The effect of restrain stress on the aerobic effort capacity of rats (part I)

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Abstract

Background. Physical exercise, restraint and hipokinezia - are among the experimental factors applied to rats to cause stress in laboratory procedures currently used in different variations in duration and frequency.

Aims. We followed the influence of anakinetic (restrain) experimental stress on the aerobic exercise capacity and spontaneous mobility and emotiveness.

Methods. Research has been conducted on two groups (n = 10/lot) of white male rats of Wistar breed, weighing 160-180 g. Group I – control – animals involved in daily swimming for 21 days; group II - animals restrained daily for 6 hours and subsequently subjected to swimming training for 21 days. The indicators to the research were the aerobic exercise capacity, spontaneous motility and emotiveness.

Results. Training for 21 days caused significant increases in the aerobic exercise capacity in group I on days 7, 14 and 21 compared to baseline values. Anakinetic stress and 21 days training induced in group II minor increases in aerobic exercise capacity in 7 to 14 days and increases in 21 days. 21 days training determined a significant reduction in spontaneous motility and emotiveness in group I. Anakinetic stress and training for 21 days caused in group II a significant decrease of spontaneous motility without significant changes in spontaneous emotiveness. Aerobic exercise capacity showed a good correlation with emotiveness in both groups.

Conclusions. Significant increase of aerobic capacity by training and significant decreases of the spontaneous motility and emotiveness compared to base time values could contribute to the improvement of physical performance in athletes.

Keywords: restrain stress, aerobic exercise capacity, spontaneous motility, emotiveness.