

PLASMA CATECHOLAMINES, SEROTONIN AND THEIR METABOLITES AND β -ENDORPHIN OF WINTER SWIMMERS DURING ONE WINTER.

Possible correlations to psychological traits.

ABSTRACT

Objectives. The study was a follow-up one, in which blood pressure and hormonal changes were investigated during one winter swimming season in winter swimmers (WSs) and non-swimmer controls on three occasions (autumn, winter and spring). Humoral results were compared to psychological traits recorded at the time of the three blood samplings.

Results. Mean systolic blood pressure of the WSs fell from 134 ± 12 mmHg to 128 ± 12 mmHg ($p < 0.05$) during the winter, and a slight but non-significant drop was also seen in the controls. Mean plasma noradrenaline concentrations diminished significantly from autumn to spring, and more so in the WS-group, but no statistically significant difference was observed between the groups. Adrenaline levels also showed a decreasing trend, and the change was significant when calculated by using the combined means of both groups. Plasma homovanillic acid and β -endorphin values were on the same level in all seasonal samples in both groups. Plasma serotonin levels decreased in both groups by about 50 per cent by spring, but 5-HIAA did not change significantly. HVA showed correlation with blood pressure and anxiety in the autumn ($r = 0.367$). In the winter measurement endorphin and hysteria had a negative correlation ($r = 0.370$). In the spring 5-HIAA and obsessionality had a positive correlation ($r = 0.351$).

Discussions. In summary, blood pressure and plasma catecholamine levels decreased during winter swimming practice over one winter, but these changes were also observed in the control persons. Plasma serotonin was lower in the spring in both groups. The changes in the humoral status speak for adaptation to the research situation, or reflect seasonal variation from autumn to spring. No clear effect of winter swimming as such was detected.

Key words. winter swimming, catecholamines, serotonin, endorphins

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