

Abstract

Title: Isokinetic strength of shoulder rotation in elite Czech female volleyball players

Objectives: The main goal was to evaluate and compare the results of measuring internal and external rotation in the shoulder joint of elite volleyball players of the age categories „Women“ and „Juniors U18“.

Method: The players of the national teams "Juniors U18" and "Women" took part in the measurement. Isokinetic strength parameters were measured using a Cybex Humac Norm isokinetic dynamometer (Cybex NORM®, Humac, CA, USA). The maximum strength of internal and external rotation of the shoulder joint was evaluated. Muscle strength was measured at an angular velocity of 60 °/s and the upper limb was abducted at 90°. Descriptive statistics on the test result were calculated and evaluated using the Excel software (Microsoft, USA). Statistical data processing was performed at the level of comparison of averages and percentage differences between individual categories of results.

Results: The results show that the Women group had higher strength than the U18 Junior group. On the contrary, the U18 Junior group had more balanced results, both between the dominant and non-dominant limb and between internal and external rotation. The measured strength of rotation in Women shown a greater muscle imbalance. In comparison, the internal rotation reached higher values than the external rotation in any measurements. A group of Women as well as a group of Juniors reached the maximum strength in internal rotation of the dominant limb. When comparing muscle strength, the U18 Junior group achieved 69% of the muscle strength in the internal rotation and 81% of the external rotation when testing the dominant limb compared to the female group. In the case of a non-dominant limb, U18 Junior group achieved 84% in internal rotation and 91% in external rotation compared to a group of Women.

Keywords: Internal and external rotation, shoulder, dynamometry, volleyball