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Expert Opin Investig Drugs. 2010 Apr;19(4):535-54. doi: 10.1517/13543781003727495.

## Therapeutic use of coenzyme Q10 and coenzyme Q10-related compounds and formulations.

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#### Abstract

**IMPORTANCE OF THE FIELD:** Coenzyme Q(10) (CoQ(10)) is found in blood and in all organs. CoQ(10) deficiencies are due to autosomal recessive mutations, ageing-related oxidative stress and carcinogenesis processes, and also statin treatment. Many neurodegenerative disorders, diabetes, cancer and muscular and cardiovascular diseases have been associated with low CoQ(10) levels, as well as different ataxias and encephalomyopathies.

**AREAS COVERED IN THIS REVIEW:** We review the efficacy of a variety of commercial formulations which have been developed to solubilise CoQ(10) and promote its better absorption in vivo, and its use in the therapy of pathologies associated with low CoQ(10) levels, with emphasis in the results of the clinical trials. Also, we review the use of its analogues idebenone and MitoQ.

**WHAT THE READER WILL GAIN:** This review covers the most relevant aspects related with the therapeutic use of CoQ(10), including existing formulations and their effects on its bioavailability.

**TAKE HOME MESSAGE:** CoQ(10) does not cause serious adverse effects in humans and new formulations have been developed that increase CoQ(10) absorption. Oral CoQ(10) is a viable antioxidant strategy in many diseases, providing a significant to mild symptomatic benefit. Idebenone and MitoQ are promising substitutive CoQ(10)-related drugs which are well tolerated and safe.

PMID: 20367194 [PubMed - indexed for MEDLINE]



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