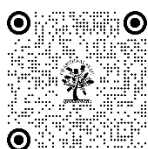


COMPARATIVE STUDY ON SELECTED PHYSICAL FITNESS AND PHYSIOLOGICAL VARIABLES BETWEEN HOCKEY AND BASKETBALL PLAYERS

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ABSTRACT

The objective of this study was to compare selected physical fitness and physiological variables between Hockey and Basketball players. A total of thirty players, representing their university in the Inter University tournament during the 2014-2015 session from the Delhi, were chosen as subjects, with ages ranging from 17 to 25. This research was experimental in nature, focusing on various physical fitness and physiological variables, including flexibility, endurance, agility, explosive strength, heart rate, vital capacity, and cardiovascular endurance. The data analysis employed the 't' test to determine significant differences between the two groups. The findings revealed significant differences in certain physical variables, specifically flexibility and explosive strength, while no significant differences were observed in endurance and agility. In conclusion, the study indicated notable differences in selected physical and physiological variables, such as flexibility, explosive strength, endurance, and agility. It is recommended that similar studies be conducted with a diverse range of players, encompassing both genders and various age groups, as well as at higher competitive levels, utilizing a larger sample size.

Keywords: Flexibility, Endurance, Agility, Explosive Strength, Heart Rate, Vital Capacity and Cardiovascular Endurance



1. INTRODUCTION

Sport represents a fundamental aspect of humanity's relentless pursuit of excellence. Its distinctiveness is rooted in the profound connection between the physical activities of individuals and their psychological effects, as well as in the harmonious integration of social and aesthetic values that sport fosters. Engaging in sports generates experiences that are uniquely human, transcending the evolving forms, patterns, and customs of civilization, which significantly alter our perceptions of the environment.

As noted by H. Harrison Clarke (1976), in a society dominated by material values, participation in activities such as sports—pursued primarily for enjoyment, recreation, and associated benefits—requires considerable time, energy, and self-discipline. Consequently, such participation is unlikely to gain widespread acceptance, particularly when nations leverage sports as a means to enhance national fitness and bolster international prestige.

Physical/physiological variables	Objective	Apparatus Used	Test Description	Scoring

Flexibility	To measure the flexibility of the performer in forward bending position	Wooden Box (40'×20'×15'), measuring tape.	The performer stand on the box and then start forward bending without knee bending and touch the front side of the box	The distance taken in Centimeter.
Endurance	To measure the endurance	Athletics' track, measuring tape, stop watch, clapper.	12 minute run/walk was to test the endurance of subjects. Subjects were allowed to warm up before actual performance. On the signal "On your mark and go" the subjects run/walk as possible for 12 minutes.	Distance to the nearest meter was taken and recorded Endurance (12 minute run/walk)
Agility	To measure the agility of the performer in running and changing direction	Measuring tape, stop watch, two wooden blocks (2"×2"×4")	The performer starts behind the starting line on the single go and runs to the blocks, pickup one return to the starting line and places the block behind the line. He then repeats the process with the second block	The time taken to shuttle run race and recorded to the nearest 1/10 of a meter
Explosive strength	To measure the explosive strength.	Marked Wall, Measuring tape, chalk powder	Subject was stand laterally and swings his arm backward and goes downward and then jumps vertically and touching the wall by the tip of the middle finger.	Scoring was done in centimeter of distance from the normal height to the nearest contact point on the wall
Heart rate	To measure the pulse count	Stop watch, chair	The subject sitting on the chair in easy condition and radial pulse is counted by the evaluator in 1 minute.	Total pulse is counted in 1 minute.
Vital capacity	Determination of vital capacity	Dry spirometer, chair, nose clips.	The vital capacity of the subject was determined by the dry spirometer in sitting position. The subject was allowed to inspire the maximum amount of air voluntarily and then he was asked to blow into the dry spirometer to the maximum extent. While taking the test the nose of the subject was clipped using a nose clip	The vital capacity of the subject was obtained from the movement of the circular volume indicator which was set at '0' before the vital capacity measure was taken. The result was calculated in liter
Cardiovascular endurance	To measure the cardiovascular endurance	18" high platform, stop watch, chairs.	The subjects were in their P.T. dresses with canvas rubber soled shoes. They stepped on a 18" high platform, stepping 24 times per minute. The rate was set by metro norm, under the careful guidance of evaluator.	

			Endurance was restricted to 3 minutes (180 seconds). At the most recovery heart rate was recorded from 0.1 to 1.5 minutes	
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The terms 'fitness' and 'training' are among the most frequently misapplied and overused in the English language. Sir Roger Bannister characterized "physical fitness" as a condition of mental and physical balance that allows an individual to perform their job to the fullest extent of their capabilities while experiencing maximum satisfaction. Bemergee A. Richard (1982) noted that the concept of fitness in relation to sports and work possesses both absolute and relative interpretations. In absolute terms, the individual who can run the fastest or jump the highest, or who demonstrates the greatest output during a workday, is deemed the fittest for that specific activity.

2. MATERIAL & METHODS

Data were collected on two groups of 15 Hockey and 15 Basketball players from Delhi and those who had represented their university in the Inter University tournament during 2014-2015 sessions were selected as subjects, their age ranged from 17 to 28

Procedure for administrating test: The physical and physiological tests were performed in the ground of Delhi University, Delhi. The following test were administered,

3. STATISTICAL ANALYSIS

'T' test was applied to check the significant difference between the group. The levels of significance were set at 0.05 level of Physical and Physiological variables of Hockey and Basketball Players is presented in table 1, 2, 3 and 4.

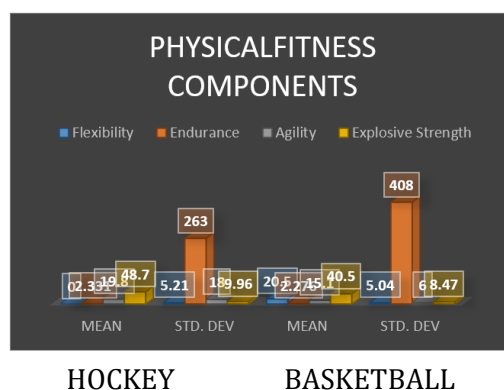
Results Table 1: Mean and SD of Physical Variables of Hockey and Basketball Players.

HOCKEY

BASKETBALL

S.NO	VARIABLE	MEAN	STD. DEVIATION	MEAN	STD. DEVIATION
1	Flexibility	16.6 5	5.21	20.5	5.04
2	Endurance	2.331	263	2.276	408
3	Agility	19.8	18.0	15.1	6.00
4	Explosive Strength	48.7	9.96	40.5	8.47

4. GRAPHICAL PRESENTATION OF PHYSICAL FITNESS LEVEL OF HOCKEYAND BASKETBALL PLAYERS



The data presented in Table I clearly indicates that the average measurements for volleyball players in the physical variables of flexibility, endurance, agility, and explosive strength are as follows: 16.6 cm for flexibility, 2.331 m for endurance, 19.8 seconds for agility, and 48.7 cm for explosive strength. In contrast, the average measurements for handball players in the same physical variables are 20.5 cm for flexibility, 2.276 m for endurance, 15.1 seconds for agility, and 40.5 cm for explosive strength.

HOCKEY		BASKETBALL			
S.NO	VARIABLE	MEAN	STD. DEVIATION	MEAN	STD. DEVIATION
1	Heart rate	72.9	9.19	58.9	5.31
2	Vital capacity	2.985	442.0	3.406	498
3	Cardiovascular endurance	72.2	9.81	64.5	5.00

The data presented in Table 2 clearly indicates that the average physiological variables for Hockey players are as follows: a heart rate of 72.9 beats per minute, a vital capacity of 2.985 mm, and a cardiovascular endurance of 72.2 beats. In contrast, for Basketball players, the average values for the same physiological variables are a heart rate of 58.9 beats per minute, a vital capacity of 3.406 mm, and a cardiovascular endurance of 64.5 seconds.

Table 3 Significance of Differences of Mean in Selected Physiological Variables of Hockey and Basketball Players.

S. No.	Variables	Mean Differences	't'- ratio
1	Flexibility	3.9	2.90*
2	Endurance	0.155	0.628
3	Agility	4.7	1.37
4	Explosive strength	8.2	3.44*

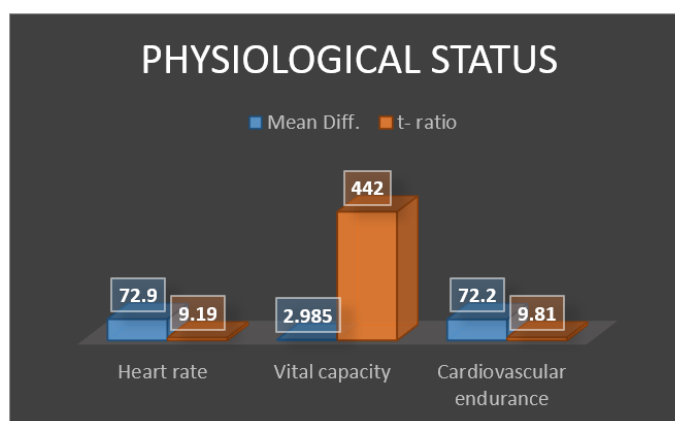
***Significant at 0.05 level of confidence.**

Table 4 Significance of Differences of Mean in Selected Physiological Variables between Hockey and Basketball Players

S.NO	VARIABLE	Mean Differences	't'- ratio
1	Heart rate	72.9	9.19
2	Vital capacity	2.985	442.0
3	Cardiovascular endurance	72.2	9.81

***Significant at 0.05 level of confidence.**

5. GRAPHICAL PRESENTATION OF PHYSIOLOGICAL STATUS OF HOCKEYAND BASKETBALL PLAYERS



Conclusion In light of the study's limitations and the procedures undertaken, the following conclusions have been drawn: A notable difference was observed between Hockey and Basketball players concerning physical variables, specifically flexibility and explosive strength. However, no significant difference was found between Hockey and Basketball players regarding physical variables such as endurance and agility. Additionally, a significant difference was identified between Hockey and Basketball players in terms of physiological variables, including heart rate, vital capacity, and cardiovascular endurance.

CONFLICT OF INTERESTS

None.

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None.

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