

THE ROLE OF COENZYME Q10 IN AGING
HEART IN IMPROVING ITS
MITOCHONDRIAL
FUNCTION

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ABSTRACT

The rationale behind the use of CoQ10 in heart failure has focused primarily on the correction of a measurable deficiency of CoQ10 in both blood and myocardial tissue with the degree of CoQ10 deficiency correlating directly with the degree of impairment in left ventricular function. CoQ10 supplementation corrects measurable deficiencies of CoQ10 in blood and tissue.

26 studies that were identified in this search investigated and/or reported on the safety, efficacy, or effectiveness of Q10, including studies that were randomized controlled trials. The findings from these studies are organized below by function of Q10, uses and efficacy, deficiency, Q10 in relation to heart failure and involvement of Q10 in cardiac surgery.

Given the importance of coenzyme Q10 in mitochondrial electron transport and ATP synthesis, its depletion has been postulated to compromise myocardial energy generation and lead to "energy starvation" of the myocardium, considered to be a pathogenic mechanism of chronic heart failure (CHF). Recent evidence suggests a role for coenzyme Q10 as a predictor of outcomes and also as an adjunctive clinical therapy and supplementation is routine in some countries, such as Japan.

There is robust and increasing evidence that oxidative stress is an important contributor to the pathophysiology of cardiovascular diseases including heart failure, hypertension and ischaemic heart disease. Further research is

indicated on the role of coenzyme Q10 and other antioxidants in the treatment of the major cardiovascular diseases.