

Testo originale

Validity and reliability of GPS devices for measuring movement demands of team sports.

There is limited information regarding the validity and reliability of global positioning system (GPS) devices for measuring movement during team sports. The aim of this study was to assess the validity and intra-model reliability of different GPS devices for quantifying high-intensity, intermittent exercise performance. Two moderately trained males each completed eight bouts of a standard circuit that consisted of six laps around a 128.5-m course involving intermittent exercise. Distance and speed were collected concurrently at 1-Hz using six GPS devices (2 SPI-10, 2 SPI Elite and 2 WiSPI, GPSports, Canberra, Australia). (1) total distance covered for each bout and each lap; (2) high-intensity running distance ($>14.4\text{kmh}^{-1}$, HIR); very high-intensity running distance ($>20\text{kmh}^{-1}$, VHIR) during each bout. Peak speed was also measured during a 20-m sprint at the start of each lap of the circuit (N=192). Actual distance was measured using a measuring tape. Mean (\pm SD) circuit total distance was significantly different between each of the GPS devices ($P<0.001$); however, all devices were within 5m of the actual lap distance and had a good level of reliability (coefficient of variation (CV) $<5\%$) The CV for total distance (3.6-7.1%) and peak speed (2.3-5.8%) was good-to-moderate, but poor for HIR (11.2-32.4%) and VHIR (11.5-30.4%) for all GPS devices. These results show that the GPS devices have an acceptable level of accuracy and reliability for total distance and peak speeds during high-intensity, intermittent exercise, but may not be provide reliable measures for higher intensity activities.