

CoQ10 may boost antioxidant defenses in people with atherosclerosis

By Stephen Daniells, 28-Oct-2011

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Daily supplements of co-enzyme Q10 may boost antioxidant defenses and reduce markers of oxidative stress in people with atherosclerosis, or hardening of the arteries, according to a new study from Taiwan.

A daily CoQ10 dose of 150 mg was associated with 29% lower levels of malondialdehyde (MDA - a reactive carbonyl compound and a well-established marker of oxidative stress) after eight weeks, compared with the placebo group, according to findings published in *Nutrition*.

In addition, after 12 weeks of supplementation, the CoQ10 supplement appeared to stimulate the body's antioxidant defenses and levels of the antioxidant enzymes catalase and superoxide dismutase (SOD) were 230% and 78% higher than the placebo group, respectively.

The researchers note that the dose used in this study was five times the recommendations of the Taiwan Department of Health, but half the levels suggested for healthy adults by the International Coenzyme Q10 Association.

"We believe a higher dose of coenzyme Q10 supplements (greater than 150 mg/d) might provide rapid and sustainable antioxidation in patients with coronary artery disease," wrote the researchers from Chung Shan Medical University.

"However, further study is needed to demonstrate whether a high dose of coenzyme Q10 correlates with clinical benefits."

CoQ10

CoQ10 has properties similar to vitamins, but since it is naturally synthesized in the body it is not classed as such. Our ability to synthesize the compound peaks at the age of 20 and amounts in our body decrease rapidly after we pass the age of 40.

With chemical structure 2,3-dimethoxy-5-methyl-6-decaprenyl-1,4-benzoquinone, it is also known as ubiquinone because of its 'ubiquitous' distribution throughout the human body.

The coenzyme is concentrated in the mitochondria - the 'power plants' of the cell - and plays a vital role in the production of chemical energy by participating in the production of adenosine triphosphate (ATP), the body's co-called 'energy currency'.

It has been studied for its role in cognitive health, heart health, and anti-aging (in oral and topical formulations). It has also been shown to benefit those suffering from angina, heart attack and hypertension.

Its use in the US, particularly in supplements, has been boosted by the rise in popularity of statin drugs which deplete the body's natural stores of CoQ10.

Study details

The Taiwanese researchers recruited 51% people with confirmed coronary artery disease and randomly assigned them to one of three groups: The first group received placebo, while the second and third groups received 60 and 150 mg per day of CoQ10 for 12 weeks. Forty three people completed the trial

Results showed that blood levels increased of CoQ10 increased in the high dose group by 189% after 12 weeks, but no significant increases were observed in the 60 mg group. MDA levels decreased significantly in the higher dose CoQ10 group after 8 weeks, but the difference between the placebo and CoQ10 groups after 12 weeks was not significant.

The researchers also observed increases in SOD and catalase levels after 12 weeks of supplementation.

"Coenzyme Q10 supplementation might be beneficial in patients with CAD. An increase in the concentration of coenzyme Q10 might affect mitochondrial respiratory function, and early supplementation should be administered

in cases of deficiency,” wrote the researchers.

“Coenzyme Q10 is a well-tolerated and safe supplementation and has a greater synergistic effect than other antioxidant vitamins such as vitamins A, C, and E,” they added.

Source: *Nutrition*

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“Coenzyme Q10 supplementation reduces oxidative stress and increase antioxidant enzyme activity in patients with coronary artery disease”

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