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COMPARATIVE ANALYSIS OF PHYSICAL VARIABLES AMONG THE SOUTHERN STATE JUNIOR WOMEN HOCKEY PLAYERS

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Abstract

The purpose of the study was to analyze the physical fitness variables among the southern state junior women Hockey players. To achieve the purpose of the study one hundred Junior State Women Hockey players from five Southern State who have participated in the Junior National Hockey Championship for women held during the year 2012-13 and 2013-2014 were selected as the subjects. The five States were Karnataka, Tamil Nadu, Kerala, Andhra Pradesh and Pondicherry. The age of subjects were ranged from 16 to 18 years. Explosive power and Cardio vascular endurance were selected as physical variables as they may have direct relation to the performance of hockey players in competitive situation. The collected data was statistically analyzed by using analysis of variance. The scheffe's test was used as a post hoc test to determine which of the paired mean differ significantly. The result reveals that The Tamil Nadu state junior women Hockey players are better in Explosive power and Cardio vascular endurance ability than the other southern state junior women hockey players.

Keywords: Analysis, Hockey, Explosive Power, Cardio Vascular Endurance.

Introduction

Hockey is a dynamic game played by both sexes requiring high level of skills, excellent conditioning and well coordinated team effort Horst Wein (1981). The origin of Indian Hockey dates back to the days of the imperial rule. It was introduced in India by the British. India has won many laurels at the international level matches. India had bagged eight gold, one silver and two bronze medals in the Olympics Games until 1980. India is the cradle of World Hockey. Hockey is rated as the one of the very fastest game after the introduction of the synthetic Hockey field which demands tremendous physical fitness, technical perfection and tactical maintenance also the psychological built of the players to perform better in the higher level competitions. It is of the opinion that the performance of Hockey player is related to physical variables, performance variables and psychological variables. Apart from the above mentioned factors there are various other factors which influence the Hockey performance.

The intermittent nature of the game and the large number of changes in direction makes repeated sprint ability an important skill for field hockey players (Elferink-Gemser et al. 2004). This is emphasized even more with the newly introduced rule which allows a player to pass a free hit to himself to quickly resume play. At any time when certain conditions are met. Hockey, as a game has gone through tremendous changes in the last four decades. Synthetic surface was first introduced in the Olympics at Montreal in 1976. Along with the turf, there were a lot of changes in the general play and execution of basic technique.

Methodology

To achieve the purpose of the study one Hundred Junior State Women Hockey players from five Southern

State who have participated in the Junior National Hockey Championship for women held during the year 2012-13 and 2013-2014 have been selected as the subjects for the study.The five States were Karnataka, Tamil Nadu, Kerala, Andra Pradesh and Pondicherry. The age of subjects were ranged from 16 to18 years Explosive power and cardiovascular endurance were selected as physical variables as they may have direct relation to the performance of hockey players in competitive situation. The collected data was statistically analyzed by using analysis of variance. The scheffe's test was used as a post hoc test to determine which of the paired mean differ significantly.

Results and Discussion

The findings pertaining to for comparative analysis of physical fitness variables among the southern state junior women hockey players were presented in the table below,

Table I. One way analysis of variance for explosive power of the southern state junior women hockey players

Source of variance	**DF**	**Sum of square**	**Mean square**	**F-Ratio**
Between the groups	4	1.051	.263	20.95*
Within the groups	95	1.191	.013	
Total	99	2.241	-	-

* Significant at 0.05 level for the df 4, 95 = 2.46

The statistical analysis of data from Table I clearly shows that the obtained F ratio 20.95 was significant at 0.05 level as the calculated F ratio value was lesser than the table value 2.46.

Table II. Post hoc test analysis of variance for explosive power of the state junior women hockey players

KARNATAKA	**TAMIL NADU**	**KERALA**	**ANDRA PRADESH**	**PONDICHERRY**	**Mean Difference**	**CI**
1.89	1.92	---	---	---	0.03	0.08
1.89	---	1.75	---	---	0.14*	0.08
1.89	---	---	1.73	---	0.16*	0.08
1.89	---	---	---	1.65	0.24*	0.08
---	1.92	1.75	---	---	0.17*	0.08
---	1.92	---	1.73	---	0.19*	0.08
---	1.92	---	---	1.65	0.27*	0.08
---	---	1.75	1.73	---	0.02	0.08
---	---	1.75	---	1.65	0.10*	0.08
---	---	---	1.73	1.65	0.08*	0.08

As given in the Table II the mean difference between Karnataka and Kerala, Karnataka and Andhra Pradesh, Karnataka and Pondicherry, Tamilnadu and Kerala, Tamilnadu and Andhrapradesh, Tamilnadu and Pondicherry, Kerala and Pondicherry, Andhrapradesh and Pondicherry were 0.14, 0.16, 0.24, 0.17, 0.19, 0.27, 0.10 and 0.08 respectively were greater than the critical interval value of 0.08. Hence, there exist significant differences. In case of Karnataka and Tamil Nadu, Kerala and Andhrapradesh were 0.03 and 0.02 respectively were lesser than the critical interval value of 0.08. Hence, there exist insignificant differences.

Figure I. Bar diagram showing the explosive power of the southern state junior women hockey players

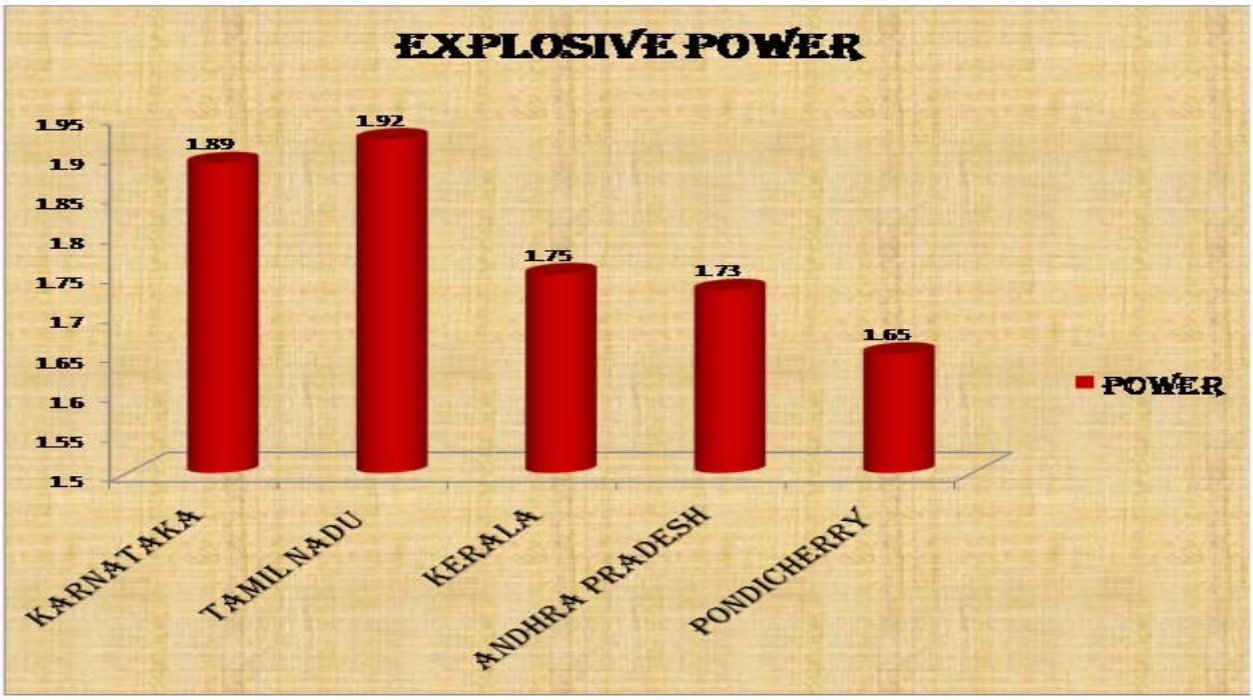


Table III. One way analysis of variance for cardio vascular endurance of the southern state junior women hockey players

Source of variance	**DF**	**Sum of square**	**Mean square**	**F-Ratio**
Between the groups	4	795233.500	198808.375	35.45*
Within the groups	95	532681.250	5607.171	
Total	99			

* Significant at 0.05 level for the df 4, 95 = 2.46

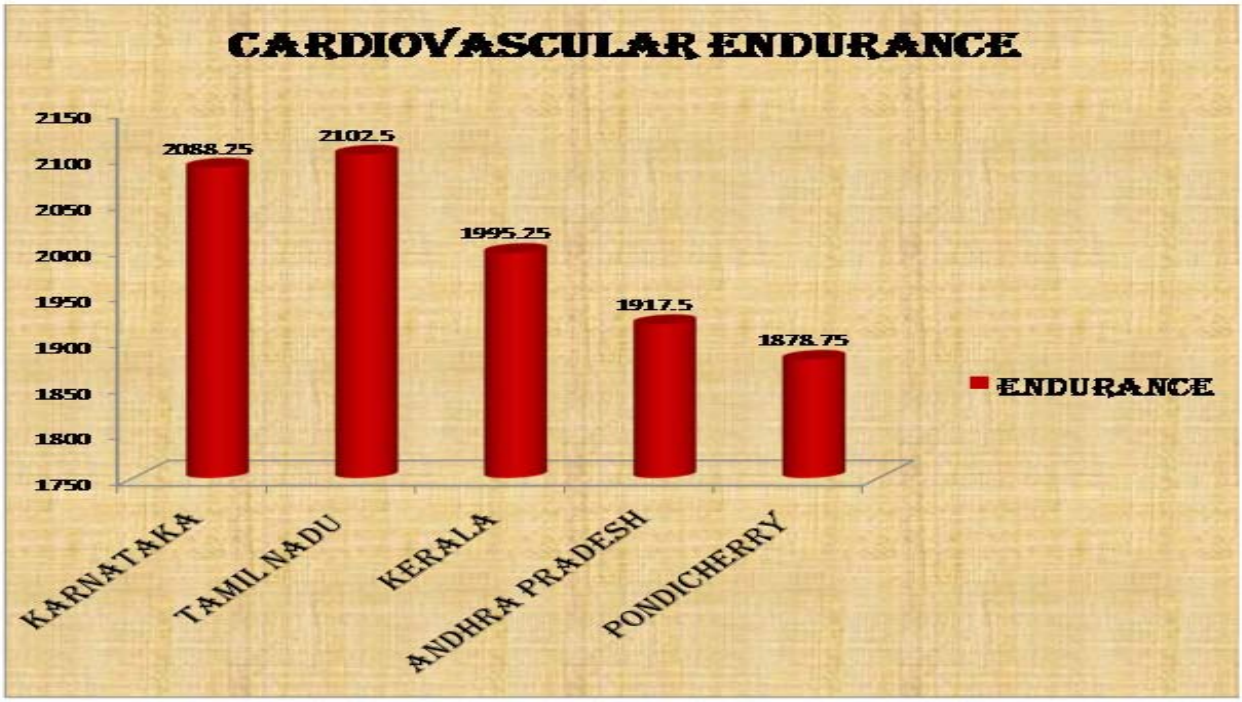
The statistical analysis of data from Table II clearly shows that the obtained F ratio 35.45 was significant at 0.05 level as the calculated F ratio value was lesser than the table value 2.46.

Table IV. Post hoc test analysis of variance for cardio vascular endurance of the state junior women hockey players

KARNATAKA	**TAMIL NADU**	**KERALA**	**ANDRA PRADESH**	**PONDICHERRY**	**Mean Difference**	**CI**
2088.25	2102.50	---	---	---	14.25	52.57
2088.25	---	1995.25	---	---	93.00*	52.57
2088.25	---	---	1917.50	---	170.75*	52.57
2088.25	---	---	---	1878.75	209.50*	52.57
---	2102.50	1995.25	---	---	107.25*	52.57
---	2102.50	---	1917.50	---	185.00*	52.57
---	2102.50	---	---	1878.75	223.75*	52.57
---	---	1995.25	1917.50	---	77.75*	52.57
---	---	1995.25	---	1878.75	116.50*	52.57
---	---	---	1917.50	1878.75	38.75	52.57

As given in the Table III the mean difference between Karnataka and Kerala, Karnataka and Andhra Pradesh, Karnataka and Pondicherry, Tamilnadu and Kerala, Tamilnadu and Andhrapradesh, Tamilnadu and Pondicherry, Kerala and Andhrapradesh Kerala and Pondicherry, were 93.00, 170.75, 209.50, 107.25, 185.00, 223.75, 77.75 and 116.50 respectively were greater than the critical interval value of 52.57. Hence, there exist significant differences. In case of Karnataka and Tamil Nadu, Andhrapradesh and Pondicherry were 14.25 and 38.75 respectively were lesser than the critical interval value of 52.57. Hence, there exist insignificant differences.

Figure II. Bar diagram showing the cardio vascular endurance of the southern state junior women hockey players



Results and Discussion

The training facilities in connection with strength training for women Hockey players are more for Tamil Nadu junior players when compare to other southern states, so the Tamil Nadu junior players were better in their Explosive Power ability. They are experienced in the grass surface, gravel and in the synthetic surface they are able to run faster than the other state junior women hockey players. Explosive Power of movement is a praised quality in hockey. Explosive Power ability primarily signifies the ability to execute physical various with the high proficiency. Because of the above said reasons the Tamil Nadu state junior women Hockey players are found better in Explosive Power than the other southern state junior women hockey players.

The cardio vascular endurance of the Tamil Nadu state junior women Hockey players was better than the other state junior women hockey players of southern state. The training session of the Tamil Nadu state women hockey players normally take practice mostly in the grass or gravel surface and very rare in the synthetic surface and the training facilities are better in the gravel and grass when compare to other southern junior women states. As they are experienced more in the grass surface, gravel and very less in the synthetic surface they are able to run for a longer duration and able to maintain

the pace for longer time than the other state junior women hockey players. Cardio vascular endurance is an important quality required in hockey. Cardio vascular endurance quality is primarily signifies the ability to execute physical various with the high proficiency for a longer time. It is clear that the regular and continuous training brings out enormous changed in the Cardio vascular endurance performance because the training improves the capacities. Because of the above said reasons the Tamil Nadu state junior women Hockey players are found better in Cardio vascular endurance than the other southern state Junior women Hockey players.

Conclusion

In the light of the study undertaken with certain limitations imposed by the experimental conditions, the following conclusion was drawn.

1. It was found out from the analysis that the Explosive Power ability of the Tamil Nadu state junior women Hockey players was better than the other southern state junior women hockey players.
2. It was found out from the analysis that the cardio vascular endurance of the Tamil Nadu state junior women Hockey players was better than the other southern state junior women hockey players.

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