

ABSTRACT

Title of the thesis: Selected diagnostic procedures during the annual macrocycle of the floorball season which are used to demonstrate a specific asymmetry in floorball players

Aims of the thesis: The aim of this work is to identify and analyze the specific time period during the floorball season, which is characteristic with the biggest muscle asymmetry caused due to a specific exercise load that floorball demands.

Methods: The research was conducted among elite floorball teams of the top men's floorball competition in the Czech Republic and the tested research group included only male professional athletes. The probands (n = 18 input measurements, n = 10 output measurements) took a total of four complex measurements. Testing was held once before the pre-conditioning period, once during the main course and twice before the playoff. Missing data was supplemented and approximated by the method of multiple imputations in Mplus software.

Selected body composition parameters were evaluated, tested and measured on various measuring instruments and machines such as Tanita MC-980MA. The footscan® systems were used to measure postural stability. The explosive force was measured using Kistler force plates and the Cybex Humac Norm isokinetic dynamometer was used to determine the muscle strength of the lower limbs. Evaluated parameters in the body composition test were height, weight, body fat fraction measured in percents, ATH calculation, muscle tissue fraction on individual body segments. The overall center of pressure action measured during the session on selected tests (USOO, USZO, FLL, FLP) was evaluated to obtain data for postural stability tests.

During the explosive power tests, we evaluated the ratio of the load of the individual limbs, as well as the maximal produced muscle strength and the maximum jump height of the test subject. Muscle strength of lower limbs was measured at the moment of muscle strain during concentric muscle work. All accumulated data were operationalized and verified. Microsoft Office Excel 2016 was used to process and record written results.

Results: The Segmental Analysis of Body Composition found no statistically significant differences. During the measurement of postural stability, the FLL and FLP tests measured a difference of 212.1 mm in tested diameter with an indistinctive value of the only $p > 0.05$. This result cannot be considered as a significant statistically important difference. The greatest asymmetry was recorded in the maximum muscle strength during the tests which were taken in the course of the third measurement. An average value of 17.6% of the right-left quadriceps ratio and an average of 16.1% of the right-left hamstring ratio was measured during this measuring period. As further research has shown, the biggest differences in anteroposterior asymmetry occurred in the dominant DK. On average, the measured values were 62.4% for dominant DK and 61.4% for non-dominant DK. At the moment of the full jump during the explosive force tests (CMFJ, CMJ, SQJ) performed in the second phase of our measurements, the greatest difference was identified between the right and left DK.

Last but not least, the distribution of weight to individual limbs was measured at the time of the entire lunge to jump momentum. CMFJ was found to have an average jump lunge value of 11.5% differences between LDK and PDK. In contrast, the CMJ has an average jump lunge value of 12.6% differences in LDK and PDK. The SQJs have an average jump lunge value of 13.4% differences between LDK and PDK. The overall submitted results show that it is the preparatory period, which is burdened with the highest asymmetry.

Key words: Disbalance, Methods of Testing, The Floorball, Postural Stability, Maladaptation, The Most Important Parts of The Season.