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Assessment of power output in jump tests for applicants to a sports sciences degree

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Aim. **Our study aimed: 1) to describe the jump performance in a population of male applicants to a Faculty of Sports Sciences, 2) to apply different power equations from the literature to assess their accuracy, and 3) to develop a new regression equation from this population.**

Methods. **The push off phases of the counter-movement jumps (CMJ) on a force platform of 161 applicants (age: 19±2.9 years; weight: 70.4±8.3 kg) to a Spanish Faculty of Sports Sciences were recorded and subsequently analyzed. Their hands had to be placed on the hips and the knee angle during the counter movement was not controlled. Each subject had 2 trials to reach a minimum of 29 cm of jump height, and when 2 jumps were performed the best trial was analyzed. Multiple regression analysis was performed to develop a new regression equation.**

Results. **Mean jump height was 34.6±4.3 cm, peak vertical force 1 663.9±291.1 N and peak power 3524.4±562 W. All the equations underestimated power, from 74% (Lewis) to 8% (Sayers). However, there were high and significant correlations between peak power measured on the force platform, and those assessed by the equations.**

Conclusions. **The results of the present study support the development of power equations for specific populations, to achieve more accurate assessments. The power equation from this study [Power=(62.5×jump height (cm)) + (50.3 × body mass (kg)) – 2 184.7] can be used accurately in populations of male physical education students.**

KEY WORDS: Biomechanics - Force platform - Power equations - Jump performance.

Power output is an essential factor in sport and daily life. It has been widely studied by coaches and researchers, and different ways of measuring and assessing it during running, jumping, cycling and rowing have been developed.[1-4] The ability of generate mechanical power can be utilized as an indicator of muscle fatigue and performance, and the measurement of its changes over time may improve the control during a training process.

Power can be measured externally by different devices, from the mechanical work, or from the force and velocity [P (W)= F (N) × v (m/s)]. Force platforms are accurate instruments to measure power, and they are becoming more accessible.[2] They can be utilized to measure power directly during jump tests. Nowadays, there are portable force platforms that can be used in the field; despite of this, this technology is not easily accessible for most of the coaches and

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