TACSM Abstract

Associations Between Jump Performance and Asymmetries with 30-m Sprint Completion Time

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ABSTRACT

Asymmetries of the lower body during jumping have been examined as a method to predict risk for injury and guide training program development. Studies have primarily focused on how these asymmetries affect jump performance, but none have examined this in Division I track athletes nor how these are related to sprint performance. **PURPOSE**: To examine the relationship between jump performance and asymmetries of the vertical and broad jumps with 30-m sprint completion times. **METHODS**: Twenty-five Division I Track and Field athletes (12 sprinters and 13 non-sprinters) (height = 177.21 ± 10.43 cm; weight = 78.67 ± 24.15 kg) participated in this study. These subjects performed two trials of both the vertical jump (VJ) with their hands on their hips while standing on force platforms. Subjects also performed two trials of the broad jump (BJ) while standing on force platforms and the distance of the BJ was measured using a 100-m tape measure. Following the jump tests, subjects performed two trials of 30-m sprints in which time was recorded using timing gates and the trial with the shortest completion time was used for analysis. Force data from the VJ was used to determine jump height and inter-limb asymmetries and the trial with the greatest jump height was used for analysis. Force data from the BJ was used to determine inter-limb asymmetries from each trial and the trial with the greatest jump distance was used for analysis. Asymmetries were calculated with the symmetry index equation [(high value-low value)/total*100]. Spearman rank correlations were then conducted to determine if the jump performance and asymmetries were associated with sprint completion times. Significance was set at an alpha level of 0.05. **RESULTS**: Spearman rank correlations determined that both the VJ and BJ were negatively associated with 30-m sprint completion time (r_s= -0.644 p=0.001 and r_s=-0.563 p=0.003, respectively). Additionally, both the VJ height and BJ distance were positively correlated (r_s=0.643 p=0.001). The VJ and BJ asymmetries were not significantly correlated with 30-m sprint performance (p>0.05) nor were they correlated with either the VJ height or BJ distance. **CONCLUSION**: The findings of study indicate that coaches may want to monitor jump performance as it is related to sprint performance. On the other hand, the asymmetries measured were not associated with jump or sprint performance and this may be due to the sample as they were highly trained individuals with low levels of asymmetries during both jumps.