

GLYCOGEN PHOSPHORYLASE ACTIVITY DURING ACCLIMATION TO HIGH ENVIRONMENT TEMPERATURE IN FED AND FASTED RATS

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The aim of this experiment was to analyse the correlation of hepatic glycogen phosphorylase activity ($a+b$ and a) with liver glycogen content and blood glucose level in fed and 4-days fasted rats, during the acclimation to hyperthermic environment. The experiments were performed on adult Wistar male rats. Fed animals were divided into 8 groups: 1, 4, 7, 14, 21, 30 and 60 days of acclimation respectively, and control group. Four days fasted animals were grouped in 7: 0+4, 3+4, 10+4, 17+4, 26+4 and 56+4 days of acclimation, respectively, and control group. Heat acclimation was obtained in a special heat-chamber with regulated temperature of $35\pm 1^\circ\text{C}$ and air humidity of 20-30%. Control animals were kept at a room temperature of $20\pm 2^\circ\text{C}$. After ether narcosis, liver pieces were taken and frozen in liquid nitrogen. Blood was taken from vena cava posterior. In fed rats, there was significant increased in the glycogen phosphorylase a activity only in the beginning of acclimation period. Liver glycogens content was significant increased after two weeks till the end of acclimation period. The correlation coefficient depending on time of exposition was significant ($r=0.927$). High environmental temperature caused significantly decreasing of blood glucose level during whole acclimation period, ($r=-0.956$). There is negative correlation of changes in liver glycogen content with blood glucose level ($r=-0.746$). In fasting condition, there were decreased activity of both forms of glycogen phosphorylase activity ($r=-0.617$ for $a+b$, $r=-0.589$ for a), and decreased liver glycogen content ($r = -0.896$) during whole period of acclimation. There is positive correlation between glycogen phosphorylase activity and liver glycogen content ($r=0.712$ for $a+b$, $r=0.680$ for a). Blood glucose level is not changed in fasted groups during acclimation to high temperature.

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