

Abstract

Title: Evaluation of postural stability of sprint kayak athletes.

Objectives: The aim of this thesis is to compare the level of dynamic postural stability of sprint kayakers with healthy population, which don't do any sport regularly with computerized posturography on the NeuroCom SMART EquiTest device.

Methods: It is quantitative cross-sectional study. 24 sprint kayakers (experimental group) participated in this study and 40 individuals (control group), which don't do any sport on competitive level. The dynamic postural stability was evaluated with computerized posturography on the NeuroCom SMART EquiTest device in the Laboratory of Applied Kinesiology at the Department of Physiotherapy in Charles University Faculty of Physical Education and Sport. Every participant was tested once in all seven tests - – Sensory Organization Test, Motor Control Test, Adaptation Test, Limits of Stability, Rythmic Weight Shift, Weight Bearing Squat, Unilateral Stance. Data was recorded and processed by the NeuroCom Balance Manager Software and then converted into Microsoft Excel 365 programe. Data was statistically analysed by Shapiro – Wilk test, Mann – Whitney test, Pair t – test and Cohen's d.

Results: Due to low number of statistically significant differences, we couldn't say that sprint kayakers have better or worse dynamic postural stability then normal population. The statistically significant difference was found in 10 parametrs of 46 evaluated. Three of them was in favor of experimental group (ADT Toes UP $p=0,01$, Toes Down $p=0,004$; RWS DCL S-LR $p=0,03$) and 7 of them was in favor of control group (SOT – COND1 $p=0,02$, COND4 $p=0,0002$, COMP $p=0,02$, VIZ $p=0,002$; LOS – EPE $p=0,01$, MXE $p=0,01$; UNI – PDK eyes open $p=0,02$). In comparison of all parameters together, experimental group was better in 22 evaluated parametrs (48 %) and control group in 24 (52 %).

Keywords: the dynamic postural stability, canoe sprint, kayak, NeuroCom Smart EquiTest