Whey protein isolate attenuates oxidative stress induced by intense exercise in trained cyclist men

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Muscular tissue is the major producer and the main target of reactive oxygen species (ROS) during exercise¹. Excessive production of ROS impairs muscle recovery, leading to fatigue, compromising performance². Whey and soy proteins may positively affect athletes’ performance, due to their antioxidant activity³,⁴. The aim of this study was to compare the effect of isolate proteins on oxidative stress markers' levels in trained male cyclists.

This is a randomized crossover study, in which 10 trained male cyclists completed three 8-days-length experimental sessions. In each session the cyclists consumed a protein drink (0.5 g protein isolate of whey or soy/kg body weight) or control. In the first and eighth days, the cyclists reported to the laboratory, 10 h fasted to exercise. The 45 min exercise protocol was performed in a cycloergometer applying loads of watts/kg of body weight. Blood samples were collected at fasting state and after exercise to assess oxidative stress markers Figure 1: glutathione (GSH), total antioxidant capacity (TAC), glutathione peroxidase (GPx), superoxide dismutase activity (SOD), 8-isoprostane and thiobarbituric acid reactive substances (TBARS).

In conclusion, whey and soy proteins increased glutathione peroxidase activity and glutathione concentration and prevented post-exercise lipid peroxidation. Whey protein increased superoxide dismutase activity compared with soy and control.