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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 analyse 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.The five States were Karnataka, Tamil Nadu, Kerala, Andra Pradesh and Pondicherry. The age of subjects were ranged from 16 to 18 years. Speed and Agility 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 analysed 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 there was significant differences between the five states on the following variables namely speed and agility.

Keywords: Analysis, Hockey, Speed, Agility.

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. Match analyses make clear that field hockey is a high intensity non-continuous game in which the physiological demands are considerable (Ghosh, Goswami, Mazumdar, 1991; Reilly & Borrie, 1992; Aziz, Chia, & Teh, 2000).

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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.The five States were Karnataka, Tamil Nadu, Kerala, Andra Pradesh and Pondicherry. The age of subjects were ranged from 16 to 18 years. Speed and Agility 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 analysed 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 speed of the southern state junior women hockey players

Source of variance	df	Sum of Squares	Mean Squares	F-Ratio
Between the groups	4	16.433	4.108	55.143*
Within the groups	95	7.078	0.075	

Significant at 0.05 level *F 0.05 = (4 ,95) = 2.47

The statistical analysis of data from Table I clearly shows that the obtained F ratio 55.143 was greater than the table value 2.247 significant at 0.05 level. Hence there exists significant difference.

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

Karnataka	Tamil Nadu	Kerala	Andhra Pradesh	Pondicherry	Mean difference	CI
4.71	4.87	---	---	---	0.16	0.19
4.71	---	5.14	---	---	0.43*	
4.71	---	---	5.45	---	0.74*	
4.71	---	---	---	5.83	1.12*	
---	4.87	5.14	---	---	0.27*	
---	4.87	---	5.45	---	0.58*	
---	4.87	---	---	5.83	0.96*	
---	---	5.14	5.45	---	0.31*	
---	---	5.14	---	5.83	0.69*	
--	---	---	5.45	5.83	0.38*	

As given in the Table II the mean difference obtained from scheffe's post hoc test was 0.43 between Karnataka and Kerala, 0.74 between Karnataka and Andra Pradesh, 1.12 between Karnataka and Pondicherry, 0.27 between Tamilnadu and Kerala, 0.58 between Tamilnadu and Andhra Pradesh, 0.96 between Tamilnadu and Pondicherry, 0.31 between Kerala and Andhra Pradesh, 0.69 between Kerala and Pondicherry, 0.38 between Andhra Pradesh and Pondicherry were greater than the CI value of 0.19. Hence there exists significant difference. It was found out from the analysis that the performance variable dribbling ability of the Karnataka state junior women Hockey players was better than the other southern state junior women hockey players.

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

Source of variance	df	Sum of Squares	Mean Squares	F-Ratio
Between the groups	4	17.265	4.316	12.986*
Within the groups	95	31.576	0.332	

Significant at 0.05 level F 0.05 (4,95) = 2.47

The statistical analysis of data from Table III clearly shows that the obtained F ratio 12.986 was greater than the table value 2.247 significant at 0.05 level. Hence there exists significant difference.

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

Karnataka	Tamil Nadu	Kerala	Andra Pradesh	Pondicherry	Mean Difference	CI
18.24	18.30	---	---	---	0.06	0.40
18.24	---	18.88	---	---	0.64*	
18.24	---	---	19.13	---	0.89*	
18.24	---	---	---	19.25	1.01*	
---	18.30	18.88	---	---	0.58*	
---	18.30	---	19.13	---	0.83*	
---	18.30	---	---	19.25	0.95*	
---	---	18.88	19.13	---	0.25*	
---	---	18.88	---	19.25	0.37*	
--	---	---	19.13	19.25	0.12	

As given in the Table IV the mean difference obtained from scheffe's post hoc test was 0.64 between Karnataka and Kerala, 0.89 between Karnataka and Andra Pradesh, 1.01 between Karnataka and Pondicherry, 0.58 between Tamilnadu and Kerala, 0.83 between Tamilnadu and Andhra Pradesh, 0.95 between Tamilnadu and Pondicherry, 0.25 between Kerala and Andhra Pradesh, 0.37 between Kerala and Pondicherry, 0.12 between Andhra Pradesh and Pondicherry were greater than the CI value of 0.19. Hence there exists significant difference. It was found out from the analysis that the performance variable dribbling ability of the Karnataka state junior women Hockey players was better than the other southern state junior women hockey players.

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

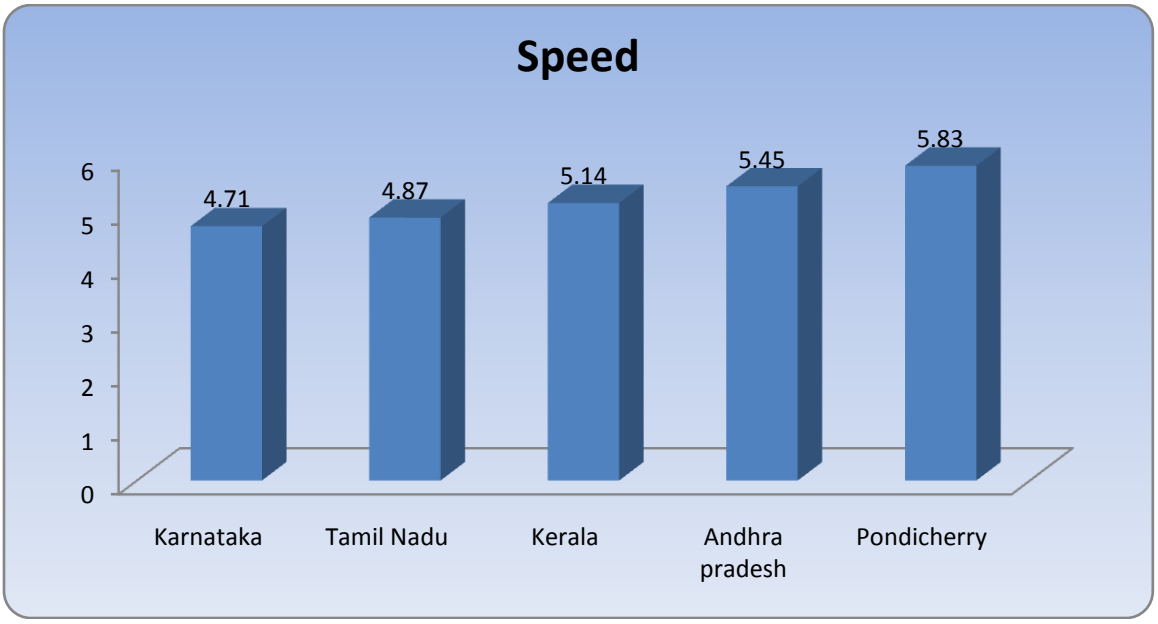
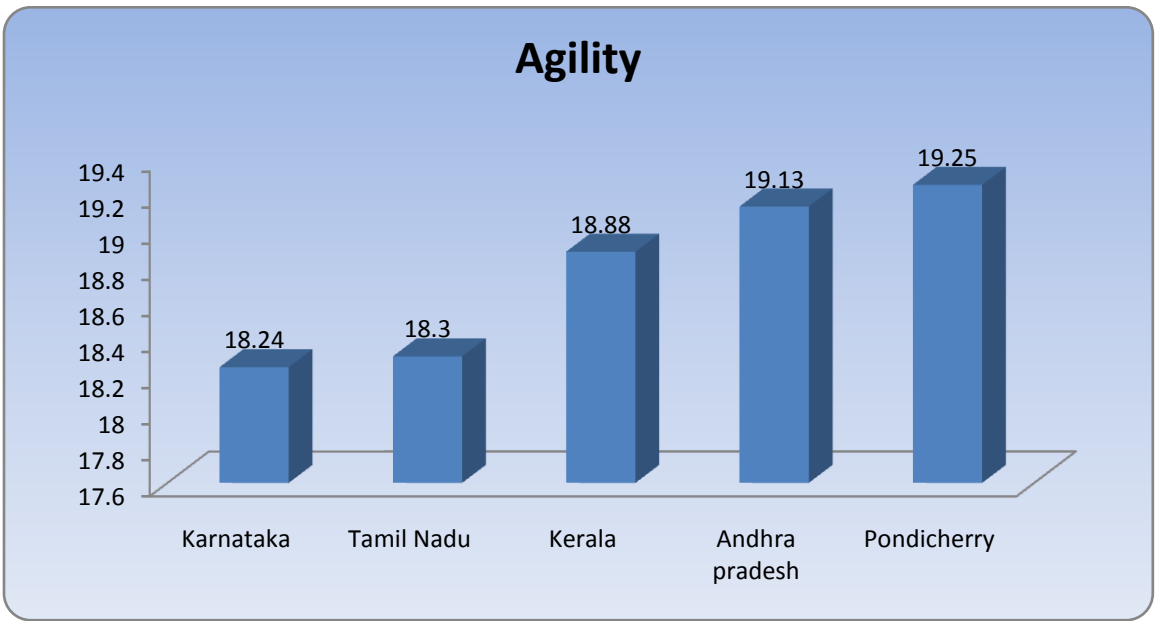


Figure II. Bar diagram showing the agility of the southern state junior women hockey players



Discussion on Findings

During the training session the Karnataka state women hockey players normally take practice in the grass or gravel surface or in the synthetic surface because the training facilities are more when compare to other southern states the Karnataka junior players were better in their speed ability. As 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. Speed of movement is a praised quality in hockey. Speed ability primarily signifies the ability to execute physical various with the high proficiency. It is clear that the regular and continuous training brings out enormous changed in the speed performance because the training improves the capacities. Because of the above said reasons the Karnataka state junior women Hockey players are found better in speed than the other southern state junior women hockey players. The agility of the Karnataka state junior women Hockey players was better than the other state junior women hockey players of southern state. During the training session the Karnataka state women hockey players normally take practice in the grass or gravel surface or in the synthetic surface because the training facilities are more when compare to other southern junior women states. As 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. Agility movement is a praised quality in hockey. Agility quality is primarily signifies the ability to execute physical various with the high proficiency. It is clear that the regular and continuous training brings out enormous changed in the agility performance because the training improves the capacities. Because of the above said reasons the Karnataka state junior women Hockey players are found better in agility 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 performance variable dribbling ability of the Karnataka 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 performance variable dribbling ability of the Karnataka state junior women Hockey players was better than the other southern state junior women hockey players.

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