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Comparative Study Of Selected Physical Performance Variables In Different Team Games

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Introduction :

General physical performance variables lay the foundation of all games and sports. Strength, speed, agility and endurance are the general physical performance variables, which are considered as the limiting factors in the ultimate performance in any games and sports. It is obviously true that seldom does a sports demand any one of this four functional components exclusively and often the demand requires combination of the components. The ultimate success in optimal preparation for a sports or game depends on implementing appropriate exercise to enhance the different physical performance components needed for that sport. The present study will reveal the extent of requirement of various physical performance factors in different team games which, on the country, will provide criteria for selecting players for respective games.

The study was delimited to the game of Hockey, Basketball, Handball and Volleyball. Speed, agility, explosive leg strength and cardiovascular endurance were selected as physical performance variables for the purpose of the study.

Methodology:

48 male Inter college players, 12 each from the game of Hockey, Basketball, Handball and Volleyball, were selected as subjects, all subjects were belongs to different colleges affiliated to S.G.B. Amravati University, Amravati.. Speed, agility, explosive leg strength and cardiovascular endurance were four physical performance variables selected for present study and they are measured by employing standard tests as describe below.

- 1) Time taken by the subjects to run 50 distance was recorded to the nearest 1/10th for measuring speed.
- 2) Time taken by the subjects to shuttle a distance of 4 X 10 yard was recorded to nearest 1/10th of a second for measuring agility.
- 3) Distance covered in standing broad jump was recorded to the complete in inches to measure explosive leg strength.
- 4) Distance covered in 12 minutes run/ walk was recorded to nearest 25 yard to measure cardiovascular endurance.

In order to find out the significant difference in physical performance variables (Speed, agility, explosive leg strength and cardiovascular endurance) among fore games (Hockey ,Basketball, Handball and Volleyball),One Way Analysis of Variance was applied. In case of significant result, Least Significant Difference (LSD) Post Hoc Test was applied to find out which of the difference between the paired groups were statistically significant at 0.05 levels.

Findings And Discussion Of Findings :

Table 1 indicates that significant difference in agility, explosive leg strength and cardiovascular endurance was found among the four groups (F=3.9478, 4.0737 , 17.666) whereas no significant difference was found in speed (F= 0.3682). The result pertaining to insignificant difference in speed among fore groups may be attributed to the fact that speed is more product of heredity than other factors and depends to a considerable extends on the nervous systems and hence it is comparatively less influenced by the specific nature of a group.

Table -1

Analysis of Variance for the Mean Difference of Hockey ,Basketball, Handball and Volleyball groups in Speed, agility, explosive leg strength and cardiovascular endurance

Variables	Sources of Variance	df	Sum of Squares	Mean Sum of Square	'F' ratio
Speed	Between Group	3	83.665	27.888	0.03682
	Within Group	44	3332.316	75.7344	
Agility	Between Group	3	936.5173	312.1724	3.9478 *
	Within Group	44	3479.2984	79.07496	
Explosive leg strength	Between Group	3	410.7291	136.9097	4.0737 *
	Within Group	44	1478.75	33.60795	
Cardiovascular endurance	Between Group	3	2163164	721054.7	17.666 *
	Within Group	44	1795885	40815.58	

*Significant at 0.05 level 'F' (3, 44) =2.82

Table- 2
Significance of Difference between Paired Mean of Four Groups in Agility

Hockey	Basketball	Handball	Volleyball	DM	CD
49.98	60.08			10.1*	7.32
49.98		49.77		0.21	7.32
49.98			49.90	0.08	7.32
	60.08	49.77		10.31*	7.32
	60.08		49.90	10.18*	7.32
		49.77	49.90	0.13	7.32

* Significant at 0.05 level

To find out which of the difference in agility, explosive leg strength and cardiovascular endurance between paired means of four groups where statistically significant LSD Post Hoc Test was applied finding and findings related to these are presented in Table 2,3 and 4.

Analysis of data in Table 2 ,shows that significant difference in agility was found between paired mean groups of Hockey and Basketball (DM=10.1) ,basketball & handball (DM=10.31) ,Basketball & Volleyball (DM =10.18) whereas no significant difference was found between the paired groups of Hockey & Handball, Hockey & Volleyball and Handball & Volleyball (DM =0.21,0.08,0.13 resp.).

The finding of greater agility incase of Basketball players (M=60.08) may be due to the reasons that basketball is a game where a player has to the execute multidirectional movements with a very narrow space to change his direction in competition to Hockey Handball & Volleyball. No significant difference in agility between the paired groups of Hockey & Handball, Hockey & Volleyball and Handball & Volleyball may be attribute to the facts that game of Hockey ,Volleyball & Handball required good coordination of the kinesthesia of the whole body and have many common constituents such as jumping, forward & backward running, etc. which might have resulted resemblance in their agility.

Table- 3
Significance of Difference between Paired Mean of Four Groups in Explosive Leg Strength

Hockey	Basketball	Handball	Volleyball	DM	CD
90.91	89.75			1.16	4.77
90.91		91.58		0.67	4.77
	89.75	91.58		1.83	4.77
90.91			97.33	6.42*	4.77
	89.75		97.33	7.58*	4.77
		91.58	97.33	5.75*	4.77

* Significant at 0.05 level

Analysis of data in Table 3 ,shows that significant difference in Explosive Leg Strength was found between paired mean groups of Hockey and Volleyball (DM=6.42) ,basketball & handball (DM=7.58) , handball & Volleyball (DM =5.75) whereas no significant difference was found between the paired groups of Hockey & Handball, Hockey & basketball and Handball & basketball (DM =1.16,0.67 ,1.83 resp.).

The greater explosive leg strength of Volleyball players in comparison to other may be because of the facts that game of Volleyball involves repeated explosive movement while hitting and block in which demands a high jumping ability and the frequency of this movement in volleyball is many times more than the game of Hockey, Basketball and Handball.

Table- 4

Significance of Difference between Paired Mean of Four Groups in Cardiovascular Endurance

Hockey	Basketball	Handball	Volleyball	DM	CD
2885.42	2752.08			133.34	166.34
2885.42		2341.67		543.75*	166.34
	2752.08	2341.67		410.41*	166.34
2885.42			2497.91	387.51*	166.34
	2752.08		2497.91	254.17*	166.34
		2341.67	2497.91	156.24	166.34

* Significant at 0.05 level

Analysis of data in Table 4 ,shows that significant difference in Cardiovascular Endurance was found between paired mean groups of Hockey and Handball (DM=543.75) ,basketball & handball (DM=410.41) , Hockey & Volleyball (DM =387.51), basketball & volleyball (DM=254.17), whereas no significant difference was found between the paired groups of Hockey & basketball (DM=133.34) and Handball & volleyball (DM = 156.24).

The higher mean value of cardiovascular endurance of hockey players (M=2885.42) than handball &volleyball players may be because of the reasons that a hockey players in competitive matches covers 8 to 10 Kilometers (approx.) distance which is more than other game. Further cardiovascular endurance of basketball closer to hockey player may be attributed to the fact that performance proficiency in these two games is predominantly influenced by the cardiovascular efficiency.

Significant difference between the paired means of volleyball & handball and higher mean value of volleyball players (M= 2497.91) when compared to the handball (M=2341.67) may be impose to the facts that game of volleyball involves nonstop movements of jumping, diving ,moving forward & back ward etc. during the game situation which might have placed them in significantly higher position in cardiovascular endurance than the play groups of handball.

Conclusion :

On the basis of the result of the study the following conclusion may be drawn.

- i) Hockey, Basketball, Handball & Volleyball players resemble in their speed.
- ii) Basketball players are superior to Hockey, Handball & Volleyball players in agility whereas hockey, volleyball & hockey players have indistinguishable level of agility.
- iii) Volleyball players are superior to hockey ,basketball & handball in explosive leg strength whereas later three groups are found nearly equal.
- iv) The game of hockey & basketball demand high and uniform level of cardiovascular endurance and they are superior to volleyball & hockey.

References:

- Barrow and McGee, A Practicel Approach to Measurement in Physical Education. Philadalphia, Lea & Fibiger, 2007
- Philios D.A. and Harnak J.K., Measurement in Physical Education. New York: John Willey & Sons.
- Uppal, A.K. Principal of Sports Training. Delhi (India), Friends Publications, 2001.
- Kansal Devendar K., Test and Measurement in and Sports Physical Education. New Delhi ,DVS Publications, 1196.
- Singh, Hardayal Science of Sports Training., New Delhi, DVS Publication, 1991.

