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Body Composition Analyser Parameters and Their Comparison with Manual Measurements

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Abstract : Introduction: Medical checking assessment is important in sports medicine. To follow the health condition in subjects who perform sports, body composition parameters, such as intracellular water, extracellular water, protein and mineral content, muscle and fat mass might be useful. The aim of the study was to show available parameters and to compare them to manual assessment. Material and methods: A number of 20 subjects (14 male and 6 female) at age of 20±2 years were determined in the study, 5 performed recreational sports, while others were professional ones. The mean height was 175±7 cm, the mean weight was 72±9 cm, and the body mass index (BMI) was 23±2 kg/m2. The measured compartments were as following: intracellular water (IW), extracellular water (EW), protein component (PC), mineral component (MC), skeletal muscle mass (SMM) and body fat mass (BFM). Lean balance were examined for right and left arm (LA), trunk (T), right leg (RL) and left leg (LL). The comparison was made between the calculation derived by manual made measurements, using Matejka formula and parameters obtained by body composition analyzer (BCA) - Inbody 720 BCA Biospace. Used parameters for the comparison were muscle mass (SMM), body fat mass (BFM). Results: BCA obtained values were for: IW - 22.6±5L, EW - 13.5±2 L, PC - 9.8±0.9 kg, MC - 3.5±0.3, SMM - 27±3 kg, BFM - 13.8±4 kg. Lean balance showed following values for: RA - 2.45±0.2 kg, LA - 2.37±0.4, T - 20.9±5 kg, RL - 7.43±1 kg, and LL - 7.49 ±1.5 kg. SMM showed statistical difference between manual obtained value, 51±01% to BCA parameter 45.5±3% ($p<0.001$). Manual obtained values for BFM was lower (17±2%) than BCA obtained one, 19.5±5.9% ($p<0.02$). Discussion: The obtained results showed appropriate values for the examined age, regarding to all examined parameters which contribute to overview the body compartments, important for sport performing. Due to comparison between the manual and BCA assessment, we may conclude that manual measurements may differ from the certain ones, which is confirmed by statistical significance.

Keywords : athletes, body composition, bio electrical impedance, sports medicine
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