

Andersson H, Karlsen A, Blomhoff R, Raastad T, Kadi F. Active recovery training does not affect the antioxidant response to soccer games in elite female players. Br J Nutr. 2010 Nov;104(10):1492-9. Epub 2010 Jul 8.

Abstract

Changes in plasma endogenous and dietary antioxidants and oxidative stress markers were studied following two 90 min elite female soccer games separated by 72 h of either active or passive recovery. The active recovery group (n 8) trained for 1 h at 22 and 46 h after the first game (low-intensity cycling and resistance training), while the passive group rested (n 8). Blood samples were taken before the games; immediately after the games; 21, 45 and 69 h after the first game; and immediately after the second game. The oxidative stress markers and antioxidants were not affected by active recovery. The oxidative stress marker GSSG increased by the same extent after both the games, while the lipid peroxidation marker diacron-reactive oxygen metabolite remained unchanged. The endogenous antioxidants total glutathione and uric acid and ferric reducing/antioxidant power increased immediately after both the games with the same amplitude, while increases in cysteine, cysteine-glycine and total thiols reached significant levels only after the second game. The changes in dietary antioxidants after the first game were either rapid and persistent (tocopherols and ascorbic acid (AA) increased; polyphenols decreased) or delayed (carotenoids). This resulted in high pre-second game levels of tocopherols, AA and carotenoids. Polyphenols returned to baseline at 69 h, and were not affected by the second game. In conclusion, the soccer-associated dietary antioxidant defence, but not the endogenous antioxidant defence, is persistent. Similar acute oxidative stress and endogenous antioxidant responses and dissimilar dietary antioxidant reactions occur during two repeated female soccer games. Finally, the complex antioxidant response to soccer is not affected by active recovery training.