstrated uptake and bioavailability 3 times greater than the dry form. It is more cost effective than ubiquinol, and because it is stable, can be supplied in tablets, capsules, or powders.

Biotics Research is no stranger to the CoQ market, and in fact, was the first company to introduce CoQ back in the early 1980s, when it was only available in Japan as a pharmaceutical. Biotics Research produced their own as a concentrated extract from bovine heart tissue.

Today, CoQ is produced in many countries via chemical synthesis or micro-fermentation. Biotics Research uses only micro-fermented CoQ. Biotics' emulsified CoQ-Zyme 100 Plus contains no soy derivatives, artificial detergents, or chemical surfactants such as polyoxyethylene sorbitan ester, also known as Tween 80® or polyethylene glycol; all of which are commonly used in the food supplement industry to enhance absorption into the blood by making it "water soluble." Biotics' emulsified CoQ is not water soluble, but is micro-emulsified into tiny, microscopic droplets and is water dispersible.

The process of micro emulsification increases the surface area and electro-magnetic field of the oil. Emulsified oils are then easily absorbed by the villi of the intestines into the lymph ducts. Once in the lymph system, the oils are transported and circulated in a manner that bypasses the liver. Emulsified CoQ appears in the abdominal lymph duct in 2-3 hours and peaks in venous blood in 6 to 8 hours. The result is a high absorption rate with rapid distribution to tissues.

If you think about it, a newborn possesses an incomplete digestive system, yet it is still able to absorb emulsified oil soluble vitamins from its mother's milk. In nature, seed and nut oils are present in an emulsified form, not as liquid oils.

Let's look at emulsions. Biotics Research's emulsified vitamins are less than one micron in size. They are also completely dispersible in water and stay in solution. Many emulsions on the market separate into oil and water after a few hours. Compare these microscopic photos of emulsions. Note that Biotics emulsions are consistent in size.

Sadly, another consideration is that CoQ is expensive. We can easily find more than one CoQ product that looks like CoQ, is labeled CoQ, but unfortunately does not meet label claims. Based on the updated research showing higher doses of CoQ are necessary for some forms of mitochondrial repair, CoQ-Zyme 100 Plus was developed by Biotics Research which couples the phosphorylated B vitamins that are needed in the Krebs Cycle with 100 mg of emulsified COQ.

I hope you can see that marketing hype is a force that we all have to deal with. But a good rule of thumb is "if we can stick as close as we can to nature, in this case by emulsifying fat-soluble nutrients, and then use companies we can consistently trust," we can help our patients make the best nutrient decisions.

Thanks for watching, I look forward to being with you again next Tuesday.