Published in final edited form as:

Eur J Integr Med. 2015 October 1; 7(5): 467–468. doi:10.1016/j.eujim.2015.09.134.

A Summary of a Cochrane Review: Co-enzyme Q10 supplements to prevent cardiovascular disease

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INTRODUCTION

Review authors in the Cochrane Collaboration conducted a review of the effects of co-enzyme Q10 (CoQ10) supplementation for the primary prevention of cardiovascular disease (CVD), such as heart attack and stroke. After searching for all relevant studies, they found 6 studies which provided CoQ10 for at least 3 months. Four of the studies included people who were already taking medication for high cholesterol (such as statins), and two studies in people who were not. This summary presents the findings of the two studies in people who were not taking statins, but who were at high risk of CVD due to high blood pressure or obesity.

CO-ENZYME Q10 AND CARDIOVASCULAR DISEASE

Cardiovascular diseases (CVD) occur because of problems with the heart and blood vessels. CVD can be cerebrovascular disease (such as stroke), peripheral arterial disease in which arteries are blocked with plaque, or coronary heart disease leading to a heart attack. CVD may be prevented by lowering blood pressure (systolic and diastolic blood pressure), lowering triglycerides or total cholesterol levels, and raising 'good' cholesterol levels (HDL).

There has been some research into whether taking supplements of Co-enzyme Q10 can prevent CVD. Co-enzyme Q10, also called CoQ10 or ubiquinone, is an antioxidant that is naturally produced by the body. Sometimes the levels in the body can be low which may be related to the risk of CVD. Today, CoQ10 is sold as a dietary supplement that can be taken by mouth as a pill or capsule, and people do not need a doctor's prescription to buy it.

WHAT DOES THE RESEARCH SAY?

Two small studies with 71 people altogether tested the effects of Co-enzyme Q10 in people who were not taking medication (statins) to lower cholesterol levels. The people in the studies did not have heart disease but they were at high risk of heart disease because they had high blood pressure or were obese. The people were randomly selected to either take

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CoQ10 or not (placebo) for up to 3 months. In one study of 20 people, the people who took CoQ10 had 100mg of CoQ10 per day in capsules. In the other study with 51 people, people who took CoQ10 had 200mg/day as a pill.

The evidence from the studies was very low quality because there were very few people in the studies and it was unclear whether the studies were well-conducted. For example, it was unclear how people were randomly selected to take CoQ10 or not, and a great number of people did not finish the study. For these reasons, we are uncertain about the evidence.

Therefore from this review of two studies, we are uncertain whether blood pressure is lower when taking CoQ10. We are also uncertain whether CoQ10 lowers total cholesterol or triglycerides, or whether it raises HDL cholesterol (good cholesterol). No studies measured whether CoQ10 prevents death, or cardiovascular events (such as heart attack and stroke). These studies also did not measure side effects of CoQ10. In future, we may have more evidence as 5 studies are currently being conducted.

WHERE DOES THIS INFORMATION COME FROM?

This summary is based on a Cochrane systematic review: Flowers N, Hartley L, Todkill D, Stranges S, Rees K. Co-enzyme Q10 supplementation for the primary prevention of cardiovascular disease. Cochrane Database of Systematic Reviews 2014, Issue 12. Art. No.: CD010405. DOI: 10.1002/14651858.CD010405.pub2.

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Acknowledgment

This article was prepared on behalf of the Cochrane Complementary Medicine Field with funding from the US National Center for Complementary and Alternative Medicine (NCCAM) of the US National Institutes of Health (grant number R24 AT001293). This Summary of Findings column series in the European Journal of Integrative Medicine is coordinated and edited by Lisa Susan Wieland, the Coordinator of the Cochrane Complementary Medicine Field.

Summary of Findings Table Effects of Co-enzyme Q10 after approximately 3 months of treatment

What was measured	Without Co-enzyme Q10	With Co-enzyme Q10	Quality of the evidence [#]	What happens with Co-enzyme Q10
Systolic blood pressure (2 studies, 71 people)		The two studies had very different findings	⊕⊕⊕⊕ very low	It is uncertain whether systolic blood pressure is lower
Diastolic blood pressure (2 studies, 71 people)	3 mm/Hg lower	Lower by 1.62 mm/Hg more (from 5.20 lower to 1.96 higher)*	⊕⊕⊕⊕ very low	It is uncertain whether diastolic blood pressure is lower
Total cholesterol (1 study, 51 people)	0.20 mmol/L lower	Higher by 0.30 mmol/L more (from 0.10 lower to 0.70 higher)*	⊕⊕⊕⊕ very low	It is uncertain whether total cholesterol is lower
Good cholesterol (HDL) (1 study, 51 people)	No change	Higher by 0.02 mmol/L more (from 0.13 lower to 0.17 higher)*	⊕⊕⊕⊕ very low	It is uncertain whether good cholesterol (HDL) is higher
Triglycerides (1 study, 51 people)	0.08 mmol/L higher	Higher by 0.005 mmol/L more (from 0.42 lower to 0.52 higher)*	⊕⊕⊕⊕ very low	It is uncertain whether triglycerides are lower
Diabetes, death or cardiovascular events such as heart attack or stroke	-	-	-	Not measured in the studies
Adverse events	-	-	-	Not measured in the studies

Evidence was very low quality because it is unclear if the studies were well-conducted and there were very few people in the studies.

* The numbers in the brackets show the range in which the actual effect could be using a 95% confidence interval.

[#] Details about the quality of the evidence: