Biology of Sport

pISSN 0860-021X

» Journal Abstract

Physical performance and antioxidant effects in triathletes

M Dékány, V Nemeskéri, I Györe, E Ékes, A Gógl, G Szőts, M Petrekanits

Biol Sport 2008; 25 (2):
ICID: 890325
Article type: Original article
IC™ Value: 9.57

Abstract provided by Publisher

Exercise results in an increased production of reactive oxygen species. Two major classes of endogenous protective mechanisms work together to ameliorate the harmful effects of oxidants in the cell: (1) components of the enzymatic scavenging system such as superoxide dismutase, glutathione-peroxidase and catalase and (2) nonenzymatic antioxidants. The purpose of this study was to identify any relationship between duration and intensity of prolonged physical exercise and markers of oxidative stress with the primary antioxidant system. Eleven triathletes performed a field test, which consisted of 1.9 km swimming, 60 km cycling and 21 km running. Venous and arterialized blood enzymatic activities of SOD, CAT, GPX, and creatine kinase and concentrations of glucose, lactate, malondialdehyde and bilirubin were determined. Athletes were divided into two groups: the more efficient group (A), and the less efficient group (B), according to their duration of the field test. The activity of GPX was significantly higher in Group A than Group B, irrespective of the duration of the exercise, but bilirubin concentration was lower. For Group B, SOD activity increased during running while CAT activity decreased after cycling and after running. Upon completion of the test, CK activity was elevated in both groups. The free radical scavenging system appears to be directly related to individiual physiological efficiency with prolonged submaximal physical exercise. According to our estimation of the individual training status and the adequate adaptation level, it is important to take into consideration the markers of free radical production and the activities of the scavenging compounds. Abbreviations: SOD - superoxide dismutase, GPX - glutathione peroxidase, CAT - catalase, MDA - malondialdehyde, CK - creatine kinase.

ICID 890325

FULL TEXT 309 KB

Related articles

- in IndexCopernicus™
  - Scavenging system [0 related records]
  - Free Radicals [363 related records]
  - antioxidant system [4 related records]
  - Oxidative Stress [952 related records]
  - Triathletes [0 related records]

Search

Back