

Validity and reliability of the WIMU inertial device for the assessment of the vertical jump

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The aim of this study was to test the validity and reliability of the inertial device WIMU (Realtrack Systems SL, Almería, Spain) for the assessment of the vertical jump, counter movement jump (CMJ) and squat jump (SJ). Fifteen soccer players were evaluated in two identical sessions separated by one week. In each session, participants performed three jumps of each type. The flight time was quantified by the inertial device WIMU and by a force platform (Twin Plates; Globus Sport and Health Technologies LLC, Codogné, Italy) at the same time. For the analysis of reliability of the flight time of the CMJ and the SJ, the intraclass correlation coefficient was used. The calculation of the concurrent validity was performed by using the Pearson correlation coefficient (r). This analysis was complemented with the realization of the Bland-Altman plots. For the analysis of reliability, the coefficient of variation and the standard error of the means were calculated. The analysis presented a high validity and reliability of the device. The results show the inertial device WIMU (Realtrack Systems SL, Almería, Spain) as a useful tool for measuring the jump capacity of the athletes, presenting immediate results in real time, on any type of surface and in a simple way since it does not need cables. © 2018 Pino-Ortega et al.

Accelerometer

Fitness

Flight time

WIMU

accelerometry

adolescent

Article

athletic performance

clinical article

concurrent validity

counter movement jump

gold standard

human

information processing

jumping

muscle action potential

muscle strength

physical activity

qualitative validity

running

soccer player

sports medicine

sports science

squat jump

vertical jump