

AN ASSESSMENT OF THE TEST-RETEST RELIABILITY OF PERFORMANCE IN THE ACCELERATION PHASE OF SPRINTING

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The ability to accelerate quickly is of great importance to field sports players (Murphy et al., 2003). This is particularly true for rugby league forwards who rarely sprint further than 10 m (Meir et al., 1993). As a result of this, the acceleration phase of sprinting becomes an important area of focus for training across numerous team sports (Lockie et al., 2003). However, the ability to evaluate the effectiveness of training cycles depends on the ability to reliably detect changes in performance. Therefore, the aim of the current study was to determine the test-retest reliability of using photocells to measure 0-5, 5-10 and 0-10 m split times.

Twenty elite male junior rugby players (14.9 ± 1.2 y) from a professional rugby league club attended two testing sessions one week apart. All sprints were performed in an indoor venue on a non-slip surface. On each occasion four 15 m sprints were performed by each participant and the fastest time of each of the splits used for further analysis. Each sprint test was started in a stationary standing position from a line 0.5 m behind the start line.

Mean \pm SD times were 1.10 ± 0.06 s, 0.77 ± 0.05 s and 1.89 ± 0.10 s for 0-5, 5-10 and 0-10 m respectively for trial 1 and 1.09 ± 0.07 s, 0.77 ± 0.04 s and 1.89 ± 0.10 s for trial 2. Paired sample t-tests revealed no significant difference between trials, for any of the three splits ($t = 0.329$ for 0-5 m, -0.074 for 5-10 m and 0.485 for 0-10 m, $P > 0.05$). Reported as relative reliability, the coefficient of variation (CV) were 1.7, 2.2 and 1.0% for 0-5, 5-10 and 0-10 m respectively. The 95% limits of agreement (LoA) (bias \pm 1.96 [SD diff]) for test-retest reliability were 0.003 ± 0.08 s, -0.005 ± 0.06 s and 0.004 ± 0.07 s.

Results show that reporting 0-10 m times are more reliable than reporting 0-5 and 5-10 m as split times. However since training studies report typical improvements in 0-10 m of 0.07 s (Zafeirdis et al., 2005), the chance of being able to report a meaningful improvement is limited due to the degree of absolute random variability observed in this study. Coaches and sports scientists should therefore be cautious when interpreting times for the acceleration phase of sprints.

References.

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