Abstract

Title: Assessment of muscle imbalances in handball players

Objectives: The main aim of this work was to evaluate the occurrence of muscle imbalances in the handball players of the first – league team of woman by means of the kinesiological analysis and segmental analysis from the BIA method.

Methods: In modified kinesiological analysis, we focused on assessing posture and examining shortened muscles. To segmental analysis by the BIA method, we used the Tanita MC – 980 apparatus, where we first assessed the asymmetry in the distribution of muscle mass on individual body segments.

Results: In 80 % of the total, the upper cross syndrome was recorded. Lower cross syndrome was found in 67 % of the players. The results of segmental muscle mass analysis using BIA showed a statistically insignificant difference ($p > 0.05$) in the distribution of muscle mass in the upper limbs (average difference of 0.05 kg) and a statistically significant difference ($p < 0.05$) in the distribution of muscle mass at the lower of the limbs (average difference of 0.11 kg). The following significant correlations were found for the whole population ($n = 15$): m. Iliopsoas right and the amount of muscle mass (BIA) on right upper limb ($r = 0.549$), iliopsoas on the right and the amount of muscle mass (BIA) on left upper limb ($r = 0.571$), m. iliopsoas on the right and the amount of muscle mass (BIA) on the right lower limb ($r = 0.660$), iliopsoas on the right and the amount of muscle mass (BIA) on the left lower limb ($r = 0.673$) iliopsoas on the left and the amount of muscle mass (BIA) on right upper limb ($r = 0.549$), iliopsoas on the left and the amount of muscle mass (BIA) on left upper limb ($r = 0.694$), m, iliopsoas on the left and the amount of muscle mass (BIA) on the right lower limb ($r = 0.704$), m. iliopsoas on the left and the amount of muscle mass (BIA) on the left lower limb ($r = 0.715$).

Keywords: muscle imbalance, bioelectric impedance, kinesiology analysis, handball