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Effect of sequential hockey skill training on physical fitness variables for men hockey players

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Abstract

The study aimed to explore the influence of sequential hockey skill training on physical fitness variables for men hockey players. The hypothesis posited that eight weeks of sequential hockey skill training would significantly impact selected physical fitness variables in men hockey players. For this investigation, 30 randomly selected men hockey players from SAI training center, Bangalore district, Tamilnadu, India, aged between 17 to 21 years, were chosen as subjects. The research employed a pretest-posttest random group design, incorporating an experimental group (Group 'A') and a control group (Group 'B'), each comprising fifteen participants. Group 'A' underwent sequential hockey skill training, while Group 'B' received no training. speed and leg explosive power were assessed using the Timing gate test and sargent jump, respectively. Before the eight-week experimental period commenced, we conducted pre-tests to assess the selected physical fitness variables in all 30 subjects. Subsequently, post-tests were carried out at the conclusion of the experimental period, with scores meticulously recorded. Statistical analysis was conducted with a predetermined level of significance set at a confidence level of 0.05. The study results revealed a significant improvement in speed and leg sergeant power among participants in the core strength training group.

Keywords: Sequential hockey skill training, speed, sergeant power

Introduction

Hockey is a high-intensity sport that requires players to develop a combination of technical, tactical, and physical skills to perform effectively on the ice. Skill acquisition in hockey follows a progressive learning process, where athletes must first master fundamental movements before advancing to more complex techniques. Sequential skill training is a structured approach that prioritizes the systematic development of hockey skills, ensuring that players progress logically from foundational abilities to advanced performance. This method enhances motor learning, reduces the risk of injury, and improves overall game performance. Sequential training in hockey is based on the principle of skill progression, which is widely supported by motor learning theories. According to these theories, athletes acquire skills more effectively when training follows a structured and progressive sequence, allowing for the reinforcement of movement patterns and the gradual integration of complex game scenarios. The training typically begins with fundamental skating techniques, as skating serves as the foundation for all hockey movements (Bracko, 2004) ^[2]. Skating drills focus on stride efficiency, balance, edge control, acceleration, and transitions. Research has shown that players who develop strong skating skills at an early stage are better equipped to handle puck control and tactical aspects of the game. Following the mastery of skating, players progress to stickhandling drills that emphasize puck control, hand-eye coordination, and dexterity (Baker *et al.*, 2003) ^[1]. These skills are critical for maneuvering the puck under defensive pressure and executing offensive plays. Sequential training then incorporates passing and shooting, which require precision, speed, and decision-making. Passing drills focus on timing, accuracy, and communication, while shooting exercises develop power and scoring efficiency through techniques such as wrist shots, slap shots, and backhand shots. Defensive skills are also an integral part of sequential training. Players learn positioning, gap control, body checking, and shot-blocking strategies progressively to ensure they can defend effectively while maintaining awareness of offensive threats. The step-by-step approach to defensive training ensures that players develop the necessary skills without compromising safety or technique.

An important advantage of sequential training is its ability to transition players from isolated drills to game-like scenarios, reinforcing decision-making and adaptability under pressure (Côté *et al.*, 2009) [4]. Small-area games, scrimmages, and competitive drills are incorporated at later stages of training to simulate real-game conditions, helping athletes transfer their skills into match play effectively (Ericsson *et al.*, 1993) [6].

Moreover, sequential training minimizes injury risk by ensuring that players develop proper mechanics before engaging in high-intensity activities (Emery *et al.*, 2010) [5]. This approach is particularly beneficial for young athletes, as it promotes long-term skill retention and overall athletic development (Burgess & Naughton, 2010) [3]. Coaches and trainers employ this method to provide individualized feedback, allowing each player to refine their skills based on their strengths and weaknesses. In sequential hockey skill training is a structured and effective approach that enhances player development. By progressing through fundamental, intermediate, and advanced skill levels, athletes can refine their techniques, enhance their game intelligence, and optimize their performance on the ice (Baker & Young, 2003) [1]. This methodology not only improves individual skills but also contributes to overall team success, making it a vital component of modern hockey training programs.

Methodology

The objective of this study was to investigate the impact of

sequential hockey skill training on physical fitness variables among men hockey players. It was hypothesized that eight weeks of sequential hockey skill training would significantly influence selected physical fitness variables in men hockey players. For the present study, 30 SAI hockey Center from Bangalore district, Tamil Nadu, India, were randomly selected as subjects, with ages ranging from 17 to 21 years.

A pretest-posttest random group design, incorporating an experimental group (Group 'A') and a control group (Group 'B'), was employed. Subjects were randomly assigned to two equal groups of fifteen each. Group 'A' underwent sequential hockey skill training, while Group 'B' received no training. speed and leg explosive power were assessed using the Timing gate test and sargent jump, respectively. Subsequently, the experimental group underwent an eight-week regimen involving sequential hockey skill training, while the control group did not partake in any training activities. After the completion of the eight-week training period, post-tests were conducted to measure the same dependent variables. The data obtained from these tests were subjected to statistical analysis using the dependent t-test to determine if any statistically significant improvements were observed. It is noteworthy that a level of significance was set at 0.05, ensuring a 95% confidence level for all analyses.

Results

Table 1: Mean and Dependant 'T'-ratio for the Pre and Post Tests on core strength training Group and control Group on speed and leg explosive power

S. No	Group	Variables	Pre-Test Mean & SD	Post-Test Mean & SD	Standard error mean	T-ratio
1	Sequential hockey skill training	speed	5.09±0.37	5.05±0.40	0.05	81.00*
2		Leg explosive power	2.57±0.24	2.73±0.20	0.06	161.00*
1	Control Group	speed	5.09±0.05	5.09±0.05	0.00	1.00
2		Leg explosive power	2.43±0.26	2.50±0.31	0.07	1.58

*Significant level 0.05 level degree of freedom (2.14, 1 and 14)

Table 1 displays the computation of the t ratio comparing the means of pre-test and post-test agility scores for men hockey players. The mean speed and leg explosive power values for the experimental group were 5.09 before training and 5.05 after and 2.57 before training and 2.73 after, while the control group had means of 5.09 and 5.09 and 2.43 and 2.50 for the respective tests. The calculated t ratio of 81.00 and 161.00 exceeded the critical table value of 2.14, indicating statistical significance for 1 degree of freedom and 14 participants at a 0.05 level of confidence. This finding strongly suggests that the speed and leg explosive power of the experimental group

significantly improved due to the influence of in-and-outs sequential hockey skill training. Conversely, the computed t ratio of 1.00 and 1.58 fell short of the critical table value of 2.14, rendering it statistically non-significant for 1 degree of freedom and 14 participants at a 0.05 level of confidence. This result clearly demonstrates that the speed and leg explosive power of the control group did not exhibit significant improvement following the intervention.

The bar diagram shows the mean values of pre test on speed and leg explosive power of experimental group and control group.

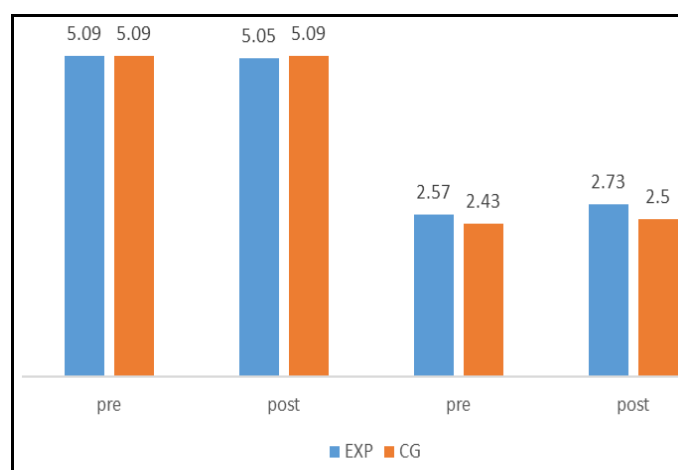


Fig 1: The bar diagram shows the mean values of pre test on speed and leg explosive power of experimental group and control group

Finding of Results

The study's findings reveal a significant improvement in the selected variables, namely speed and leg explosive power, within the experimental group, which consisted of individuals undergoing sequential hockey skill training, in comparison to the control group. Furthermore, the study indicates that the enhancements achieved by the core strength training are notably superior to those observed in the control group. For further insights into this topic, one can refer to the research conducted by Italo Sannicandro in their study titled Core Stability Training and Jump Performance in Young Basketball Players. In conclusion, the study the results underscore the positive impact of core strength training on speed and leg explosive power, emphasizing their effectiveness in enhancing athletic performance.

Conclusions

Within the limitations of the present study, the following conclusions were drawn:

1. The experimental group, comprised of individuals who underwent sequential hockey skill training, achieved a notably significant improvement in physical fitness variables, specifically speed and leg explosive power, among men hockey players.
2. In contrast, the control group exhibited insignificant improvement in physical fitness variables, specifically speed and leg explosive power, among men hockey players.

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