The influence of flavonoid supplementation on the oxidant/antioxidant balance and effort capacity on trained animals

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Abstract

Background. Supplementation with flavonoids, which are widespread in nature and have antioxidant effects, could influence the physical effort capacity positively, by reducing the oxidative stress that is induced by effort.

Objective. This study investigated the effects of dietary supplementation with flavonoids on the oxidant/antioxidant balance and aerobe effort capacity in experimental conditions.

Methods. The study was conducted on two groups of white Wistar rats (n=10 animals/group): group I included aerobic effort trained animals; group II included aerobic effort trained animals with dietary supplementation of flavonoids. The training was conducted over 28 days. The aerobic exercise capacity was measured based on the treadmill test on day 1, 14 and 28. The markers for the oxidant/antioxidant balance were malondialdehyde (MDA) and hydrogen donors (HD) and were measured on day 1 and 28.

Results. For the first group MDA increased significantly and HD decreased significantly after 28 days of training. Group II registered a significant decrease of MDA after 28 days of training and flavonoid supplementation. The aerobic exercise capacity increased significantly after training in both groups, but the growth was higher in group II.

Conclusions. The dietary supplementation with flavonoids has a positive influence on the aerobic exercise capacity and the oxidant/antioxidant capacity, by reducing the oxidative stress in trained animals.

Keywords: flavonoid, physical effort, oxidative stress, malondialdehyde, hydrogen donors.