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Exercise session promotes antioxidant changes in Brazilian soccer players  
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Daily physical exercise routine of professional athletes improves physiological functions and performance. However, it also promotes alterations in the antioxidant capacity to combat the augmented oxygen consumption and, therefore, augmented reactive oxygen species (ROS) generation. The main purpose of this study was to evaluate the effects of sport training session on the antioxidant defenses and indicators of oxidative stress in blood of soccer players. Non-enzymatic antioxidant defenses: reduced and total glutathione (GSH and TG), vitamin C (Vit C), and vitamin E (Vit E); enzymatic antioxidant defenses: catalase (CAT), superoxide dismutase (SOD), glutathione S-transferase (GST), glutathione reductase (GR), and glutathione peroxidase (GPx); indicators of oxidative stress: contents of thiobarbituric acid-reactive substances (TBARS) and oxidized glutathione (GSSG); and also contents of glucose, triacylglycerol, and total plasma protein were analyzed before and after one intense training session (six hours), in 13 Brazilian professional soccer players. Red cell GSH contents, CAT and GST activities showed significantly decreased values, whereas GR activity was increased after training. TBARS contents of red cells were lower after training, but no significant differences were observed in plasma. Also, Vit C concentrations in plasma increased after training, whereas Vit E concentrations decreased. The results provide evidence of antioxidant changes after the training session in soccer players.

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