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Comparison of physical variables among different traditional and non-traditional sport players

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Abstract

Optimal performance requires a combination of technical and tactical abilities as well as high degree of physical fitness. Speed and agility are basic to different traditional and non-traditional sports. So, it was intended to determine speed and agility of players of different traditional and non-traditional sports namely kho-kho, kabaddi, handball and basketball. The study was conducted among 100 male state, national and interuniversity level players, age range is 16 to 25 from North Karnataka (25 players from each sport). To find out the result a statistical technique was used i.e., ANOVA which was set at 0.05 level of significance. To test the hypothesis after applying ANOVA, it was obtained that there were significant differences of players among the selected traditional and non-traditional sports of North Karnataka as far as speed and agility is concerned. Further to find out the significant differences LSD test was used. It was obtained that there were significant differences between kho-kho, Kabaddi, handball and basketball.

Keywords: Traditional sport, non-traditional sport, speed, agility

Introduction

In a medical and physical sense, speed is the muscle's ability to generate power. Maximum power and related maximum force are directly related to strength. Thus, strength is a major component of speed. Speed also is dependent on the stretch-shortening cycle of the muscle and the ability of muscle to store elastic energy. This depends both on flexibility and neuromuscular interaction. (Peter H. Edwards)

Along with speed, having agility is a key asset among elite athletes. Agility is the ability to change direction at high speed and under control. This allows for speed to become more effective in attacking players. Agility is dependent on strength, flexibility and neuromuscular reaction time. (Peter H. Edwards)

Agility helps players to avoid injury and decreased injury severity. Another benefit of speed and agility is that it can help to perform better on the field. When player is faster and more agile, he can react to situations quicker and make plays that wouldn't have been possible before speed and agility are an integral part of most athletes required sports, especially those in cutting or change of direction sports. The ability to sprint and change directions quickly is an important determinant of sports performance in field and court sports. (Physiotherapy, 2021)

Kho-Kho is a unique traditional sport. It is a sport of chase as well as attack and Défense, a sport of skill and rhythm and fits with rich cultural heritage of India. Like all Indian sports, it is simple, inexpensive and enjoyable. It does, however, demands physical fitness including endurance, speed and agility. Dodging, feinting and bursts of controlled speed make this sport exciting and fun. (Azizul Haque *et al.*, 2014) ^[1]

Kabaddi is a traditional sport played with minor variations in all regions of India - in fact, in most parts of Asia. It is an ancient backyard and homegrown sport. Kabaddi requires tremendous physical stamina, agility, individual proficiency, neuromuscular coordination, lung capacity, quick reflexes, intelligence and presence of mind on the part of both attackers and defenders. (Venkatesha Murthy BS, 2016) ^[2]

Team-handball is an Olympic sport ball sport that is characterized by fast pace defensive and offensive action during the sport with the objective of the sport to score goals. To describe team-handball play, especially to determine factors that influence performance is difficult

because team-handball play is complex and multi-factorial. Team-handball players have to coordinate their movements well for running, jumping, pushing, change of direction and team-handball specific movements of passing, catching, throwing, checking and blocking. Intensities during the sport always change between standing and walking, jogging and moderate running, sprinting and fast forward, sideward, and backward movements (Michalsik *et al.*, 2012; Povoas *et al.*, 2012) [8-9].

Basketball is a team sport in which two teams, most commonly of five players each, opposing one another on a rectangular court, compete with the primary objective of shooting a basketball through the defender's hoop in diameter mounted 10 feet high to a backboard at each end of the court, while preventing the opposing team from shooting through their own hoop. Playing basketball requires agility, strength, and stamina. Player must quickly move and change directions using high-intensity, short-duration muscle contractions. Players also need muscular endurance, which is the ability of muscles to repeatedly apply force for an extended period. (Griffiths, 2010) [10]

Purpose of the study

The purpose of the present study was to compare the speed and agility among different traditional and non-traditional sport players of Karnataka.

Methodology

Selection of Subject

For the purpose of these study 100 male players were selected, fifty (50) from the traditional sport kho-kho and kabaddi and fifty (50) from non-traditional sport handball and basketball, from each sport 25 players were selected who represent different competition at district, state, interuniversity and national level have been selected

Table 3: Shows that there was a significance difference in speed among kho-kho - kabaddi, kho-kho -handball, and kho-kho - basketball players

	(I) Sport	(J) Sport	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Multiple comparison							
LSD	Kho- kho	kabaddi	.98*	.19	.00	.59	1.38
		handball	-.08	.19	.68	-.47	.313
		basketball	-.54*	.19	.00	-.93	-.15
	Kabaddi	Kho- kho	-.98*	.19	.00	-1.38	-.59
		handball	-1.07*	.19	.00	-1.46	-.67
		basketball	-1.53*	.19	.00	-1.92	-1.14
	Handball	Kho- kho	.08	.19	.68	-.31	.47
		kabaddi	1.07*	.19	.00	.67	1.46
		basketball	-.46*	.19	.02	-.85	-.07
	basketball	Kho- kho	.54*	.19	.00	.15	.93
		kabaddi	1.53*	.19	.00	1.14	1.92
		handball	.46*	.19	.02	.07	.85

Table 4: Shows that mean value of agility of kho kho, kabaddi, handball and basketball players was 10.19±0.47, 11.02±0.84, 10.72±0.62, 10.66±0.68 respectively

	N	Mean	Std. Deviation	Minimum	Maximum
Kho- Kho	25	10.19	0.479	9.52	11.45
Kabaddi	25	11.02	0.84	9.73	12.54
handball	25	10.72	0.62	8.93	11.88
Basketball	25	10.66	0.68	9.35	12.08
Total	100	10.65	0.72	8.93	12.54

randomly. Their age ranged between 16 to 25 years. The study was conducted only on the male players.

Variables

For the present study the chosen variables were speed and agility and for the collection of the data the following tests were used: 50-meter dash to measure the speed, and shuttle run to measure the agility.

Data analysis and result

The data analysed and compared with the help of statistical procedure in which Mean, Standard Deviation (SD), and ANOVA test used to compare the data. The level of significance was 0.05. sig

Table 1: Show that mean value of speed of kho- kho, kabaddi, handball and basketball players was 7.15±0.45, 6.16±0.98, 7.23±0.78, 7.69±0.45 respectively

	N	Mean	Std. Deviation	Minimum	Maximum
Kho- Kho	25	7.15	0.45	6.05	7.81
Kabaddi	25	6.16	0.98	5.00	8.11
Handball	25	7.23	0.78	5.99	9.01
Basketball	26	7.69	0.45	6.94	8.42
Total	101	7.06	0.89	5.00	9.01

Table 2: Shows that with 0.05 level of significance there was a significance difference in speed among kho- kho, kabaddi, handball and basketball players

ANOVA					
Speed					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	31.51	3	10.50	21.30	0.00
Within Groups	47.81	97	0.49		
Total	79.32	100			

Table 5: Shows that with 0.05 level of significance there was a significance difference in agility among kho-kho, kabaddi, handball and basketball players

ANOVA					
Agility					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8.81	3	2.93	6.49	0.00
Within Groups	43.44	96	0.45		
Total	52.25	99			

Table 6: Multiple comparison Dependent Variable: Agility

LSD	(I) Sport	(J) Sport	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
	Kho- Kho	Kabaddi	-0.83*	0.19	0.00	-1.20	-0.45
		handball	-0.52*	0.19	0.00	-0.90	-0.14
		Basketball	-0.46*	0.19	0.01	-0.84	-0.08
	Kabaddi	Kho- Kho	0.83*	0.19	0.00	0.45	1.20
		handball	0.30	0.19	0.11	-0.07	0.68
		Basketball	0.36	0.19	0.05	-0.01	0.74
	Handball	Kho- Kho	0.52*	0.19	0.00	0.14	0.90
		Kabaddi	-0.30	0.19	0.11	-0.68	0.07
		Basketball	0.06	0.19	0.75	-0.31	0.43
	Basketball	Kho- Kho	0.46*	0.19	0.01	0.08	0.84
		Kabaddi	-0.36	0.19	0.05	-0.74	0.01
		handball	-0.06	0.19	0.75	-0.43	0.31

Table no 6 shows that there was a significance difference in agility among kho-kho – kabaddi, kho-kho – basketball, kabaddi – handball, kabaddi – basketball and handball – basketball players.

Discussion

The result shows that there is significant difference of speed among the players of kho kho, kabaddi, handball, and basketball. Kabaddi players have more speed than kho kho, handball, and basketball players, may be because of their training, there higher leg strength and their faster movement during match.

Like speed there is a significant difference of agility among the players of kho-kho, kabaddi, handball and basketball. Kho-kho players have more agility than kabaddi, handball and basketball players, this may be because of their training and they continuously change the direction during the game. National, state and Inter University level sportspersons participating in Indigenous sports have higher speed and agility than the sportspersons participating in non-indigenous sports. Playing barefoot may be one of the probable reasons for these differences. Although mat has been extensively used in indigenous sports, players in sports like Kabaddi and Kho- Kho play barefooted.

Most of our findings are similar to Singh raspal (2013) study who found that physical fitness variables *viz.*, power, agility, strength, speed, flexibility, and endurance of Kabaddi, Kho-Kho and Wrestling-the three popular indigenous games of India. Data was collected during training camps of the three games. The subjects for the study were participants between age group 18-25 representing the respective games. The study reveals that, Kabaddi and Kho-Kho players have equal leg power agility, flexibility and speed ability. Agility of Kho-Kho players was the best followed by Kabaddi players with minimum scores for Wrestlers.

Conclusion

On the basis of the obtained results from the present analysis, it may be concluded that there is significant difference of speed and agility among these all sports players separately. Kabaddi players have more speed and Kho- Kho players have more agility than other sport players. Traditional games of India are cost effective, feasible and easy to play and may have excellent application in school physical education programs. Traditional games like Kho-Kho and kabaddi can be an excellent means to develop our motor performance like speed and agility.

The findings of the study have a number of implications for coaches, physical education teachers, trainers and players of Kabaddi and Kho-Kho. One of the major implications of the

study is the it could help in developing physical fitness of Kabaddi and Kho-Kho players. The findings of the study can be further used for the purposes of screening and designing training programmers, and for providing guidance and counselling to the youngsters.

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