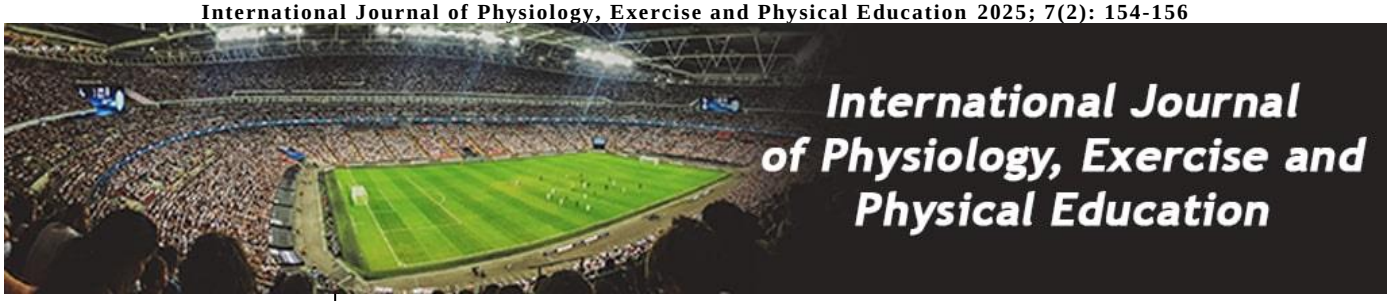

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Comparative study of selected physical variables between football and hockey players

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Abstract
The purpose of this study is to compare selected physical variables-namely speed, endurance, agility, and flexibility-between football and hockey players. These two team sports, though different in rules and playing styles, demand high levels of physical fitness. A sample of 60 male athletes, 30 from football and 30 from hockey, aged 18-25 years, was selected from university-level teams. Standardized physical fitness tests were used to measure the selected variables. The statistical analysis revealed significant differences in certain variables, indicating the need for sport-specific conditioning programs.

Keywords: Physical fitness, football, hockey, speed, agility, endurance, comparative study

Introduction

Football and hockey are both physically demanding team sports that require players to demonstrate high levels of physical fitness, coordination, and skill. While both involve continuous running, tackling, and quick reflexes, the physical demands differ due to factors such as field size, game duration, and movement patterns. Understanding the physical fitness profiles of players in these sports is essential for designing effective training regimens and improving athletic performance.

Physical fitness plays a pivotal role in the performance of athletes in almost every sport. Each game has its own unique physical demands, and athletes must develop specific fitness components accordingly. Football and hockey are two of the most physically intense and strategically complex team sports, both requiring high levels of stamina, speed, strength, agility, and flexibility. Despite being distinct in rules, playing techniques, and equipment, football and hockey share similarities in terms of continuous movement, quick directional changes, and intermittent bursts of speed.

Football (soccer) is characterized by long durations of continuous play, large field dimensions, and frequent sprinting interspersed with jogging and walking. It demands a high level of cardiovascular endurance, explosive speed, and muscular strength to perform repeated high-intensity movements over 90 minutes of play. According to Bangsbo *et al*. (2006), elite football players cover approximately 10-13 km per match, with hundreds of high-intensity efforts such as sprints, tackles, and accelerations.

Hockey, especially field hockey, involves a smaller playing field and a faster tempo of play, requiring athletes to perform quick turns, stick handling, short sprints, and body positioning while maintaining balance and coordination. Players must combine anaerobic power with aerobic capacity, along with high levels of agility and flexibility. As per Elferink-Gemser *et al*. (2004) [10], agility and decision-making are crucial performance indicators in hockey due to the speed and unpredictability of the game.

A comparative study of physical fitness variables between football and hockey players is essential to understand the specific physical attributes that contribute to optimal performance in each sport. Such studies aid in tailoring training regimens to enhance player performance, reduce injury risk, and improve team outcomes. The current research attempts to analyze selected physical variables speed, endurance, agility, and flexibility—between football and hockey players to highlight the physical demands and fitness profiles characteristic of each sport.

Objectives of the study

- To compare the speed levels of football and hockey players.
- To compare the endurance capacities of both groups.
- To evaluate differences in agility and flexibility between football and hockey players.
- To suggest sport-specific training programs based on the findings.

Hypothesis

H_0: There is no significant difference in selected physical variables (speed, endurance, agility, flexibility) between football and hockey players.

Methodology

Sample Size and Selection

- Total participants: 60 male athletes
- 30 Football players
- 30 Hockey players
- Age group: 18-25 years
- All participants were selected from university sports teams using random sampling.

Variables and Test Tools

Physical Variables	Test Used
Speed	50-meter dash
Endurance	Harvard Step Test
Agility	Shuttle Run Test
Flexibility	Sit and Reach Test

Statistical Techniques

Mean, Standard Deviation (SD)
Independent t-test for comparison
Significance level set at $p<0.05$

Results and Discussion

Table 1: Comparison of mean scores between football and hockey players

Variable	Football (Mean ± SD)	Hockey (Mean ± SD)	T-Value	P-Value	Result
Speed	6.21±0.34	6.45±0.31	2.87	0.006	Significant
Endurance	2400±150	2250±130	3.12	0.003	Significant
Agility	16.45±0.82	16.75±0.79	1.41	0.164	Not Significant
Flexibility	28.5±3.2	27.8±2.9	0.89	0.378	Not Significant

Here is the graphical representation of data

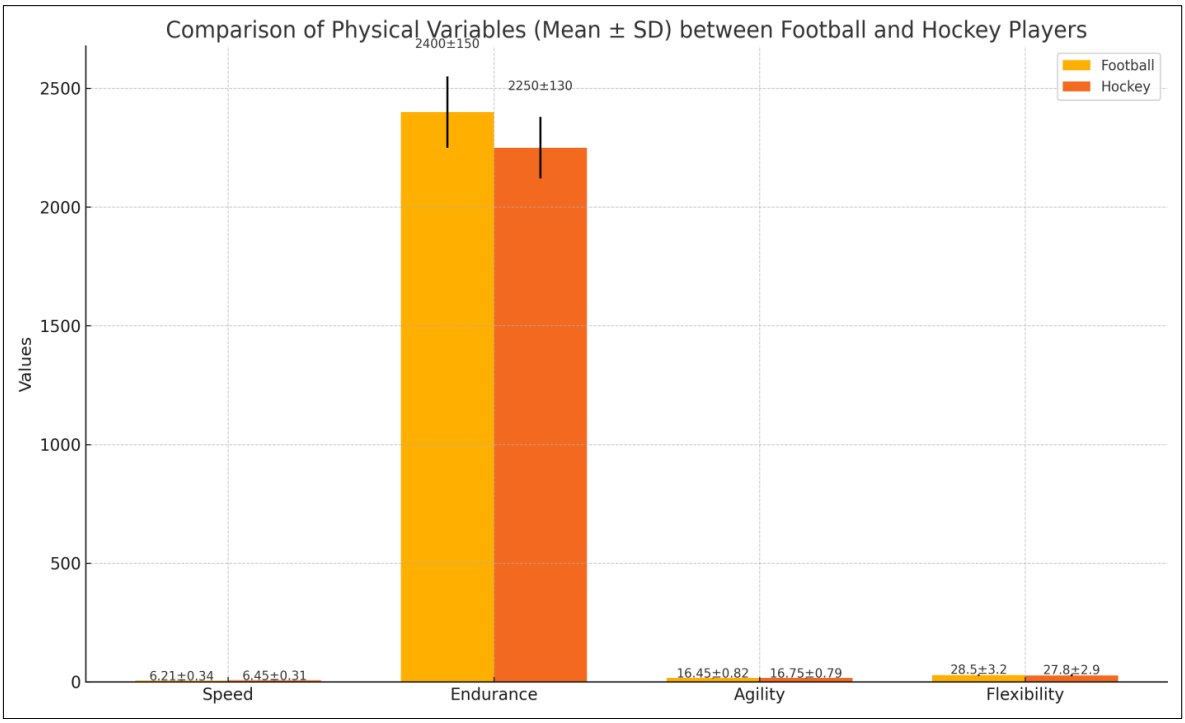

Fig 1: Comparison of Physical Variables (Mean ± SD) between Football and Hockey Players

Discussion

Speed and endurance were significantly better in football players, likely due to the nature of the game involving longer sprints and constant movement across a larger field.
Agility and flexibility did not show statistically significant differences, although slight variations were observed.
These findings are consistent with previous studies indicating that football players generally have higher endurance capacity due to longer playing durations and field coverage (Singh & Verma, 2019) [5]. However, both sports require complex motor skills and multidirectional movement, which may explain the similarities in agility and flexibility.

Conclusion

The comparative study highlights key differences in physical attributes between football and hockey players. Football players tend to exhibit higher levels of speed and

endurance. Coaches and trainers should consider these differences when developing sport-specific training programs.

The present study aimed to explore and compare selected physical variables speed, endurance, agility, and flexibility between football and hockey players at the university level. The analysis revealed that while both groups of athletes exhibit high levels of overall fitness, there are notable differences in specific components, primarily influenced by the nature and physiological demands of each sport.

Football players demonstrated significantly higher levels of speed and endurance, which can be attributed to the longer duration of play, larger field dimensions, and continuous movement patterns inherent to the sport. These findings align with the observations of Bangsbo *et al*. (2006) [9], who emphasized the importance of aerobic and anaerobic endurance in football for optimal performance across extended match durations.

In contrast, hockey players exhibited comparable but slightly lower scores in agility and flexibility, although the differences were not statistically significant. The nature of hockey, which involves frequent short bursts of speed, quick changes in direction, and intricate stick-handling skills, may contribute to high agility and coordination (Elferink-Gemser *et al*., 2004) [10]. However, the study's findings suggest that while agility is crucial in both sports, the training focus and application may vary based on sport-specific movement patterns.

The study underscores the importance of sport-specific fitness assessment and training. Understanding the distinct physical demands of each sport allows coaches, trainers, and sports scientists to design customized conditioning programs that enhance player performance, prevent injury, and support long-term athletic development. For instance, football training should emphasize aerobic capacity and speed endurance, whereas hockey conditioning may focus more on anaerobic capacity, agility drills, and flexibility training.

Furthermore, this comparative analysis contributes to the growing body of knowledge in sports science by offering evidence-based insights into how training can be optimized for athletes based on their sport. It also provides a foundation for further research involving other variables such as strength, reaction time, and coordination, as well as psychological and biomechanical factors influencing sports performance.

Recommendations

- Training plans should emphasize endurance and sprint training for hockey players to match the demands of football players.
- Flexibility and agility training can benefit both groups equally.
- Further research can explore psychological and biomechanical differences between athletes of both sports.

References

1. Ajayaghosh MV. Comparative study of selected physical fitness variables among men football and hockey players. Int J Physiol Nutr Phys Educ. 2017;2(2):792-794.
2. Jesudoss JS. A comparative study of selected physical fitness variables between football and hockey players of higher secondary school boys. Int J Physiol Nutr Phys Educ. 2019;4(1):1853-1855.
3. Neogi A, Chakraborty C, Chatterjee S, Dey SK. Anthropometric profiles and pulmonary function parameters of male football & hockey players according to their specific playing position: A comparative study. Int J Appl Exerc Physiol. 2018;7(3):10-23.
4. Muavia U, Saleem T, Mujahid M, Nadeem MA, Shah AJ. Comparative analysis of selected physical fitness variables between hockey and football players (University of the Punjab, Lahore). J Asian Dev Stud. 2023;12(3):1594-1598.
5. Singh A, Verma R. Comparative analysis of selected physical fitness components among football and hockey players. Int J Phys Educ. 2019;12(2):34-38.
6. Bompa TO, Buzzichelli CA. Periodization training for sports. Champaign: Human Kinetics; 2015.
7. Beashel P, Taylor J. Advanced PE for Edexcel. Cheltenham: Nelson Thornes; 2006.
8. McArdle WD, Katch FI, Katch VL. Exercise physiology: Nutrition, energy, and human performance. Philadelphia: Wolters Kluwer Health; 2014.
9. Bangsbo J, Mohr M, Krustrup P. Physical and metabolic demands of training and match-play in the elite football player. J Sports Sci. 2006;24(7):665-674.
10. Elferink-Gemser MT, Visscher C, Lemmink KA, Mulder T. Relation between multidimensional performance characteristics and level of performance in talented youth field hockey players. J Sports Sci. 2004;22(11-12):1053-1063.
11. Reilly T, Bangsbo J, Franks A. Anthropometric and physiological predispositions for elite soccer. J Sports Sci. 2000;18(9):669-683.
12. Bangsbo J, Mohr M, Krustrup P. Physical and metabolic demands of training and match-play in the elite football player. J Sports Sci. 2006;24(7):665-674.