

Relationships of Ice Skating Cornering Completion Time and Exercise Testing Performance in Youth Athletes



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Introduction

Jump height, jump distance, and skating speed can be easily measured, tested, and improved. Determining if these have a relation with ice skating cornering – an important skill in ice hockey – could help coaches improve player testing and game readiness. Moreover, it may aid in improving training programs leading to superior performance outcomes.

Purpose

To determine the relationship between vertical jump height, broad jump distance, and ice-skating linear sprint speed with ice-skating cornering speed in youth ice hockey players.

Methods

Twenty-four competitive youth ice hockey players participated in the study. Participants completed two 36.58-meter acceleration maximal ice skating sprints (completion times measured at the 9.14-meter and 36.58-meter mark) and two agility s-cornering skates with 2 minutes rest provided between each trial. Timing gates (Brower Timing System, UT, USA) collected completion times. Three vertical jumps with arms akimbo were conducted on force platforms (Pasco, CA, 1000 Hz) with the main measures of interest being jump height (m). Force data was utilized to calculate vertical jump height. For the three broad jump trials, the distance was the primary variable of interest. Jump distance was measured to the nearest centimeter using a measuring tape. Jump distance was measured as the distance from the takeoff to the back of the athlete's heel. The averages of all measures of interest were used for statistical analysis using JASP software (version 0.16). A series of Spearman's rho correlations were conducted to determine associations between measures of interest.

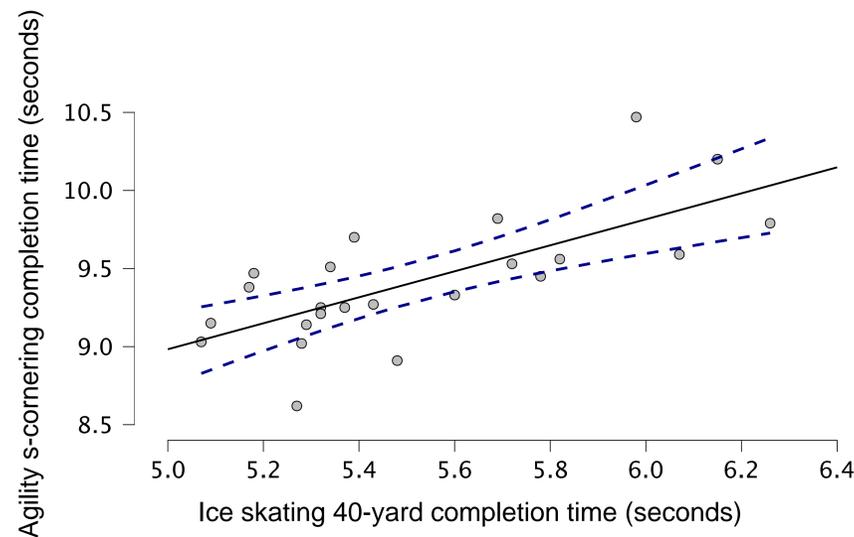


Figure 1. Correlation between on ice agility s-cornering test and ice skating 40-yard completion time.

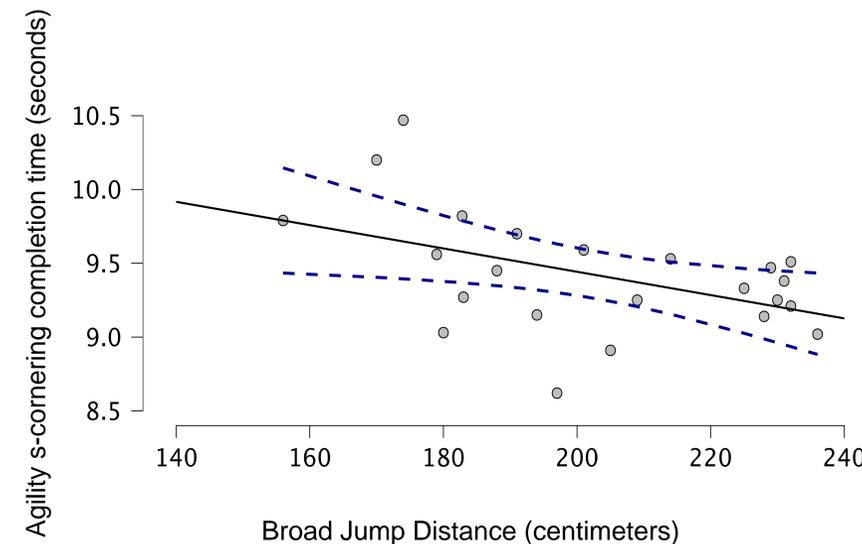


Figure 2. Correlation between on ice agility s-cornering test and broad jump distance.

Results

On ice agility s-cornering completion time was correlated with on ice linear sprint 9.14-meter completion time ($r_s=0.529$; 95%CI [0.149, 0.773]; $p=0.01$).

On ice agility s-cornering completion time was correlated with on ice linear sprint 36.58-meter completion time ($r_s=0.709$; 95%CI [0.419, 0.867]; $p<0.001$) (Figure 1).

On ice agility s-cornering completion time was correlated with broad jump distance ($r_s=-0.467$; 95% CI [-0.068, -0.737]; $p=0.025$) (Figure 2).

On ice agility s-cornering completion was not significantly correlated with counter movement vertical jump height ($r_s=-0.353$; 95%CI [-0.668, 0.069]; $p=0.099$).

Conclusion

Players having fast ice skating linear sprint times at 9.14-meter and 36.58-meter also display rapid on ice agility s-cornering completion times. A greater broad jump distance is related to a faster on ice agility s-cornering completion time. Higher countermovement vertical jump height does not appear to be related to on ice agility s-cornering completion time in youth ice hockey players.

Practical Application

Given the strong association between broad jump distance and ice skating linear sprints completion time at 9.14-meters and 36.58-meters with on ice agility s-cornering completion time; coaches may desire to monitor performance of these tests throughout the season. Moreover, coaches may use results to guide training program creation to develop the physiological and biomechanical aspects underpinning the observed relationships.



Full
Abstract

