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**The use of relative speed thresholds in team sports: Applications for GPS analysis**

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Data from global positioning system (GPS) technology are typically presented as the distances covered in specific locomotor categories (e.g., walking, jogging, striding, sprinting). Differences are found when categorisations are made using either pre-defined absolute thresholds or thresholds relative to maximum speed. However, there are two distinct methods of using relative speed thresholds currently employed in the literature, although no study has attempted to compare them. Therefore, the purpose of this study was to compare the differences in data when analysing the same GPS files relative to speed, using either a maximum velocity sprint ($V_{max}$) or a maximum velocity achieved during match-play ($V_{peak}$). Following institutional ethics approval, 99 GPS files were analysed from rugby union match-play and split between forwards (*n*=59) and backs (*n*=40). The male participants involved were part of a Regional Academy and had the following characteristics (age: 17.5 ± 0.7 years; stature: 183.6 ± 6.6 cm; body mass: 90.6 ± 10.6 kg). $V_{max}$ was established by players performing a maximum 40 m sprint, whilst $V_{peak}$ was defined as the maximum velocity achieved during each match. The locomotor categories were defined as walking 0-20%, jogging 20-50%, striding 50-80% and sprinting 80-100% (Duthie et al., 2006) of either $V_{max}$ or $V_{peak}$. Data were analysed using magnitude based inferences. The mean $V_{max}$ and $V_{peak}$ for all players were 8.7 ± 0.6 $m.s^{-1}$ and 7.2 ± 0.9 $m.s^{-1}$, respectively. There were *almost certain* differences in walking (2088 ± 298 *vs.* 1611 ± 435 m), striding (670 ± 244 *vs.* 1197 ± 375 m) and sprinting (28 ± 29 *vs.* 145 ± 73 m) between $V_{max}$ and $V_{peak}$, for forwards. There was also a *likely* difference in jogging (2674 ± 313 *vs.* 2502 ± 301 m). *Very likely* differences were found for walking (2414 ± 288 *vs.* 2177 ± 347 m) and striding (708 ± 159 *vs.* 927 ± 347 m) for backs. There was also an *almost certain* difference in sprinting (66 ± 41 *vs.* 151 ± 49 m) whilst an *unclear* difference was found for striding (2409 ± 433 *vs.* 2338 ± 352 m) for backs. The use of relative thresholds using $V_{peak}$ seems to overestimate the distance covered in striding and sprinting whilst underestimating walking and jogging. Practitioners should look to use $V_{max}$ for relative speed thresholds as $V_{peak}$ from match-play is likely to change from match-to-match and consequently misrepresent the movement demands that players are exposed to.