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A Comparison of Methods for Evaluating Body Composition in Elite Female Soccer Players

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ABSTRACT The aim of the research was to determine an accuracy of measurement based on intra-trial concurrent and convergent validity of body composition (BC). Measurements were obtained via bioelectrical impedance analysis (BIA) in comparison with the hydrodensitometry (HD) method in elite female soccer players (n = 14). BC was measured using three methods: bioelectrical impedance methods BIA 2000M and In Body 3.0, and HD. The fat mass (FM) measured by HD was 16.96±3.86 percent, whereas it was 21.26±5.77 percent when measured with BIA 2000M, and was even higher when measured by the In Body 3.0 device at 23.33±3.52 percent. Effect size between BIA and HD was >0.87, convergent validity was lower than r<0.65, coefficient of determination was lower than R^2<0.65, and a standard error of estimation was higher than >2.8. The results of the research showed that, without proper prediction equations for the specific population, the selected bioelectrical impedance analysers cannot be considered valid enough to assess the fat mass of elite female soccer players.