

URINARY TOTAL ANTIOXIDANT CAPACITY IN SOCCER PLAYERS

Abstract

Both aerobic and anaerobic exercise contributes to oxidative stress by generation of free radicals. The human body is well equipped with both enzymatic and non-enzymatic antioxidant defence system. Soccer predominantly involves aerobic exercise with repeated bouts of anaerobic activities. The response of the different antioxidants to exercise might be sports-specific and hence the total antioxidant capacity (TAC) provides a better appraisal of the different antioxidant mechanisms of the body. TAC is the sum of the activities of antioxidants present in the material studied. The objective of the present study was to assess the urinary TAC (uTAC) in professional soccer players in different phases of the playing season and to compare the uTAC between professional, amateur and recreational soccer players. 21 professional, 20 amateur and 18 recreational players participated in the study. Results showed that the uTAC in the professional soccer players during pre-season (phase -1), early in-season (phase -2) and during the start of the end-season (phase -3) was (mean \pm SD) 3.13 ± 0.09 , 2.73 ± 0.37 and 2.99 ± 0.41 mmol·L⁻¹ respectively. The uTAC of the amateur and the recreational players during the start of end-season phase was 2.89 ± 0.44 and 1.77 ± 0.66 mmol·L⁻¹ respectively. Repeated Measures ANOVA revealed significant difference ($p < 0.05$) in the uTAC between phase-1 and phase-2 while no significant difference was detected between the other phases in the professional soccer players. One-way ANOVA revealed significant difference ($p < 0.05$) between the uTAC of the recreational players and the amateur and professional players while there was no significant difference ($p > 0.05$) in the uTAC between amateur and professional players. In conclusion, the present study found that the uTAC in professional soccer players changes through the course of the competitive season especially at the start of the early in-season period. Further, this study also found that the uTAC in both amateur and professional was higher than in the recreational soccer players. Further research is required to determine the response of the specific antioxidants to soccer training and performance during the different phases of the season and at different levels of participation.

Key words: oxidative stress, antioxidant defence, urinary total antioxidant capacity, soccer players
