

PEREIRA, Adriano Teixeira. *Effects of resveratrol supplementation on the biochemical markers of muscular damage and of oxidative stress in military members subjected to intense physical activity*. 2011. 55 p. Dissertation (Master Degree in Food, Nutrition, and Health) – Nutrition Institute, State University of Rio de Janeiro, Rio de Janeiro, Brazil 2011. *Advisors*: Josely Correa Koury and Marcos de Sá Rego Fortes.

Abstract

Continuous intense physical activity and antioxidant imbalance may favor an oxidative state, with possible oxidation of lipids and proteins, causing several changes in cellular and tissue function. The consumption of antioxidants can be beneficial, however, nowadays this has become a controversial issue. Polyphenols have great antioxidant power, and, among them, most studies refer to resveratrol. It exerts its antioxidant action through multiple biological mechanisms. The aim of this study was to assess the effects of resveratrol supplementation on biochemical indicators of tissue damage and oxidative imbalance in military members submitted to intense physical activity. Haematological factors, serum levels of creatine kinase (CK), thiobarbituric acid reactive substances (TBARS), and protein carbonyls (PC) were determined. There were 98 male military members (22 ± 1.9 years) participating on this study from the start. Previous to supplementation and physical activity, they had their first blood sample (T0) taken; meanwhile, a random formation of groups was conducted: Plac (maltodextrin) and Suppl (encapsulated resveratrol - 100mg/day). Supplementation was conducted for 15 days, of which, 10 days with no physical activity and 5 days with intense physical activity (first phase, T1). After this period, both groups performed strenuous exercise for 14 days with no use of supplementation (second phase), and blood samples were collected again (T2). Red blood cells ($p < 0.01$), hematocrit ($p < 0.01$), and hemoglobin ($p < 0.01$) decreased in both groups throughout the study. CK increased (635%) after the first training phase (T1), in both groups, compared to the baseline value (T0) ($p < 0.01$). After the second training phase (T2), values returned to baseline in both groups. After the first phase (T1), only PC levels were found to be lower (22.7%) for the group that received supplements ($p = 0.044$) when compared to the group that received placebo, in the same period, returning to baseline values after the second stage (T2). TBARS levels remained similar for both groups throughout the entire study. The results of this study suggest that resveratrol intake has protected the oxidation of proteins and has not negatively affected cell signaling.

