DOI: 10.20472/IAC.2015.015.119

BEKIR MEHTAP

Selcuk University, Facultural , Turkey

THE EFFECT OF COENZYME Q10 ON EXERCISE PERFORMANCE

Abstract:

CoQ10 which may be present in different amounts in each cells and vitamin-like compound in the lipid structure acts as a coenzyme at the key enzymatic reactions during energy consumption in cells.CoQ10 can be supplied exogenously with some nutrients such as also endogenously in humans.CoQ10 is located in the mitochondrial inner membrane and acts a coenzyme for the activities of redox reactions (oxidation-reduction) in the chain of electron transfer.The presence of these factors in the environment facilitates the seperation of oxygen from hemoglobin.The sufficient oxygen and other metabolites for the synthesis of ATP which is necessary for sustaining long-term exercise in heavy exercises can not be achieved by circulatory and the resulting waste products is not removed from the region. The important function of CoQ10 in the electron transport system is a great importance for aerobic energy production. It is observed that the great majority of the studies which investigated the effects of CoQ10 on pyhsical performance focused on aerobic exercises which require long-term physical performance. In these studies, the effects of CoQ10 supplementation on VO2max, blood lactate levels, blood metabolites, hearth rate and aerobic performance were investigated. When the findings of these studies are examined, it is observed that the different duration and doses administered CoQ10 supplemenation has any other development except the healing effects of training on aerobic capacity while there is no positive effect on exercise performances.Especially electron leakage from the mitochondrial electron transfer chain leads to increased superoxide anion production. Moreover, hypoxia and hyperthermia formed in the muscle during the exercise can increase the formation of free radicals.In such situations, it is consist imbalance between antioxidant system and oxygen species free radicals.The antioxidant function of CoQ10 is capable of stabilizing free radicals and this function can prevent the damage to biomolecules. Depending on this, using and taking as a support, CoQ10 may benefit in some disease while any of the researchers has been reached on a consensus about the effect of CoQ10 on exercise as yet.Indeed, the studies which investigated the effect of CoQ10 on exercise performance in athletes, sedentaries and different age groups are not enough and it attracts attention that some of datas which obtained in the studies were not suitable to each other. In this context, it is thought to be the need for a extensive studies which investigate the effects of CoQ10 on performance chritera and antioxidant system in different exercise types.

Keywords:

Coenzyme Q10; Exercise Performance; Effect