Abstract

Title: Children's gait characteristics and kinematic analysis

Objectives: The aim of the master thesis is to perform an analysis of the gait of children engaged in intensive sports training (floorball) and children who are not intensively engaged in sports, and to compare selected spatio-temporal, kinetic and kinematic parameters of these two groups.

Methods: The work has a theoretical-empirical nature with a smaller number of probands. 3D kinematic analysis of gait was recorded with a Qualisys device and reaction forces from the pad with 7 Kistler force plates. The following parameters are monitored in the thesis: step length, step speed depending on height, range of plantar and dorsiflexion in the ankle joint, rotation of the pelvis and shoulders in the transverse plane, vertical and anterior-posterior component of reaction forces from the ground.

Results: The results of the study showed that for some kinematic parameters, intensive sports training of children aged 7-13 years leads to changes in the behavior of individual analyzed parameters. This is mainly due to the fact that the tested group has more symmetrical rotation of the pelvis and shoulders in the transverse plane compared to the control group. However, the results obtained in terms of statistical probability are not sufficiently conclusive due to the low number of probands.

Key words: kinematic analysis of gait, ground reaction force, children, youth floorball, Qualisys Motion Capture, Kistler