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## Comparative analysis of Cardio-vascular endurance between the male raiders and stoppers of circle style kabaddi

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### Abstract

The purpose of this study was to compare Cardio-Vascular endurance between the male raiders and stoppers of circle style kabaddi. With the purposive sampling technique a total two hundred sixteen (103 raiders and 113 stoppers) of circle style kabaddi were taken as subjects. The results were obtained through the SPSS version 21.0. In this study the 600 Meters Run Test was used to measure the Cardio-Vascular endurance of the players. The study had been analyzed with the help of mean, SD, Levene's test for equality of variances and the comparison between groups was done with the help of t-test. The study revealed that on the basis of the finding male raiders and stoppers were not possessing same degree of Cardio-Vascular endurance and raiders have more ability of Cardio-Vascular endurance than stoppers.

**Keywords:** Cardio-vascular endurance, raider, stopper, circle style kabaddi

### Introduction

Williams (1962)<sup>[7]</sup> cleared about physical fitness that physical fitness is essential not only in terms of general health, but also for the special physical requirements for competitive sports and certain highly specialized and demanding occupations.

There are different requirements of physical fitness for different games. A gymnast has different degree of Cardio-vascular endurance than a basketball or football player. Different degrees of different physical fitness components are required for different games or events. A player who has physical fitness according to his game can do better training of the game.

The greater degree of physical fitness is required for the high level performance in the sports and games. The player can be injured during the training or competition if he has not high level physical fitness. Circle style kabaddi requires a high level physical fitness. This game is a combative game and during the completion the body parts of the players take high level stressing. Due to the high level stressing the players are often injured in this game. For avoiding the injuries the player should be proper physically fit.

Physical fitness gives the good feeling to the players and it increases the self-confidence of the players. Self-confidence plays a very important role for the better performance in the games. Physical fitness is a ability to tolerate the more stress of physical load. A fit player can continue the training or play under difficult circumstances whereas unfit player would quit under difficult circumstances.

Circle Style Kabaddi is an indigenous game of the Punjab region. People were playing Kabaddi with some variations in different areas of Punjab and had entertained but now all types of Kabaddi which were played in ancient Punjab have merged into the Circle Style Kabaddi. Circle Style Kabaddi is different from the National Style Kabaddi. This game is played in a circular type playfield instead the rectangular playfield of National Style Kabaddi. When a stopper touches the raider or raider touches any stopper, the other stopper can't touch or stop to the raider. The struggle will be only in two opposite sides' players.

So many studies has been completed on physical fitness or comparative study of physical fitness components between the players of many games. Singh, T. (2019)<sup>[5, 6]</sup>. Comparative analysis of speed and muscular power between the male raiders and stoppers of circle style

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kabaddi, Singh, T. (2018) [3,4]. Constructed and standardized a specific physical fitness test battery for circle style kabaddi players, Suman Rani (2018) [1] conducted a comparative study of flexibility between kabaddi and kho-kho games players, Singh, T. (2018) [3, 4] conducted a comparative study of cardio-vascular endurance, agility and flexibility level between the circle style male kabaddi players of Panjab University Chandigarh and kurukshetra University kurukshetra, Singh, S. Dr. (2017) [2] conducted a comparative study of selected motor fitness components between inter-university and inter-college male Kabaddi players.

Cardio-Vascular endurance is also play a very important role for the players of circle style kabaddi. Circle style kabaddi players should have the higher rate of Cardio-Vascular Endurance so that they can do continue efforts during the 30 seconds raid again and again in the match. Many players do struggle continue in every raid or in many raids to win the match. The players who have not required Cardio-vascular Endurance's level, they can't maintain their performance level in the whole match.

**Method and procedure**

**Sample:** Total two hundred sixteen (103 raiders and 113 stoppers) subjects of this study were selected with the purposive sampling technique from eight teams which were qualified for the league stage of the inter college Kabaddi Circle Style tournament of selected universities i.e. Panjab University Chandigarh, Punjabi University Patiala, Guru Nanak Dev University Amritsar and Kurukshetra University Kurukshetra.

**Selection of Variables:** Cardio-Vascular endurance level considered as a variable for this study. 600 meters run test was selected for measuring cardio-vascular endurance level of male raiders and stoppers of circle style kabaddi. This tool was taken from the specific physical fitness test battery for circle style kabaddi players, standardized by Mr. Tejinder Singh (2018) [3,4].

**Hypothesis:** It was hypothesized that there would be significant difference between male raiders and stoppers of Circle Style kabaddi on Cardio-Vascular endurance level.

**Procedure of tests:** All participant were informed of the procedure and purpose the experiment and were required to sign and important consent to participate in the study. Cardio-Vascular endurance was measured by 600 meters run test. Score for 600 meters run test was taken in seconds.

**Statistical Procedure:** In order to compare the cardio-vascular endurance level of male raiders and stoppers of circle style kabaddi, the independent t-test was employed. The level of significance chosen to test the hypothesis was 0.05, P < 0.05. For Statistical Description the Statistical Package for Social Sciences (SPSS), version 21.0 was used.

**Analysis of data:** In the present study analysis and interpretation of the data and results obtained through the

application of statistics. This part is devoted to the comparative result of the male raiders and stoppers of Circle Style Kabaddi of selected Cardio-Vascular endurance component. The results had been discussed in two sections. Section-I deals with the statistical description of means and Std. Deviation of the scores of raiders & stoppers. Section II deals with the comparative result of Cardio-Vascular Endurance of the raiders & stoppers. This section have been discussed with the help of t-ratio.

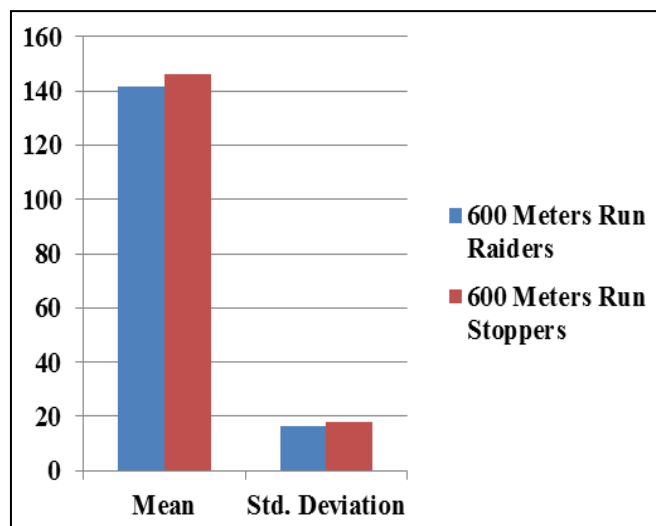
**Section: I**

**Table 1:** Shows the mean & Std. Deviation of the test of the raiders and stoppers in group statistics.

Group Statistics						
Group		N	Unit	Mean	Std. Deviation	Std. Error Mean
600 Meters Run	Raiders	103	Seconds	141.74	16.14	1.59
	Stoppers	113	Seconds	146.29	17.82	1.68

**Statistical Description of Mean and SD of the test of male raiders and stoppers of Circle Style kabaddi**

Table-1 shows the mean & Std. Deviation of the test of the raiders and stoppers in group statistics. The output shows that the mean & Std. Deviation of score for 600 Meters Run Test of raiders were 141.74 & 16.14 versus 146.29 & 17.82 for stoppers.



**Graph 1:** Graphical presentation of Mean and SD of the test of male raiders and stoppers of Circle Style kabaddi

**Section 2:** This section presents the comparison of Cardio-Vascular endurance between the male raiders and stoppers of Circle Style kabaddi. The comparison with the significance of difference between means score of the raiders and stoppers on selected variable is presented in Table No. 2.

**Statistical Description- Significance of difference between means score with t-test of male raiders and stoppers of Circle Style kabaddi**

**Table 2:** This section presents the comparison of Cardio-Vascular endurance between the male raiders and stoppers of Circle Style kabaddi.

		Independent Samples Test						
		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
600 Meters Run	Equal variances assumed	3.117	.079	-1.962	214	.051	-4.55	2.32

The sig. of Levene's test for equality of variances is more than 0.05 for 600 Meters Run Test, So the first rows (Equal variances assumed) was selected for the test.

**Interpretation of the t-test results:** t-test was employed to find out the significance difference between means. The significance level was set at .05 levels. The p-value given by SPSS is 2-tailed, but according to hypothesis there was a need to divide it in half for a 1-tailed test. According to the table-2

the 1-tailed p-value for 600 Meters Run Test is  $0.051/2=0.025$ .

**Findings:** As per the result depicted in Table-2 shows that The p-values for 600 Meters Run Test was less than 0.05. So, there was a statistical significance difference between the male raiders and stoppers of Circle Style kabaddi in the Cardio-Vascular endurance.

Raw data of Raiders and Stoppers

Raiders	600 M R in Seconds	Stoppers	600 M R in Seconds
Sukhdeep Singh	136.2	Avtar Singh	143.4
Sandeep singh	134.4	Parminder Singh	121.2
Gurpreet Singh	123.6	Asif Mohmmad	142.8
Rajakaranveer Singh	160.8	Balkarn Singh	141.6
Satnam Singh	127.8	Pardeep Singh	137.4
Harmanpreet Singh	142.2	Jaskirat singh	140.4
Mandeep Singh	125.4	Rajwinder Singh	130.8
Gagandeep Singh	131.4	Sandeep Singh	133.8
Karanbarinder Singh	133.2	Gursewak Singh	144.6
Gagandeep Singh	129	Harmanjit Singh	132.6
Gursimran Singh	131.4	Hardeep Singh	128.4
Jaspinder Singh	131.4	Ramanpreet Singh	142.8
Vatandeep Singh	123	Jaskirt Singh	138.6
Jasmeet Singh	144.6	Darshan Singh	123
Preetpal Singh	144.6	Harmeet Singh	126.6
Manjot Singh	144	Karanpreet Singh	124.2
Baljit Sharma	130.2	Balwant singh	137.4
Jagmeet Singh	131.4	Amtojsran	144.6
Balwant Singh	142.8	Shyam Sunder	129
Parminder Singh	142.8	Karmjit Singh	126.6
Satnam Singh	135.6	Major Singh	139.8
Sarabjit Singh	121.2	Kuldeep Singh	141
Mandeep Singh	143.4	Sukhwant Singh	138.6
Tejinder Singh	138	Karanbir Singh	120.6
Amanpreet Singh	120.6	Arandeep Singh	135
Rupinder Singh	178.8	Akashdeep Singh	141
Raman Kumar	135	Sukhwinder Singh	141
Saranpreet Singh	131.4	Hardeep Singh	147
Ravandeep Singh	154.8	Pargat Singh	128.4
Manjobanjeet Singh	130.8	Gurwinder Singh	136.8
Pawandeep Singh	141.6	Amritpal Singh	174.6
Jaspal Singh	144.6	Angrej Singh	153.6
Amansud	133.8	Mandeep Singh	157.8
Honey Deol	138.6	Amritveer Singh	174.6
Karanpreet Singh	147.6	Sulinder Singh	130.2
Manjinder Singh	140.4	Harmanpreet Singh	143.4
Ravinderpal Singh	143.4	Gurpreet Singh	144
Mandeep Singh	165	Gurpinderjit Singh	179.4
Manpreet Singh	137.4	Satpal singh	139.8
Mandeep Singh	173.4	Jaskiranjit Singh	172.2
Arabdeep Singh	182.4	Sarbjit Singh	138.6
Nirmal Singh	160.8	Karamjit Singh	167.4
Dilsher Singh	175.8	Balraj Singh	140.4
Gurlal Singh	172.8	Jaspal Singh	165.6
Jugraj Singh	169.8	Gurpreet Singh	182.4
Jaimal Singh	175.8	Lovepreet Singh	180.6
Paramjit Singh	173.4	Maninder Singh	168
Malkit Singh	131.4	Gursajjan Singh	177
Gurdas Singh	163.8	Amritpal Singh	171.6
Arjun Singh	125.4	Jasbir Singh	179.4
Sandeep Singh	182.4	Manpreet Singh	181.2
Lovejinder Singh	153	Kulwinder Singh	161.4
Manpreet Singh	176.4	Kawaljit Singh	168.6
Manjinder Singh	130.8	Jugraj Singh	163.2
Parminder Singh	129	Robinpreet singh	165.6
Gurdeep Singh	141.6	khusdeep Singh	181.2

Ramandeep Singh	130.8	Sapinder Singh	132.6
Gurwinder Singh	140.4	Vizen Kumar	133.8
Kulwinder Singh	136.8	Amritpal Singh	136.2
Devinder Singh	132.6	Punjab Singh	121.2
Rajwant Singh	126	Kamalpreet Singh	138.6
Kulwinder Singh	123.6	Sheetal Singh	178.2
Hardavinder Singh	137.4	Kulwinder Singh	141.6
Sukhjeet Singh	139.8	Rajwinder Singh	127.8
Lakhveer Singh	138.6	Mandeep Singh	136.8
Sukhveer Singh	134.4	Chand Singh	137.4
Amarpreet Singh	140.4	Harman Singh	131.4
Gurtej Singh	144.6	Gurik Singh	142.2
Rupinder Singh	141.6	Harmandeep Singh	132
Sukhpreet Singh	123	Jagpal Singh	174.6
Sukhchain Singh	135	Inderjeet Singh	136.2
Gurwinder Singh	139.8	Amritpal Singh	124.8
Harjaspreet Singh	141.6	Satnam Singh	133.8
Sukhpreet Singh	126.6	Parminder Singh	136.8
Bhupinder Singh	127.2	Randhir Singh	129.6
Ramandeep Singh	129	Amanjot Singh	136.2
Iqbal Singh	137.4	Pawanvir Singh	124.2
Manpreet Singh	136.8	Harjinder Singh	156.6
Jashandeep Singh	165.6	Gurkarpal Singh	180
Jaspreet Singh	178.2	Gurmeet Singh	129
Sonu Kumar	129.6	Jaspreet Singh	138
Anil Kumar	136.8	Surinder Singh	140.4
Naresh Kumar	125.4	Gurlamber Singh	136.8
Ankush	159	Gurparkash Singh	135.6
Parveen	142.2	Amandeep Singh	144
Yadvinder Singh	141	Vikram	132
Harinder Singh	179.4	Gurdeep Singh	129.6
Gurjinder Singh	135.6	Sonu	138.6
Ravi Parkash	128.4	Tinka	137.4
Naresh Kumar	138	Gourav	174.6
Naresh	140.4	Ramesh	132.6
Jaydeep	129	Amandeep	136.2
Vijay Goyat	141.6	Sonu	141
Jagdeep	168.6	Anuj	139.2
Sukhbir	132.6	Ramesh Kumar	178.8
Parvesh	131.4	Mohan	144.6
Amit Kumar	128.4	Deepak	176.4
Kuldeep	127.8	Vikki Singh	180.6
Dinesh	130.8	Mohan	136.8
Hari Ram	131.4	Anuj Lohan	130.8
Hemant Kumar	127.2	parveen	144
Sunny	124.8	Ashish	133.2
Aman Kumar	152.4	Naveen	145.2
		Robin	176.4
		Rakesh	171
		Ankit Kumar	148.8
		Amit	178.2
		Ajay	138
		Mohit Shukla	150.6
		Nikit	144.6
		Sahil	150
		Subham	125.4
		Gaurav Kamboj	149.4

**Conclusion:** The findings of the study can be concluded as under: On the basis of t-test applied the finding of the study concluded that there was a statistical significance difference on 600 Meters Run Test and the hypothesis was accepted. So, raiders and stoppers have not the same Cardio-Vascular endurance. The raiders have more ability of Cardio-Vascular endurance than stoppers.

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