

Abstract

Title: Determining the relationship of spiroergometric examination of sprint canoe competitors while paddling and at the arm crank ergometer.

Objectives: The aim of this thesis was to investigate the relationship between functional indicators of aerobic exercise diagnostics on sprint canoe and at the arm crank ergometer.

Methods: To obtain the data, we used a standardized stress test for arm crank ergometer. To measure flatwater canoeists while paddling, the spiroergometric examination with the same stress protocol was used. The devices used during both experiments were sporttester Polar RS 800 and Cortex Metamax 3B device. To detect the functional relationships of measured values the correlation analysis was used. The degree of dependence was determined by Pearson correlation coefficient.

Results: Total average difference between the values measured at arm crank ergometer and while paddling at sprint canoe was 2,13%. Correlation analysis showed a strong dependence in 4 of the 7 monitored functional pointers: VO_2 ($r = 0,873$), VO_{2max} ($r = 0,972$), tidal volume ($r = 0,775$) and pulmonary ventilation ($r = 0,786$). As for the three remaining indicators; respiratory rate ($r = -0,023$), lactic acid ($r = -0,08$) and heart rate ($r = -0,275$) there was no statistically significant difference.

Key words: Crank ergometry, spiroergometry, paddling on canoe, canoe sprint, load diagnosis.