



Exercise Biochemistry Review

Proceedings of IBEC 2018, Beijing, China, October 23-25
PO-262

Study on the effect of weight loss in High temperature and High humidity

Fan Zhao¹, Yong Liu¹, Yi Zhou²

1.Beijing Research Institute of Sports Science, Beijing, China

2.Beijing 101 Middle School, Beijing, China

Objective The effects of aerobic exercise on body weight loss in different environments were studied by comparing the changes of relative indexes between high temperature and high humidity and general environment. To provide certain reference basis for weight loss in aerobic training before competition of heavy competitive athletes.

Methods Eight male freestyle wrestlers in Beijing were chosen as the research objects. The body weight, energy metabolism and serum ions were measured before and after one time aerobic exercise (50min, 65%VO₂max) in general environment (23°C/40%humidity), high temperature and high humidity(33°C/60%humidity). The data were statistically processed by SPSS19.0 software, and Paired-Samples T Test was selected for statistical analysis.

Results Under the same physiological load, one time aerobic exercise was carried out in high temperature and high humidity and general environment, the weight of high temperature and high humidity group decreased 1.91%, the amplitude was slightly larger than that of general environment group. The energy metabolism in the hyperthermia and humidity group was 1.52g higher than that in the normal temperature and humidity group, the energy expenditure at 2 hours after exercise was 0.95% higher than that in the normal temperature and humidity group, and the energy metabolism during 8 hours sleep was 14.86% higher than that in the normal temperature and humidity group (p<0.05). Na⁺ and Cl⁻ were significantly higher after general environmental exercise than before (P<0.05), while K⁺, Mg²⁺ were slightly lower than before exercise. After high temperature and humidity exercise, Mg²⁺ was significantly lower than that before (P<0.01). K⁺ decreased slightly, Na⁺, Cl⁻, Ca²⁺ was slightly higher than that before exercise. According to the change of ion index, aerobic exercise may have little adverse effect on the balance of internal environment under the condition of high temperature and high humidity, which can be improved by the supplement of electrolyte drink.

Conclusions In high temperature and high humidity environment, aerobic exercise has a relatively good effect on weight loss. In order to reduce the change of internal environment, electrolyte drink can be added in the process of weight loss aerobic training. Athletes can withstand the weight reduction and control training at different ambient temperatures, subjectively accept the thermal environment. Therefore, the choice of high temperature and high humidity aerobic exercise in fast weight loss stage will be an effective means of weight loss before competition.