

The effect of contrast training on strength and speed in ice hockey players

Marcin Smolarek ¹ Arkadiusz Ogaza ² Kamil Michalik ³ Dariusz Mroczek ³



¹ Students Scientific Association Sport Performance, Wrocław University of Health and Sport Sciences, 51-612 Wrocław, Poland

² Polish Ice Hockey Association, National Under-18 Team

³ Department of Human Motor Skills, Wrocław University of Health and Sport Sciences, 51-612 Wrocław, Poland

Introduction

Ice hockey is a contact sport characterized by high intensity and interval action, requiring large physical expenditure affecting the neuromuscular and cardiovascular systems (1). It requires players to repeatedly develop strength, speed, agility and excellent stick technique, as well as the willingness to absorb physical contact (2).

The aim of the experiment was to determine the effect of contrast training on the level of strength and speed in ice hockey players

Material and methods

The study involved 30 male ice hockey players (two hockey teams playing in the MHL). One team (n=15) performed contrast training while the other team (n=15) performed traditional strength training. Before and after the 8-week training period, the subjects performed tests of maximum strength, jumping ability and speed tests on ice.

Tab. 1. Analysis of body composition in the control and experimental groups

Variables	Experimental group	Control group
Body weight [kg]	81.9±9.4	74.8±5.6
Muscle mass [kg]	41.8±4.7	38.9±2.6
Fat mass [kg]	8.7±2.5	6.7±4.2
TBW [kg]	54.1±6.9	50±3.1
FFM [kg]	73.9±9.4	68.2±4.2
BMI [kg/m ²]	24.4±2	23±1.9
PBF [%]	11±3.4	8.7±4.9
WHR	0.80±0.03	0.78±0.05

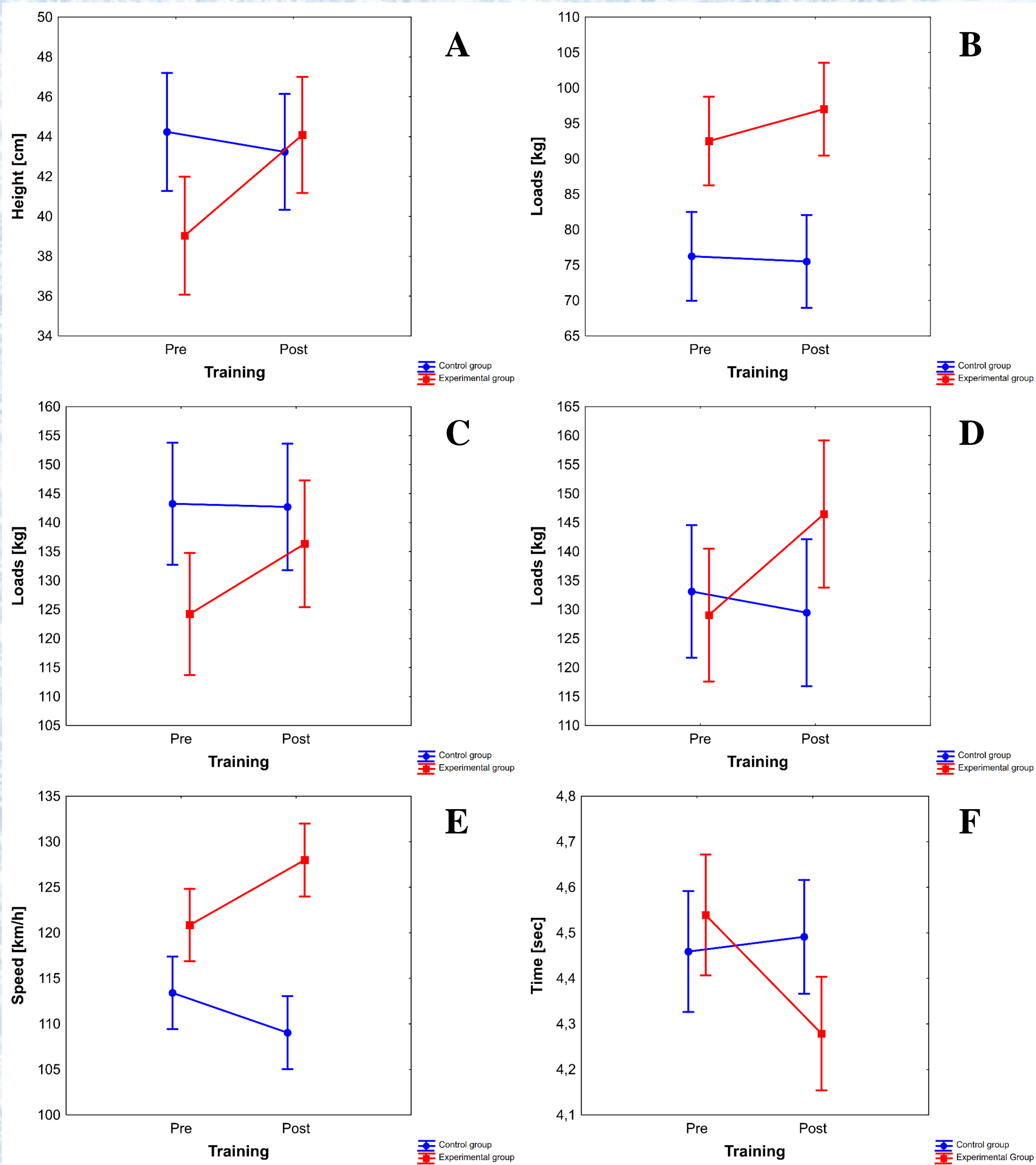
TBW – total body water, **FFT** – free fat mass, **BMI** – body mass index, **PBF** – percent body fat, **WHR** – waist-hip ratio

Results

Repeated measures ANOVA showed a statistically significant effect of training on maximum strength in squat test ($F_{1,28}=44.276$, $p=0.000$, $\eta^2=0.613$), deadlift ($F_{1,28}=48.128$, $p=0.000$, $\eta^2=0.632$) and bench press ($F_{1,28}=44.978$, $p=0.000$, $\eta^2=0.445$). The same situation also occurred in tests on ice, where after training there was a significant increase in shooting speed ($F_{1,28}=73.407$, $p=0.000$, $\eta^2=0.724$) and sprint

test 30m ($F_{1,28}=15.347$, $p=0.001$, $\eta^2=0.354$). Additionally, the Bonferroni post-hoc test showed a significantly greater increase in strength after contrast training than after classic strength training in tests such as squat ($p=0.000$), deadlift ($p=0.000$) or bench press ($p=0.000$).

Fig. 1. Maximum values of strength and speed parameters achieved before and after the training period in the experimental and control groups



A) CMJ jump height, B) Bench Press loads, C) Deadlifts loads, D) Back Squat loads, E) Slap shot speed, F) Skating speed of 30m

Conclusions

Contrast training among ice hockey players enables greater training adaptation, which translates into achieving better results on ice. Simultaneous improvement of activities such as skating sprint or shot speed can have a direct impact on the game result.

References

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