

Relationship between strength and body composition of university students

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Muscle strength and body composition are two components of physical fitness and subsequent, related to health and functional performance (Abdelmoula, et al, 2012). The aim of present study was to determine the relation between lower limb strength production and some body composition variables in university students. A total of 145 students of Sport Sciences at the University of Évora, (20.72 ± 2.9 years old; 69.53 ± 12.91 kg; 171.8 ± 8.62 cm of height) were evaluated. To access the thigh perimeter and skinfold a tape and caliper were used. Strength was evaluated by an isokinetic dynamometer (Biodex System 3 - Biodex Corp., Shirley, NY, USA) with concentric actions (3 repetitions) for knee extension and flexion at 90° and 60°/s of angular speed. We conducted the analysis of the correlation by Person test to investigate the linear association between the evaluated parameters. For all statistical procedures, the confidence interval was 95% (p < 0.05). Significant directly proportional correlation were found between peak torque of the knee extension and flexion with the thigh perimeter (r = 0.297; p = 0.000 and r = 0.209; p = 0.01 respectively) and inversely proportional correlation between the peak torque of flexion action with thigh skinfold (r = -0.196, p = 0.018). We concluded that depending on the size of the thigh, subjects will have more or less strength in extension and flexion of the dominant leg, while the leg strength on the flexion action decreased with increasing fat on the thigh of the dominant limb.

References

Abdelmoula, A., Martin, V., Bouchant, A., Walrand, S., Lavet, C., Taillardat, M., ... & Ratel, S. (2012). Knee extension strength in obese and nonobese male adolescents. *Applied Physiology, Nutrition, and Metabolism*, 37(2), 269-275.