RELATIONSHIP BETWEEN SKATING PERFORMANCE AND VERTICAL JUMPING IN ICE HOCKEY PLAYERS

Strojnik Vojko, Hribar Matjaz, Dolenec Ales
(Faculty of Sport, University of Ljubljana, Slovenia)

Ice hockey is a very dynamic sport involving speed and power. Conditioning is important part of training and in NHL a weight lifting and plyometric exercises are regularly performed (Ebben et al., 2004). It is expected that conditioning may strongly influence skating performance. For that reason the aim of the present study was to analyse relationship between skating performance and different vertical jumps representing concentric, slow SSC (stretch-shortening cycle) and hopping type SSC actions.

Eleven players (age 21.4 ± 2.1 years, height 178.6 ± 8.0 cm, mass 78.9 ± 12.5 kg) playing in Slovenian national league volunteered the study. They performed speed skating from steady start where time during the first (T1) and second 5 meters section (T2) was measured. They were also analysed for maximal skating velocity during 5 meters section with flying start (Tmax). Corresponding times for 5 meters sections were measured with photocells. From three attempts, the mean value for each section was calculated. Additionally, they performed squat jump (SJ), countermovement jump (CMJ) and drop jumps from 25 (DJ25) and 45 (DJ45) high bench on force platform (Kistler, Winterthur, Switzerland). The highest jumping height from each jumping type was used for analysis.

Jumping heights were 35.88 ± 3.67 cm, 37.27 ± 2.99 cm, 35.60 ± 4.39 cm, and 33.92 ± 4.96 cm for SJ, CMJ, DJ25 and DJ45, respectively. Time for the first 5 meters section with steady start was 1.224 ± 0.090 s, for the second section 0.783 ± 0.026 s, and for maximal velocity 0.527 ± 0.015 s. Statistically significant Pearson correlation coefficients were found between T1 and DJ25 (-0.685, P=0.020), T1 and DJ25-SJ (-0.753, P=0.007), T2 and DJ25 (-0.652, P=0.030, and Tmax and CMJ (-0.658, P=0.028). There were no statistically significant correlations with SJ.

Results showed that the first acceleration in ice hockey skating from steady start was best related to DJ25. When the velocity increased in the second 5 meters section, skating was still related to DJ25 although relationship seemed somewhat lower as in the first section. As the subjects skate with their maximum speed, it was related to CMJ. It is concluded that the start of the skating corresponded to hopping type of SSC while skating at maximal velocity was more alike to slow SSC. For that reason, plyometric training seems to be very important for ice hockey players and stressing specific type of SSC action during conditioning may contribute to better performance in specific skating tasks.

Reference:

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