PHYSIOLOGICAL DIFFERENCES BETWEEN TOP ELITE AND ELITE WATERPOLO PLAYERS

Abstract
The aims of this study were to establish the physiological attributes of top elite (the second position on the World Championship in Barcelona 2013) and elite (the fourth position in The Adriatic league in season 2012/13) male water polo players, and to determine whether these attributes discriminate top elite players from elite players. Measurements and tests of basic anthropometry (body height, body mass, BMI, arm span, leg length), and specific motor abilities, swimming speed, throwing velocity and maximal force capacity were conducted on two occasions, separated by one day. A total of 22 water polo players, 11 top elite and 11 elite (24.26±2.78 vs. 21.83±2.67 years of age) participated in this study. Of all applied tests and measures, they statistically significantly differed only in the results of two specific motoric tests: throwing velocity (78.81±3.84 vs. 71.27±4.29 km/h, p<0.01) and test of maximal force capacity (46.72±6.13 vs. 40.38±3.79 kg, p<0.01). This study revealed that the main differences between top elite and elite water polo players are in abilities of maximum shot velocity and the production of a maximum force. The results therefore identify important factors for elite players to improve in the transition phase from elite to top elite level.

Key words: anthropometry, motor abilities, differences, water polo