

Abstract

Title: The Comparison of Results of Diagnostic Methods of Anaerobic Thresholds in Rowing

Aims: The aim of the work is to compare the most used diagnostic methods of anaerobic thresholds on a rowing machine.

Methods: This diploma thesis is a quantitative empirical research. To compare diagnostic data was used the Concept 2 rowing machine. The rowing machine was also used as an instrument for evaluation of five types of test methods for the anaerobic threshold diagnostics and the sixth control test, respectively. Examined functional values were determined using a HR monitor Garmin Fenix 6 and a Lactate scout lactometer. Exponential regressions in MS Excel were used to evaluate lactate curve tests. The homogeneous sample group consisted of 10 club rowers ($n = 10$).

Results: We used basic statistical methods for data analysis, paired t-test, and correlation analysis (Pearson's correlation coefficient). Comparing the functional values of the monitored diagnostics, we found that the descending time protocol of the lactate curve was the most accurate methods of anaerobic threshold diagnostics for the control twenty-minute test. The compared functional values of other tests against the control test showed a statistically significant variation at the level of significance $p \leq 0.05$. Other used methods of anaerobic threshold diagnostics are overestimated especially for performance values for the descending time protocol of the lactate curve, which is a statistically highly significant variation $p \leq 0.01$. A high level of dependence on heart rate and lactate value ($r \geq 0.8$) was found in the descending time protocol of the lactate curve. The results of the study suggest that a descending time protocol might be the most appropriate for a more accurate individual anaerobic thresholds diagnostics.

Key words: rowing, rowing machine, individual anaerobic threshold, lactate, lactate curve, time protocol, heart rate