Relationship between knee strength, and single and repeated sprint ability in football players

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Previous research has provided evidence supporting the notion that the magnitude of force generated during dynamic muscle actions relates to the amount of speed an athlete can produce during a sprint performance. Football players execute multiple sprints during the course of a match, to the extent that subsequent sprints may be negatively affected. The purpose of this study was to examine the relationship between isokinetic knee strength, and single and repeated sprint ability. Thirty-eight football players from three codes (Union, League, Soccer) completed a 12 x 20m repeated sprint protocol, and were evaluated for peak isokinetic extension and flexion torque at 60°·sec, 150°·sec, and 240°·sec. While single and repeated sprint parameters correlated with peak extensor and flexor torque at all velocities, the strongest correlations were observed between relative knee extensor torque (1.71 ± 0.25 $N \cdot m \cdot kg^{-1}$) at 240°·sec, and the initial acceleration phase (0-10m) of the both the single ($r = -0.714$, $p<0.01$) and repeated ($r = -0.689$, $p<0.01$) sprint performance. These findings provide new evidence supporting the relationship between knee strength and sprint (single and repeated) performance – that knee extensor torques produced at higher velocities provide a better indicator of short sprinting ability than torques produced at lower velocities.

Bioelectrical impedance vs anthropometric determination of body composition in elite basketball referees

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The use of a simple, quick and cost-effective method to determine body composition is becomingly increasingly important for professional sporting organizations. The aim of this study was to compare bioelectrical impedance (BI) and anthropometric methodologies in determining body composition of elite basketball referees. Twenty-six referees (age - 37.4 ± 9.4 yr; height - 179.0 ± 5.5 cm; mass - 82.6 ± 9.4 kg) volunteered for this study during a national pre-season tournament. Each referee was euhydrated as determined by urine specific gravity (<1.029) using a refractometer. Body composition was determined via BI (TANITA TBF-531A scales) and a restricted anthropometric profile (LIFESIZE) in accordance with ISAK guidelines. Significant correlations were obtained between BI (adult mode) and LIFESIZE body fat% equations ($r>0.69$, $p<0.001$), and BI (adult mode) and sum of 4-9 skinfolds ($r>0.69$, $p<0.001$). Similar correlations were obtained for BI (athlete mode) (body fat%, $r>0.72$, $p<0.001$; sum of 4-9 skinfolds, $r>0.69$, $p<0.001$) despite a significantly lower body fat% compared to BI (adult mode) (2.8-10.0%, $p<0.001$). Regression equations for the prediction of body fat% and sum of 4-9 skinfolds from BI were determined. Bioelectrical impedance (TANITA TBF-531A scales) provides a simple, cost-effective and comparable method to anthropometry for determining body composition of elite basketball referees