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**Tejinder Singh**  
Assistant Professor, PGS. Govt.  
College of Physical Education,  
Patiala, Punjab, India

## Comparative analysis of speed and muscular power between the male raiders and stoppers of circle style kabaddi

**Tejinder Singh**

### Abstract

The purpose of this study was to compare speed ability and muscular power of upper body 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 from sixteen teams which were qualified for the league stage or qualified for the semifinal of the inter college tournament of selected universities i.e. PU Chandigarh, Pbi.U Patiala, GNDU Amritsar and KU Kurukshetra during the session of 2.017-18. The results were obtained through the SPSS version 21.0. In this study the overhead medicine ball throw test and 50 m run were used to measure the muscular power of upper body and speed of the players. The study had been analyzed with the help of mean, SD, Levine'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 possessing same degree of muscular power of upper body but male raiders were better in speed ability than stoppers.

**Keywords:** Muscular power, speed, raider, stopper, circle style kabaddi

### Introduction

Sports form an important aspect of life. They play a vital role in bringing about physical, mental and social growth of the nation. The past few decades have witnessed man on innovation in this area. Sports are becoming increasingly sophisticated technical going popularity as separate profession with expansion of educational facilities in the country. More young people are taking part in sports as a daily feature of their life. The participation in sports and physical fitness increase an individual productivity, it also promotes social harmony and discipline". (Sadri, 1993) <sup>[9]</sup>.

There is a need of a constant attempt to achieve higher standard of performance in the sports. Technology has covered every aspect of human life. Now sports activities have also become highly scientific. In order to give the best possible performance at any of the competitions the assistance of scientific disciplines is sought. Induction of the basic principles of science, physical education and sports has become a subject of scientific research

"Fitness is that state which characterizes the degree to which a person is able to function efficiently. Fitness is an individual matter. It implies the ability of each person to live most effectively with his potentialities. Ability to function depends upon the physical, mental, emotional, moral and components of fitness; all of which are related to one another and are mutually inter-dependent."(AAHPER, 1965) <sup>[11]</sup>.

A fit person can do the more work without any fatigue and the quality of the work will also be better. Today's games and sports demand best specific physical fitness for the best performance. For a specific game or event, the player must possess all of the body parts to be fit essential to the best performance and must have the proper body size and shape for the activity.

The "circle kabaddi" or Punjab style, for which the World Cup was organized, is quite different from the "national style". As the name suggests, it is played in a circular ground instead of the rectangular one as is the case in the "national style". After a raider and a defender tag, it is the display of strength and skill of the two players from the opposite sides. (The Hindu, 2012) <sup>[12]</sup>.

**Correspondence**  
**Tejinder Singh**  
Assistant Professor, PGS. Govt.  
College of Physical Education,  
Patiala, Punjab, India

Circle Style Kabaddi has developed to become faster, with more intensity and aggressive play in the World Kabaddi League and Kabaddi World Cups than seen in the past. Circle Style Kabaddi is a combative sport, and performance depends on a number of factors, such as physical fitness, psychological factors, player's technique, tactics. Injuries and squeal from previous injury can also affect the player's ability to perform. (Singh, T., 2018) <sup>[12]</sup>

Present research work done by the investigator in the game of circle style kabaddi.

Circle Style Kabaddi has developed to become faster, with more intensity and aggressive play in the World Kabaddi League and Kabaddi World Cups than seen in the past. Circle Style Kabaddi is a combative sport, and performance depends on a number of factors, such as physical fitness, psychological factors, player's technique, tactics. Injuries and squeal from previous injury can also affect the player's ability to perform. So many studies has been completed on physical fitness or comparative study of physical fitness components between the players of many games. Singh, T. (2018) <sup>[12]</sup>. Constructed and standardized a specific physical fitness test battery for circle style kabaddi players, Suman Rani (2018) <sup>[6]</sup> conducted a comparative study of flexibility between kabaddi and kho-kho games players, Singh, T. (2018) <sup>[12]</sup> conducted a comparative study of cardio-vascular endurance, agility and flexibility level between the circle style male kabaddi players of pu chandigarh and ku kurukshetra, Singh, S. Dr. (2017) <sup>[11]</sup> conducted a comparative study of selected motor fitness components between inter-university and inter-college male Kabaddi players, Guta. (2017) <sup>[17]</sup> conducted a comparative study on Physical Fitness Components between physical and non-physical education male students in Nekemte College of Teacher Education, Mandrekar (2017) <sup>[5]</sup> conducted a comparative study on selected physical fitness variables of inter collegiate cricket and football players of Goa, Rani, D. and Dr. Kumar, V. (2016) conducted a comparative study of physical fitness components between kabaddi and kho-kho girls players of Haryana.

Speed and muscular power are also play a very important role for the players of circle style kabaddi. Fast running and fast pushing are common actions in this game. So in this study only these abilities were focused.

**Speed:** Speed may be defined as the capacity of the individual to perform successive movements of the same pattern at a faster rate. This is the ability to move from one place to another in shortest possible time. (Barrow and McGee, 1979) <sup>[2]</sup>.

## Muscular Power

Power may be identified as the ability to release maximum force in the fastest possible time. (Johnson and Nelson, 1982).

## Objective of the study:

To assess the significance difference in muscular power and speed ability between the male raiders and stoppers of Circle Style Kabaddi.

## Hypothesis

1. For medicine ball throw test, the mean of raiders is larger than the mean of stoppers.
2. For 50 meters run test the mean of stoppers is larger than the mean of raiders.

## 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. PU Chandigarh, Pbi. U Patiala, GNDU Amritsar and KU Kurukshetra.

## Method

All participant were informed of the procedure and purpose the experiment and were required to sign and important consent to participate in the study. Keeping in view the research criteria of availability, reliability and validity the following tools were used to collect the data. The selected physical fitness components- muscular power of upper body and speed were measured by different means and methods. Muscular power was measured by medicine ball throw test and speed was measured by 50 meters run test. 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 result 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 Physical fitness components. The results had been discussed in two sections. Section-I deals with the statistical description of means and SD of the scores of raiders & stoppers. Section II deals with the comparative result of muscular power of upper body and speed of the raiders & stoppers. This section have been discussed with the help of t-ratio.

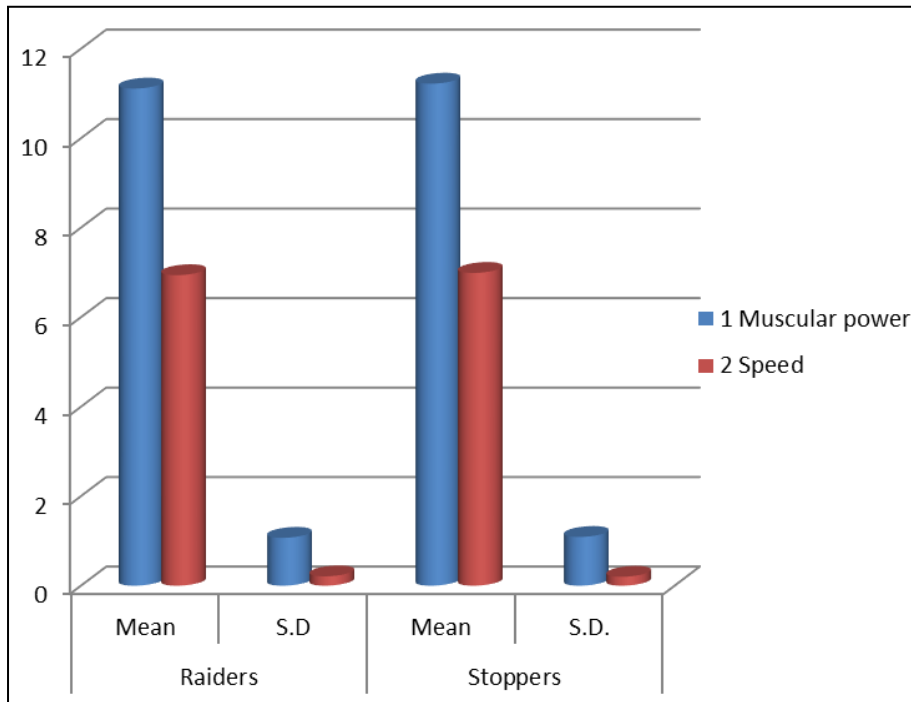
## Section: I

**Table 1:** Statistical Description of Mean and SD of the tests of male raiders and stoppers of Circle Style Kabaddi Group Statistics

Variables	Groups	N	Mean	Std. Deviation	Std. Error Mean
Medicine Ball Throw	Raiders	103	11.11	1.07	0.11
	Stoppers	113	11.22	1.09	0.10
50 Meters Run	Raiders	103	6.94	0.21	0.02
	Stoppers	113	6.99	0.20	0.02

Table-1 shows the mean & S.D. of both tests of the raiders and stoppers in group statistics. The output shows that the average of distance for medicine ball throw test for raiders is

11.11 meters versus 11.22 meters for stoppers and the average of time for 50 meters run test for raiders is 6.94 seconds versus 6.99 seconds for stoppers.



**Fig 1:** Graphical presentation of Mean and SD of the tests of male raiders and stoppers of Circle Style Kabaddi

**Section 2**

This section presents the comparison of muscular power and speed between the male raiders and stoppers of Circle Style

Kabaddi. The comparisons with the significance of difference between means score of the raiders and stoppers on selected variables are presented in Table No. 2.

**Table 2:** Statistical Description- Significance of difference between means score with t-test of 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	95% Confidence Interval of the Difference	
									Lower	Upper
Medicine Ball Throw	Equal variances assumed	0.04	0.85	-0.73	214.00	0.47	-0.11	0.15	-0.40	0.18
	Equal variances not assumed			-0.73	212.74	0.47	-0.11	0.15	-0.40	0.18
50 Meters Run	Equal variances assumed	1.51	0.22	-1.73	214.00	0.09	-0.05	0.03	-0.10	0.01
	Equal variances not assumed			-1.72	207.50	0.09	-0.05	0.03	-0.10	0.01

The sig. of “Levene’s Test for Equality of Variances is more than 0.05 for both the tests. So the first rows (Equal variances assumed) were selected.

**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 medicine ball throw test is  $0.47/2=0.235$  and for 50 meters run test is  $0.09/2=0.045$ .

**Findings**

1. As per the results depicted in Table-2 shows that the p-value for medicine ball throw test was more than 0.05. So, there was not a statistical significance difference between the male raiders and stoppers of Circle Style Kabaddi in muscular power of upper body.
2. The hypothesis for muscular power was rejected.
3. As per the results depicted in Table-2 shows that the p-value for 50 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 speed ability.
4. The hypothesis for muscular power was accepted.

## Raw data of Raiders and Stoppers

Sr. No.	Stoppers	Medicine B. Th.	50 M Run	Raiders	Medicine Ball Th.	50 M Run
1	Avtar Singh	12.58	6.8	Sukhdeep Singh	10.22	6.82
2	Parminder Singh	12.36	6.71	Sandeep Singh	11.4	7.19
3	Asif Mohmmad	11.35	7.13	Gurpreet Singh	11.85	6.7
4	Balkarn Singh	9.31	6.83	Rajakaranveer Singh	10.52	7.32
5	Pardeep Singh	8.89	6.7	Satnam Singh	11.25	6.9
6	Jaskirat Singh	10.91	6.93	Harmanpreet Singh	9.83	7.03
7	Rajwinder Singh	10.71	7.11	Mandeep Singh	8.82	6.82
8	Sandeep Singh	11.7	7.35	Gagandeep Singh	8.95	6.76
9	Gursewak Singh	10.02	7.02	Karanbarinder Singh	9.95	6.86
10	Harmanjit Singh	11.23	7.21	Gagandeep Singh	10.25	6.65
11	Hardeep Singh	11.6	6.82	Gursimran Singh	11.4	7.1
12	Ramanpreet Singh	9.32	7.45	Jaspinder Singh	10.91	7.15
13	Jaskirt Singh	12.1	7.03	Vatandeep Singh	9.02	6.76
14	Darshan Singh	8.91	6.82	Jasmeet Singh	9.02	7.18
15	Harmeet Singh	11.07	6.94	Preetpal Singh	10.1	7.44
16	Karanpreet Singh	10.45	6.82	Manjot Singh	9.68	7.18
17	Balwant Singh	9.05	6.93	Baljit Sharma	8.83	6.76
18	Amtojsran	9.8	7.16	Jagmeet Singh	9.58	6.93
19	Shyam Sunder	8.89	6.89	Balwant Singh	9.57	6.78
20	Karmjit Singh	10.01	6.82	Parminder Singh	9.8	7.11
21	Major Singh	10.28	7.12	Satnam Singh	9.18	7.44
22	Kuldeep Singh	8.97	7.23	Sarabjit Singh	9.21	6.7
23	Sukhwant Singh	8.8	7.35	Mandeep Singh	9.37	7.1
24	Karanbir Singh	10.86	6.7	Tejinder Singh	10.38	6.55
25	Arandeep Singh	8.81	7.33	Amanpreet Singh	10.31	6.65
26	Akashdeep Singh	9.32	7.3	Rupinder Singh	9.45	7.52
27	Sukhwinder Singh	11.76	6.8	Raman Kumar	10.2	7.1
28	Hardeep Singh	12.07	7.05	Saranpreet Singh	11.49	6.9
29	Pargat Singh	10.53	6.74	Ravandeep Singh	11.15	6.96
30	Gurwinder Singh	11.25	6.82	Manjobanjeet Singh	12.38	6.8
31	Amritpal Singh	10.39	6.98	Pawandeep Singh	11.68	6.77
32	Angrej Singh	10.11	6.88	Jaspal Singh	11.25	6.82
33	Mandeep Singh	10.76	6.99	Amansud	12.33	6.8
34	Amritveer Singh	10.48	7.01	Honey Deol	12.18	6.72
35	Sulinder Singh	12.03	6.93	Karanpreet Singh	12.02	6.87
36	Harmanpreet Singh	9.27	7	Manjinder Singh	11.23	6.77
37	Gurpreet Singh	11.1	7.02	Ravinderpal Singh	10.44	6.86
38	Gurpinderjit Singh	10.6	7.13	Mandeep Singh	11.01	7.15
39	Satpal Singh	12.15	6.75	Manpreet Singh	12.4	6.93
40	Jaskiranjit Singh	10.08	6.93	Mandeep Singh	10.84	6.96
41	Sarbjit Singh	11.49	6.87	Arabdeep Singh	11.17	7.32
42	Karamjit Singh	12.12	6.98	Nirmal Singh	12.2	6.85
43	Balraj Singh	11.08	7.02	Dilsher Singh	12.1	7.02
44	Jaspal Singh	12.13	7.07	Gurlal Singh	12.87	7.19
45	Gurpreet Singh	11.84	7.38	Jugraj Singh	12.45	7.02
46	Lovepreet Singh	11.84	7.23	Jaimal Singh	10.72	7.03
47	Maninder Singh	12.29	6.94	Paramjit Singh	10.02	6.91
48	Gursajjan Singh	10.23	6.96	Malkit Singh	11.82	6.7
49	Amritpal Singh	12.09	7.02	Gurdas Singh	12.09	6.94
50	Jasbir Singh	11.15	6.9	Arjun Singh	11.4	6.7
51	Manpreet Singh	11.05	7.11	Sandeep Singh	11.46	7.18
52	Kulwinder Singh	12.25	7	Lovejinder Singh	12.11	6.86
53	Kawaljit Singh	12.07	7.02	Manpreet Singh	10.04	6.83
54	Jugraj Singh	12.07	7.06	Manjinder Singh	12.45	6.85
55	Robinpreet Singh	11.58	6.72	Parminder Singh	10.13	7.15
56	khusdeep Singh	11.07	6.99	Gurdeep Singh	10.28	7.39
57	Sapinder Singh	12.54	6.73	Ramandeep Singh	11.69	6.85
58	Vizen Kumar	12.28	6.91	Gurwinder Singh	10.67	7.42
59	Amritpal Singh	12.13	6.7	Kulwinder Singh	12.42	6.82
60	Punjab Singh	12.58	7.4	Devinder Singh	12.32	6.8
61	Kamalpreet Singh	10.36	7.34	Rajwant Singh	12.28	6.84
62	Sheetal Singh	10.75	7.35	Kulwinder Singh	12.16	6.91
63	Kulwinder Singh	10.32	7.13	Hardavinder Singh	11.5	6.84
64	Rajwinder Singh	12.3	6.93	Sukhjeet Singh	10.11	7.41
65	Mandeep Singh	12.33	7.03	Lakhveer Singh	10.38	6.9
66	Chand Singh	10.41	6.99	Sukhveer Singh	11.61	6.55
67	Harman Singh	12.04	6.93	Amarpreet Singh	10.56	7.08

68	Gurik Singh	10.74	7.18	Gurtej Singh	10.7	7.06
69	Harmandeep Singh	12.35	6.8	Rupinder Singh	10.02	7.13
70	Jagpal Singh	10.12	7.43	Sukhpreet Singh	12.27	6.89
71	Inderjeet Singh	11.89	6.88	Sukhchain Singh	12.33	6.89
72	Amritpal Singh	12.44	6.92	Gurwinder Singh	10.09	7.35
73	Satnam Singh	12.09	7.03	Harjaspreet Singh	9.86	7.28
74	Parminder Singh	12.59	6.94	Sukhpreet Singh	12.2	6.89
75	Randhir Singh	12.38	6.89	Bhupinder Singh	12.44	6.75
76	Amanjot Singh	12.33	6.89	Ramandeep Singh	12.47	6.78
77	Pawanvir Singh	12.15	6.74	Iqbal Singh	12.17	6.89
78	Harjinder Singh	11.98	7.27	Manpreet Singh	12.23	6.88
79	Gurkarpal Singh	12.16	7.42	Jashandeep Singh	11.83	7.35
80	Gurmeet Singh	12.58	6.7	Jaspreet Singh	10.49	7.26
81	Jaspreet Singh	12.33	6.97	Sonu Kumar	12.34	6.73
82	Surinder Singh	10.76	7.31	Anil Kumar	11.59	6.94
83	Gurlamber Singh	12.28	6.99	Naresh Kumar	11.74	6.75
84	Gurparkash Singh	12.4	6.95	Ankush	10.51	7.03
85	Amandeep Singh	10.51	7.18	Parveen	11.88	6.8
86	Vikram	12.21	6.83	Yadvinder Singh	11.73	6.73
87	Gurdeep Singh	12.04	6.74	Harinder Singh	11.15	7.11
88	Sonu	11.35	6.77	Gurjinder Singh	12.04	6.85
89	Tinka	11.29	6.75	Ravi Parkash	12.64	6.77
90	Gourav	10.65	6.97	Naresh Kumar	11.84	6.72
91	Ramesh	12.32	6.8	Naresh	12.25	6.92
92	Amandeep	12.38	6.9	Jaydeep	12	6.92
93	Sonu	12.92	6.75	Vijay Goyat	12.33	6.85
94	Anuj	12.65	6.83	Jagdeep	11.58	7.02
95	Ramesh Kumar	11.84	7.48	Sukhbir	12.58	6.97
96	Mohan	11.99	6.95	Parvesh	11.65	6.83
97	Deepak	10.58	7.04	Amit Kumar	11.12	6.73
98	Vikki Singh	11.19	7.12	Kuldeep	11.54	6.8
99	Mohan	11.84	6.91	Dinesh	10.66	6.78
100	Anuj Lohan	12.11	6.75	Hari Ram	11.22	6.74
101	parveen	11.98	7	Hemant Kumar	11.06	6.74
102	Ashish	12.36	6.85	Sunny	11.42	6.69
103	Naveen	11.83	6.98	Aman Kumar	9.88	7.03
104	Robin	10.52	7.02			
105	Rakesh	10.44	7.06			
106	Ankit Kumar	12.28	6.96			
107	Amit	10.39	7.48			
108	Ajay	10.13	6.95			
109	Mohit Shukla	10.48	6.88			
110	Nikit	10.09	6.84			
111	Sahil	10.14	6.85			
112	Subham	11.35	6.75			
113	Gaurav Kamboj	9.8	6.98			

## 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 not a statistical significance difference on over head medicine ball throw test with p-value 0.235. So raiders and stoppers have the same muscular power of upper body. But there was a statistical significance difference in 50 meters run test with p-value 0.045. So raiders and stoppers have not the same ability of speed. The raiders have more speed ability than stoppers of Circle Style kabaddi.

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