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Effects of field-battle hypoxia supporter on free radical metabolism after exercise at high altitude

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Objective To explore the effects of field-battle hypoxia supporter on free radical metabolism after exercise at high altitude.
Methods A total of 40 healthy fighters stationed in the 3800m plateau for 10 days were randomly divided into two groups. Each group of 20 men, armed with heavy weapons and hypoxia supporter, hiked 5 km and then climbed a 4,300 m peak, a total distance of 10 km. The control group closed the valve of hypoxia supporter without oxygen inhalation, the experimental group opened the valve and inhaled oxygen. The serum levels of superoxide dismutase(SOD), total antioxidant capacity(T-AOC), reactive oxygen species (ROS) and malondialdehyde (MDA) were measured at rest and after exercise. In addition, The average marching speed of the two groups were compared.
Results The T-AOC, ROS and MDA were increased both in the control group and experimental group after exercise, and the SOD increased significanly in experimental group ($P<0.01$). Compared with control group, the SOD and T-AOC were increase but the ROS and MDA were decreased significanly after exercise($P<0.01$). The average speed of 10km cross-country march in the control group and the experimental group was (3.0±0.3)km/h and (2.3±0.5)km/h respectively, and there were significant differences ($P<0.01$).
Conclusions The field-battle hypoxia supporter can restrain free radical damage after exercise at high altitude and increase the efficiency of work at high altitude.
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