

Abstract

Title: Influence of regularly repeated asymmetric load on the locomotor system in sweep rowers.

Objectives: Aim of this diploma thesis is to compare posture, foot loading symmetries and prevalence of low back pain in a group of sweep rowers with groups of scull rowers and non-rowing probands based on the results of the pedobarographic assessment, assessment of the posture using method of moiré topography and the results obtained from the clinical assessment.

Methods: Number of 21 sweep rowers, 20 scull rowers and 23 non-rowing peers were enrolled to the study of this diploma thesis. Each subject was assessed using DIERS formetic 4D and DIERS pedoscan devices. Additionally, participants in each group were assessed by FAIR test, Cluster of Laslett, triggerpoint palpation of the *m. piriformis* and Visual analog scale, that was used to assess intensity of pain in the lumbar region.

Results: In comparison with observed scull rowers, sweep rowers showed greater rotational deviation of the trunk at the level of the L₃ vertebrae and larger sway area of the COP on the left leg during quiet stance on both legs. Subsequently, sweep rowers displayed greater magnitude of scoliotic angle during walking throughout single support phase on the left leg and double support phase in the transition from the left leg to the right leg. As opposed to non-rowing peers, sweep rowers showed greater COP misalignment between the left foot and the right foot, greater values of apical trunk deviation in the frontal plane and greater rotational deviation of the trunk at the level of the L₃ vertebrae. In walking, sweep rowers also displayed greater magnitude of scoliotic angle during single support phase on the left leg and double support phase in the transition from the left leg to the right leg along with single support phase on the right leg. Moreover, sweep rowers showed more positive results of the Cluster of Laslett testing than participants from other groups.

Keywords: sweep rowing, pedobarography, moiré topography, asymmetrical loading, posture