

Abstract

Differences between sexes in dynamic balance assessed with the Y-balance test (upper quarter)

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Swimming requires a significant amount of strength and upper body endurance, as well as shoulder mobility and stability. The Y-balance test is a land-based assessment that requires minimal equipment and examines the unilateral upper-body performance of athletes in their final range of motion to maintain stability (Gorman, Butler, Plisky, & Kiesel, 2012). Therefore, the aim of this study was to investigate differences between sexes in dynamic balance assessed using the Y-balance test (upper quarter). The sample consisted of 15 proficient young adult swimmers (8 men, 20.84±2.03 years; 7 women, 20.13±1.90 years). The Y-balance test for the upper body was used to assess the swimmers' dynamic balance (Gorman et al., 2012). Composite scores (CS, %) were

calculated for both limbs, and absolute differences (cm) and relative differences (%) were measured for the medial, infero-lateral, and supero-lateral distances. Swimming speed (m/s) was measured using a velocimeter (SpeedRT, ApLab, Rome, Italy). Males exhibited significantly faster swimming speeds compared to females (males: 1.30 ± 0.09 m/s; females: 1.11 ± 0.18 m/s; $t = -2.75$, $p < 0.017$). Males showed a significantly higher right CS (males: $93.29 \pm 13.03\%$; females: $80.03 \pm 8.94\%$; $t = -2.26$, $p < 0.041$) and left CS (males: $93.88 \pm 10.94\%$; females: $82.18 \pm 8.61\%$; $t = -2.27$, $p < 0.041$) than their female counterparts. Absolute differences in the medial and infero-lateral distances were also greater in males. Conversely, the absolute supero-lateral distance was greater in females. Regarding the relative medial and supero-lateral distances, they were greater in females, while the relative infero-lateral distance was greater in males. However, all differences (both absolute and relative) between the sexes were not significant. The literature shows that female swimmers have a higher rate of upper body injuries compared to their male counterparts (Wolf, Ebinger, Lawler, & Britton, 2009). Although no significant differences were observed between sexes in any of the reach directions (absolute and relative differences), females exhibited smaller CS scores (right and left) than males. These assessments over time can help in evaluating the upper body function and determine if the application of certain types of training (on land and in water) will help to reduce the likelihood of injury in swimmers, and hence improve performance.

Keywords: Swimming; Y-balance test; Training; Balance.

References

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