Abstract

Title: Knee - straining of modern gymnasts

For the basic study of human movements we need to take into consideration geometry of moving units (bodies), kinematics and dynamics.

The theoretical part generally describes all the subjects connected to the research project, especially information about functions of human musculoskeletal system, description of basic biomechanics of knee joint, walking and methods of acquiring and processing of data for kinematic analysis of walking.

The experimental part focuses on straining on a knee joint of modern gymnasts. It is a methodical analysis of straining on a knee joint.

The foundations for this diploma thesis are data recorded by the Kistler system which we used for measuring of the dynamical part of a jump. We also used the swedish Qualysis Motion Capture system for the kinematic analysis. All the data were processed by Qualysis Track Manager software.

The results of the research is kinematical - dynamic analysis, which is further used for the result of full – year of legs - straining of selected type of sport movement.

Key words: biomechanics of knee joint, walking, kinematic analysis, gymnastic jumps