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Co-enzyme Q10 to treat neurological disorders: basic mechanisms, clinical outcomes, and future research direction.

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Abstract

Coenzyme Q10 (CoQ10) is critical for the cell power supply in mitochondria. CoQ10 shuttles electrons from complexes I and II to complex III, and can be anti-oxidative. Neurons require high energy for synaptic transmission and therefore the mitochondria dysfunction often leads to severe neuronal degeneration, as observed in many neurological disorders. **CoQ10 supplementation has been widely used to treat aging, stroke, neuromuscular diseases, Alzheimer's disease, Parkinson's disease, progressive supranuclear palsy, autosomal recessive cerebellar ataxias, Huntington's disease and amyotrophic lateral sclerosis.** Here we discuss a large number of preclinical and clinical trials for CoQ10 to elucidate the mechanisms underlying CoQ10 therapy. The rational applications as a therapeutic agent in neurological disorders are discussed.