

Experimental study regarding the influence of the acute hypobaric hypoxia on the aerobic exercise capacity

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Abstract

Background and aims. We studied the aerobic exercise capacity of the rats, in normobaric normoxia, after an acute exposure to hypobaric hypoxia, corresponding to a 1500 and 2500 altitude.

Methods. The researches were conducted on two groups of Wistar male rats, exposed for 48 hours at a simulated altitude of 1500 m and 2500 m, respectively, which underwent physical exercise through the swimming test, in normobaric normoxia, before and after exposure. The simulated exposure to hypobaric hypoxia was made in the hypobaric chamber owned by the Physiology Department of “Iuliu Haţieganu” University of Medicine and Pharmacy in Cluj-Napoca.

Results show unimpressive effects on the exercise capacity in group I, exposed to 1500 m, and significant increases of the exercise capacity in group II, exposed to 2500 m, these effects lasting for a short period of time.

Conclusions. The acute exposure to a moderate hypobaric hypoxia, corresponding to a 2500 m altitude, has favourable effects on the exercise capacity of the rats. Even if these effects don't last in time, they could be used to immediately improve performances in aerobic sports.

Keywords: acute and moderate hypobaric hypoxia, aerobic exercise capacity.