

Abstract

The purpose of this masters thesis was to compare the effects of unilateral and bilateral strength training on performance measures in squat jump, countermovement jump, broad jump bilaterally, broad jump unilaterally on the right and left leg, Illinois agility test, wingate test, 1500 meter run, 3x200 meter run, and Y-Balance test.

The research sample consisted of 30 ice hockey players falling into the U17 and U20 categories, playing in regional U17 and U20 leagues. The players were randomly assigned into two groups performing either only bilateral-based or unilateral-based strength training. The total duration of the training intervention was six weeks for both group, with training sessions performed twice a week. Thus, the subjects completed a total of 12 trainings. All subject were tested before and after the training intervention and the data were analyzed using ANOVA analysis followed by Tukey post-hoc test. Normality of the data was determined using the Kolmogorov-Smirnov test.

ANOVA analysis showed statistically significant improvements in performance measures for the squat jump ($F_{1, 28} = 8.22, p = 0.008$), countermovement (CMJ) jump ($F_{1, 28} = 4.82, p = 0.037$), Illinois agility test on left side ($F_{1, 26} = 4.93, p = 0.035$) and right side ($F_{1, 26} = 36.88, p < 0.001$), 1500-meter run ($F_{1, 22} = 12.069, p = 0.0215$), 3x200-meter run ($F_{1, 22} = 7.51, p = 0.012$), "Composite score" in Y-balance test on the right leg ($F_{1, 25} = 35.11, p < 0.001$) and left leg ($F_{1, 25} = 70.65, p < 0.001$), also no statistically significant differences between groups were observed in all the mentioned tests. Regarding anterior range in the Y-Balance test on the right leg a statistically significant improvement was observed for both groups ($F_{1, 25} = 70.65, p < 0.001$), also, the differences between the groups found, with the post hoc test showing a higher increase in range ($F_{1, 25} = 4.38, p = 0.047$) in favour of the bilateral training group. Regarding anterior range in the Y-Balance test on the left leg, statistically significant differences were also observed between the initial and final testing ($F_{1, 25} = 19.09, p = 0.0019$), but no statistically significant differences were found between the groups.

The results of this master thesis suggest that both unilateral and bilateral strength training are appropriate and similarly effective means of developing fitness in U17 and U20 ice hockey players.