

## **Abstract**

**Title:** The effect of specific hip mobility exercises on skating performance in ice hockey players

**Objectives:** The main objective of this study was to determine whether and what effect a three-month intervention program focused on hip mobility development would have on skating performance in junior and youth ice hockey players. The sub-objectives were to investigate what are the relationships between the selected tests and what is the effect of the intervention program on significant off-ice predictors of skating performance.

**Methods:** The research sample consisted of 34 hockey players (21 U20 and 13 U17) with an average age of  $17.18 \pm 1.4$  years playing in the lowest Czech U17 or U20 league. The players were divided into experimental and control groups, with the experimental group practicing the proposed intervention program. All players were tested before and after the intervention. The mobility tests selected were sit and reach, Thomas test and modified deep squat test. The on-ice tests were the Illinois agility test without the puck, the acceleration test, the transitions test, and the crossover test. The off-ice tests observed were broad and counter movement jumps and the Illinois agility off-ice. Pre- and post-intervention differences were assessed by paired tests, and between-group differences were assessed by two-sample tests. The effect of the intervention program was assessed using Cohen's d and the effect size r. Relationships between tests were assessed using Pearson's and Spearman's correlation coefficients.

**Results:** The intervention program had a statistically significant effect for improving the level of hip mobility, confirming its effectiveness. The effect of the intervention program on improving skating performance was not clearly confirmed. Although there were slight improvements in all tests, there was no statistically significant difference between the experimental and control groups. Similarly, the intervention program had no effect on the off-ice tests. Significant correlations were found between the tests. Differences in effectiveness and response to the same intervention program were found for players in the U17 and U20 categories.

**Keywords:** hip mobility, ice hockey, off-ice tests, skating, skating tests