

Title: Analysis of Selected Factors Determining the Specific Performance of Soccer and Ice Hockey Players

Abstract

Modern high-performance sports, characterized by increasing competition, demand a holistic approach to the physical preparation of athletes. This study analyzed selected factors determining the specific performance of soccer and ice hockey players, focusing on the role of functional training, the assessment of motor abilities, and the evaluation of specific performance in repeated maximum-intensity efforts.

Purpose of the Study

The primary aim of the research was to identify the impact of functional training on the specific performance of soccer and ice hockey players, as well as to analyze the relationship between recovery and the efficiency of repeated maximum-intensity efforts. The study sought to answer research questions regarding the relationships between the Functional Movement Screen (FMS) test, lower limb power, and specific performance.

Research Methodology

Four independent studies were conducted:

1. **Functional Training** – A 12-week intervention in young soccer players showed improvements in FMS test scores (an increase of 45.2%) and vertical jump parameters, including a 5.3% increase in lower limb power.
2. **Power and Speed Assessment of Hockey Players** – Correlations between vertical jump tests (CMJ, SJ, DDJ) and on-ice tests, such as forward and backward skating, were analyzed.
3. **Recovery Between Efforts** – The impact of rest duration (2 and 3 minutes) on the efficiency of repeated maximum-intensity efforts in ice hockey was studied.
4. **Diagnostic Tests Application** – The relationships between the FMS test, vertical jumps, and on-ice movement tests were examined.

Results

1. Functional training significantly improved FMS test results and vertical jump and speed test performance.

2. Statistically significant correlations were found between vertical jump tests and on-ice skating performance. Squat jumps (SJ) and drop jumps (DDJ) were the best predictors of skating speed.
3. Extending recovery time between high-intensity efforts improved the efficiency of maximum-intensity movements.
4. Higher FMS test scores correlated with better results in vertical jump tests and on-ice movement tests. These findings suggest that movement pattern diagnostics using the FMS test can be an effective tool for assessing specific performance potential.

Conclusions

- Functional training, integrated with diagnostic tools, is an effective means of improving the specific performance of soccer players. **Limitations:** Lack of a control group.
- Vertical jumps, particularly DDJ and SJ, have potential as tools for assessing specific performance in ice hockey. **Limitations:** The study focused on selected vertical jump tests; a broader analysis of other factors influencing specific performance is recommended.
- Extending recovery breaks enhances the efficiency of maximum-intensity efforts. **Limitations:** Additional factors and alternative recovery durations should be considered.
- The FMS test can be a helpful tool in assessing specific performance among ice hockey players. **Limitations:** Further analysis of additional factors influencing specific performance is needed.

The results of this study may support coaches and specialists in optimizing training processes in team sports such as soccer and ice hockey.

Keywords: specific performance, functional training, diagnostic tests, team sports