Abstract


Oxidative stress and antioxidant defense in plasma after repeated bouts of supramaximal exercise: the effect of coenzyme Q10.

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AIM: The purpose was to determine the changes of oxidative stress and antioxidant markers in plasma after repeated bouts of supramaximal exercise and the effects of coenzyme Q10 supplementation on these changes.

METHODS: This randomized, double blind, crossover study was composed of two 8-week periods of supplementation with either 100 mg.day-1 CoQ10 or placebo. Fifteen healthy and sedentary men participated in the study. Five Wingate tests with 2 min rest between tests were performed. Blood samples were collected at rest, immediately after, 15 and 60 min after the fifth Wingate test for oxidative stress (malondialdehyde, nitric oxide, xanthine oxidase and adenosine deaminase) and antioxidant (superoxide dismutase, glutathione peroxidase and uric acid) markers.

RESULTS: At baseline exercise session, malondialdehyde increased 15 and 60 min after the exercise compared to the rest and immediately after the exercise. Malondialdehyde at rest, immediately after and 60 min after the exercise decreased with coenzyme Q10 supplementation when compared to baseline. At baseline exercise session, uric acid increased 15 and 60 min after the exercise when compared to the rest.

CONCLUSION: In conclusion, lipid peroxidation and antioxidant defense increase after repeated short-term supramaximal exercise. Coenzyme Q10 supplementation partially prevents the increase in lipid peroxidation after repeated short-term supramaximal exercise.

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