

Cordero, M.D. *et al.*, "Coenzyme Q10 Distribution in Blood is Altered in atients with Fibromyalgia," *Clin Biochem* Dec 25 (2008). [Epub ahead of print] PMID: 19133251

Objective. Coenzyme Q-10 (CoQ (10)) is an essential electron carrier in the mitochondrial respiratory chain and a strong antioxidant. Signs and symptoms associated with muscular alteration and mitochondrial dysfunction, including oxidative stress, have been observed in patients with fibromyalgia (FM). The aim was to study CoQ (10) levels in plasma and mononuclear cells, and oxidative stress in FM patients.

Methods. We studied CoQ (10) level by HPLC in plasma and peripheral mononuclear cells obtained from patients with FM and healthy control subjects. Oxidative stress markers were analyzed in both plasma and mononuclear cells from FM patients.

Results. Higher level of oxidative stress markers in plasma was observed in FM patients in respect to control subjects. CoQ (10) level in plasma samples from FM patients was doubled compared to healthy controls, and in blood mononuclear cells isolated from 37 FM patients was found to be about 40% lower. Higher levels of reactive oxygen species (ROS) production was observed in mononuclear cells from FM patients compared to controls, and a significant decrease was induced by the presence of CoQ (10). *[N.B. ROS are produced when cells are under oxidative stress. They damage cells.]*

Conclusion. The distribution of CoQ (10) in blood components was altered in FM patients. Also, our results confirm the oxidative stress background of this disease probably due to a defect on the distribution and metabolism of CoQ (10) in cells and tissues. The protection caused in mononuclear cells by CoQ (10) would indicate the benefit of its supplementation in FM patients.