

This week I'm going to be talking **about two new clinical studies on coenzyme Q10.**

But first, a bit of background:

1) Coenzyme Q10 plays two important metabolic roles in our bodies. It is a **potent antioxidant and it protects other naturally occurring antioxidants such as vitamin E.** In addition, coenzyme Q10 is an essential component of the system that **our cells use to generate energy.**

2) When we are young, we produce all the coenzyme Q10 that we need, but as we age we gradually lose the ability to produce coenzyme Q10. That may be significant for many of us because **low coenzyme Q10 levels are associated with congestive heart failure in the elderly.**

3) **The statin drugs that are widely prescribed to lower cholesterol and reduce the risk of heart attacks block coenzyme Q10 synthesis - leaving us dependent on exogenous sources of coenzyme Q10.**

4) While the chemical name of coenzyme Q10 is ubiquinone - meaning that it is ubiquitous - most foods actually provide only small amounts. **The best food sources of coenzyme Q10 are organ meats, fish and the germ portion of grains - but the top two sources (heart & kidney - everybody's favorite foods) supply only 2-3 mg of coenzyme Q10 per ounce.**

5) The Daily Value (DV) for coenzyme Q10 has not been established. Some experts feel that 30 mg/day is satisfactory for healthy adults while others feel that the daily intake should be in the 100 to 300 mg/day range - especially for people at risk of cardiovascular disease.

Now to the studies:

The first study (Lee et al., Nutrition, doi:

10.1016/j.nut.2011.06.004) asked whether coenzyme Q10 could increase antioxidant potential and reduce oxidative stress in patients who already had coronary artery disease

43 subjects (average age 75) with confirmed coronary artery disease were given either a placebo or 150 mg/day of coenzyme Q10 for 12 weeks. At the end of the period the 150 mg/day group had significantly higher levels of the antioxidant enzymes catalase and superoxide dismutase and significantly lower levels of malondialdehyde (MDA, a marker of oxidative damage) than the placebo group.

The authors concluded: "**Coenzyme Q10 supplementation at a dose of 150 mg/day can decrease oxidative stress and increase antioxidant enzyme activity in patients with coronary artery disease**". And because oxidative stress is involved in arteriosclerosis, they stated: "**...it seems clear that coenzyme Q10 has a protective effect against coronary artery disease**".

The second study (Diaz-Castro et al., European Journal of Nutrition, doi: 10.1007/s00394-011-0257-5) asked whether **coenzyme Q10 could reduce the oxidative damage, inflammation and muscle damage associated with intensive exercise.**

20 ultra-runners (average age 40) were given either placebos or capsules providing a total of 150 mg of coenzyme Q10 prior to a 50 km run across Europe's highest road in the Sierra Nevada.

In the placebo group markers of inflammation and oxidative stress increased significantly during the run, and coenzyme Q10 supplementation significantly blunted this response.

Similarly, urinary levels of creatinine (a measure of muscle damage) were much higher at the end of the run for the placebo group. Again coenzyme Q10 supplementation significantly diminished the increase in urinary creatinine caused by the run.

The authors point out that while exercise has many health benefits, it can also induce oxidative stress and inflammation - which is not the reason that most of us exercise. They concluded: "Therefore, the knowledge gained from these findings will provide a foundation for similar CoQ10 supplement therapies in athletes performing strenuous exercise in order to reduce the undesirable effects of evoked oxidative stress and inflammation signaling during high intensity exercise and reduce the muscle damage induced".

What is the bottom line for you?

1) On the positive side these studies suggest that coenzyme Q10 supplementation may be beneficial whether you are young or old - and whether you are athletic or just trying to reduce the risk of heart disease.

2) Also, while these are individual studies they are consistent with a number of other recent studies of coenzyme Q10 supplementation in the 100 to 300 mg/day range.

2) On the negative side, many more studies will be required to determine whether the effects seen in these studies result in long term benefits of coenzyme Q10 supplementation.

To Your Health!

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