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Comparative study of muscular power and speed between the circle style male kabaddi players of Punjabi University Patiala and Panjab University Chandigarh

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Abstract

The purpose of this study was to compare muscular power and speed between the Circle Style Male Kabaddi Players of Punjabi University Patiala and Panjab University Chandigarh. A total one hundred nine (N=109) circle style male kabaddi players of eight teams of both universities were selected. In this study the over head medicine ball throw test and 50 meters run test 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, SE_D and the comparison between groups was done with the help of 't' ratio. For Statistical Description the Statistical Package for Social Sciences (SPSS), version 21.0 was used. The study revealed that on the basis of the finding both Universities' players were possessing same degree of speed ability. But players of Panjab University Chandigarh were better in muscular power of upper body than the players of Punjabi University Patiala.

Keywords: muscular power, speed, circle style kabaddi

Introduction

Circle Style Kabaddi is characterized by pulling, pushing, catching, turning, jumping, short sprints, rapid acceleration or deceleration and requires athleticism, skill, speed, power, strength, flexibility, Cardio-vascular and muscular endurance, balance, reaction ability and agility. This game is a combination of Wrestling and Kho-Kho. It is generally assumed that through the years, 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). However, many factors affect the performance of players in combative games like kabaddi but physical fitness is basic and very important factor to achieve high level performance in circle style kabaddi.

So many studies has been completed on physical fitness or comparative study of physical fitness components between the players of many games. Singh, T. Dr. (2020) ^[10] conducted a Comparative analysis of Cardio-vascular endurance between the male raiders and stoppers of circle style kabaddi, Singh, T. (2019) ^[8, 9]. conducted a Comparative analysis of speed and muscular power between the male raiders and stoppers of circle style kabaddi, Singh T. (2019) ^[8, 9] conducted a Comparative Analysis of Agility and Reaction Ability between the male Raiders and Stoppers of Circle Style Kabaddi, Kumar K., et.al.(2018) ^[4] conducted a comparative study of sports achievement motivation of national level circle style kabaddi players, Singh, T. (2018) ^[6, 7]. Constructed and standardized a specific physical fitness test battery for circle style kabaddi players, Rani, S. (2018) ^[3] conducted a comparative study of flexibility between kabaddi and kho-kho games players, Singh, T. (2018) ^[6, 7] conducted a comparative study of cardio-vascular endurance, agility and flexibility level between the circle

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style male kabaddi players of Panjab University Chandigarh and kurukshetra University kurukshetra, Singh, S. Dr. (2017) [5] conducted a comparative study of selected motor fitness components between interuniversity and inter-college male Kabaddi players.

Muscular power and speed are very important components of physical fitness and both also play a very important role for the players of circle style kabaddi. Fast pushing and fast running are common actions in this game. So in this study only these abilities are focused.

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

The players of Circle style Kabaddi should have the higher rate of upper body muscular power so that they can throw quick to anti with upper body during the struggle that is required for the better performance. The selected physical fitness test item is Medicine Ball Throw that measure the upper body power.

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).

The players of Circle Style Kabaddi should have the higher rate of Speed for nearly 50 meters. The radius of the circle (playfield) of this game is 22 meters. So the players run approximately more than forty meters during a raid. The selected physical fitness test Item is 50 Meters Run Test that is a test of speed with better reaction ability to quick start.

Objective of the study: To assess the significance difference in muscular power and speed between the Circle Style Male Kabaddi Players of Punjabi University Patiala and Panjab University Chandigarh.

Delimitations of The Study

1. The Study was delimited to the male players of Circle style Kabaddi.
2. The Study was delimited to the players of 18 to 25 years.
3. The Study was delimited to only two selected universities namely Panjab University Chandigarh and Punjabi University Patiala. The players of 8 teams which were in the last four teams of the inter-college completion of Circle style Kabaddi in their respective Universities.
4. The Study was further delimited to the following Physical Fitness Components: Muscular Power and Speed.

Limitations of The Study

1. Some factors like diet, rest, sleep etc. were beyond the control of the investigator. These factors were considered

as limitations of the study.

2. During the tests, the aptitude of the players might have influenced the results of the study, this was considered as the limitation of the study.
3. No Motivational (psychological) technique was applying during the tests. Due to lack of motivation, therefore the difference that might have occurred in performance which can be considered as the limitation of the study.
4. The players were from different socio-economic groups, their life style, dietary habits, routine of study and play were different which were considered as limitations of the study.

Method and Procedure

Sample: One hundred nine (109) subjects for this study were selected with the purposive sampling technique from eight teams which were qualified for the league stage of the inter college tournament of selected universities i.e. Punjabi University Patiala (N=53) and Panjab University Chandigarh (N=56).

Hypothesis: Null hypothesis for both tests.

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, muscular strength endurance of arms 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. The tests were selected from the short specific test battery for circle style kabaddi players (Singh T. 2018). 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 selected physical fitness components of Circle Style Male Kabaddi Players of Punjabi University Patiala and Panjab University Chandigarh. The results had been discussed in two sections. Section-I deal with the statistical description of means and Std. Deviation of the scores of the players of both Universities and comparative result of the players of both Universities of muscular power of upper body and speed have been discussed with the help of t-ratio in section II.

Section: I

Table 1: Statistical Description of Mean and Std. Deviation of the tests of Circle Style Male Kabaddi Players of Punjabi University Patiala and Panjab University Chandigarh

S. no.	variables	Punjab University Patiala		Panjab University Chandigarh	
		Mean	Std. Deviation	Mean	Std. Deviation
1	Muscular Power (medicine ball throw test)	9.75	1.39	11.67	1.22
2	Speed (50 meters run test)	6.99	0.28	7.01	0.15

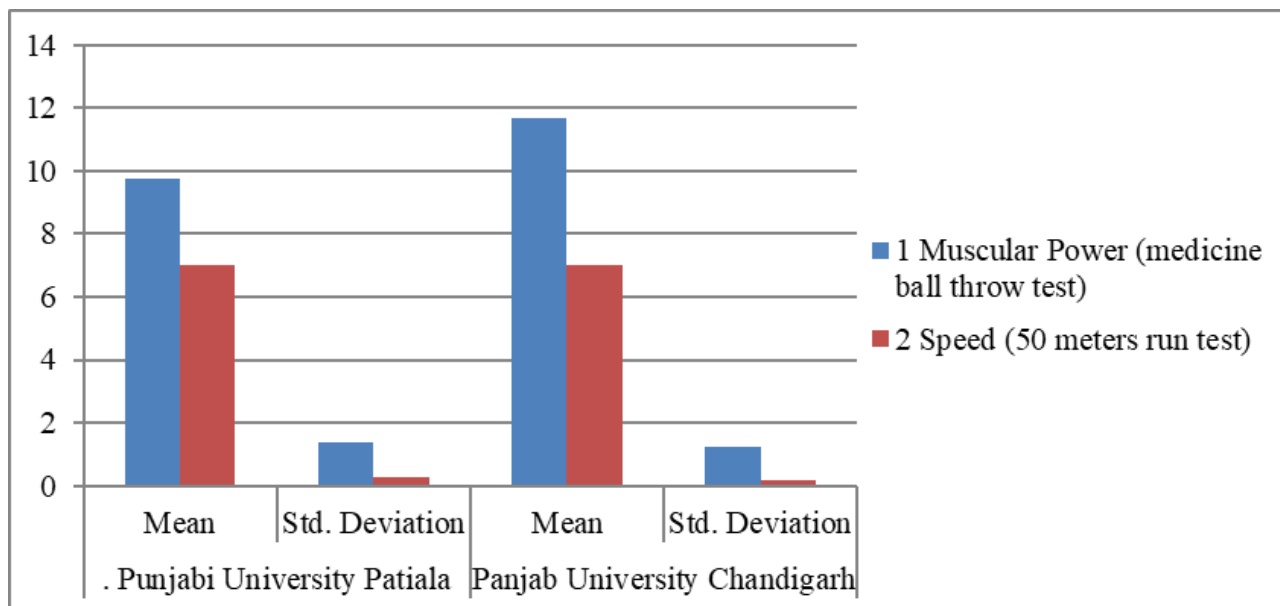
For Muscular power (Medicine Ball Throw) the mean of the performance of the Players of Punjabi University Patiala was 9.75 meters and the mean of the performance of Panjab University Chandigarh was 11.67 meters. So simple difference between means of the players of both universities

was 1.92 meters. Std. Deviation of the score of the Players of Punjabi University Patiala was 1.39 and the Std. Deviation of the score of Panjab University Chandigarh was 1.22.

For speed (50 meters run test) the mean of the performance of the Players of Punjabi University Patiala was 6.99 seconds

and the mean of the performance of Panjab University Chandigarh was 7.01 seconds. So simple difference between means of the players of both universities was 0.02. Std.

Deviation of the score of the Players of Punjabi University Patiala was 0.28 and the Std. Deviation of the score of Panjab University Chandigarh was 0.15.



Graphical presentation of Mean and Std. Deviation of the tests of the Circle Style Male Kabaddi Players of Punjabi University Patiala and Panjab University Chandigarh

Section: 2

This section presents the comparison of the Circle Style Male Kabaddi Players of Punjabi University Patiala and Panjab University Chandigarh on the selected physical fitness

components. The comparisons with the significance of difference between means score of the players of both universities on selected variables are presented in Table No. 2.

Table 2: Statistical Description- Significance of difference between means score with 't' value of the Circle Style Male Kabaddi Players of Punjabi University Patiala and Panjab University Chandigarh:-

		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
Medicine Ball Throw	Equal variances assumed	0.000	0.97	7.66	107	0.000	1.92	0.25
	Equal variances not assumed			7.64	103.67	0.000	1.92	0.25
50 Meters Run	Equal variances assumed	0.100	0.75	0.35	107	0.730	0.02	0.05
	Equal variances not assumed			0.35	105.93	0.730	0.02	0.05

The sig. of "Levene's Test for Equality of Variances is more than 0.05 for the medicine ball throw and 50 meters run tests. So the first rows (Equal variances assumed) were selected for the both tests.

Interpretation of the t-test results: T-test was employed to find out the significance difference between the means. The significance level was set at 0.05 levels. The t value for the medicine ball throw was 7.66 and for the 50 meters run test was 0.35. The p-value for the medicine ball throw was 0.00 and for the 50 meters run test was 0.73. 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 $0.00/2=0.00$ and for 50 meters run test is $0.73/2=0.365$.

Findings

- As per the results depicted in Table-2 shows that the p-value for medicine ball throw test was less than 0.05. So, there was a statistical significance difference between the male players of circle style kabaddi of Punjabi University Patiala and Panjab University Chandigarh in muscular power of upper body.
- The hypothesis for muscular power was rejected.
- As per the results depicted in Table-2 shows that the p-value for 50 meters run test was more than 0.05. So, there was not a statistical significance difference between the players of circle style kabaddi of Punjabi University Patiala and Panjab University Chandigarh in speed ability.
- The hypothesis for speed ability was accepted.

Raw data of the players of Panjab Uni. Chandigarh and Punjabi Uni. Patiala

Panjab Uni. Chandigarh				Punjabi Uni. Patiala			
MBTH means Medicine Ball Throw Test and 50 M means 50 Meters Run Test							
	Name	MBTH	50M		Name	MBTH	50m
1	Sapinder Singh	12.84	6.73	1	Sukhdeep Singh	10.02	6.79
2	Manjinder Singh	12.65	6.81	2	Avtar Singh	12.7	6.77
3	Vizen Kumar	12.58	6.87	3	Sandeep Singh	11.6	7.19
4	Amritpal Singh	12.55	6.7	4	Parminder Singh	12.66	6.69
5	Punjab Singh	12.78	7.49	5	Gurpreet Singh	12.15	6.7
6	Kamalpreet Singh	10.06	7.34	6	Rajakaranveer Singh	10.32	7.32
7	Parminder Singh	9.83	7.15	7	Satnam Singh	11.25	6.82
8	Gurdeep Singh	9.98	7.45	8	Asif Mohmmad	11.55	7.13
9	Sheetal Singh	10.45	7.35	9	Harmanpreet Singh	9.53	7.03
10	Ramandeep Singh	11.99	6.82	10	Pardeep Singh	8.2	6.72
11	Gurwinder Singh	10.37	7.56	11	Balkarn Singh	9.1	6.81
12	Kulwinder Singh	12.78	6.79	12	Jaskirat Singh	10.6	6.87
13	Devinder Singh	12.62	6.78	13	Mandeep Singh	8.04	6.79
14	Kulwinder Singh	10.01	7.13	14	Gagandeep Singh	8.32	6.72
15	Rajwant Singh	12.58	6.81	15	Karanbarinder Singh	9.65	6.81
16	Kulwinder Singh	12.46	6.75	16	Gagandeep Singh	9.95	6.6
17	Rajwinder Singh	12.6	6.87	17	Gursimran Singh	11.4	7.1
18	Hardavinder Singh	11.8	6.8	18	Gursewak Singh	9.7	6.97
19	Sukhjeet Singh	9.81	7.49	19	Rajwinder Singh	10.49	7.11
20	Mandeep Singh	12.63	7.01	20	Sandeep Singh	11.7	7.35
21	Chand Singh	10.11	6.94	21	Jaspinder Singh	10.61	7.15
22	Harman Singh	12.34	6.88	22	Vatandeep Singh	7.07	6.73
23	Lakhveer Singh	10.08	6.85	23	Harmanjit Singh	10.93	7.21
24	Sukhveer Singh	11.91	6.5	24	Hardeep Singh	11.6	6.79
25	Gurik Singh	10.44	7.18	25	Jasmeet Singh	8.66	7.18
26	Amarpreet Singh	10.26	7.08	26	Ramanpreet Singh	9.02	7.45
27	Harmandeep Singh	12.65	6.78	27	Preetpal Singh	9.8	7.44
28	Jagpal Singh	9.82	7.52	28	Manjot Singh	8.66	7.18
29	Gurtej Singh	10.3	7.06	29	Jaskirt Singh	12.4	7.03
30	Inderjeet Singh	12.19	6.82	30	Darshan Singh	8.4	6.79
31	Rupinder Singh	9.72	7.13	31	Baljit Sharma	8.34	6.73
32	Sukhpreet Singh	12.57	6.82	32	Harmeet Singh	11.07	6.9
33	Amritpal Singh	12.74	6.86	33	Karanpreet Singh	10.25	6.78
34	Satnam Singh	12.39	7.03	34	Jagmeet Singh	9.28	6.83
35	Parminder Singh	12.75	6.88	35	Balwant Singh	7.55	6.75
36	Sukhchain Singh	12.63	6.82	36	Balwant Singh	8.75	6.88
37	Gurwinder Singh	9.79	7.35	37	Amtojsran	9.5	7.16
38	Harjaspreet Singh	9.56	7.28	38	Parminder Singh	8.5	7.11
39	Sukhpreet Singh	12.5	6.84	39	Satnam Singh	8.88	7.44
40	Randhir Singh	12.68	6.84	40	Shyam Sunder	8.5	6.83
41	Amanjot Singh	12.63	6.86	41	Sarabjit Singh	8.87	6.7
42	Pawanvir Singh	12.45	6.73	42	Mandeep Singh	9.17	7.1
43	Harjinder Singh	12.33	7.27	43	Karmjit Singh	9.7	6.79
44	Gurkarpal Singh	12.46	7.61	44	Tejinder Singh	10.08	6.5
45	Bhupinder Singh	12.74	6.72	45	Major Singh	9.98	7.12
46	Gurmeet Singh	12.78	6.72	46	Amanpreet Singh	10.01	6.6
47	Ramandeep Singh	12.69	6.75	47	Rupinder Singh	9.15	7.9
48	Iqbal Singh	12.47	6.84	48	Kuldeep Singh	8.68	7.23
49	Manpreet Singh	12.53	6.85	49	Sukhwant Singh	8.04	7.35
50	Jaspreet Singh	12.63	6.92	50	Karanbir Singh	10.46	6.7
51	Surinder Singh	9.36	7.31	51	Arandeep Singh	7.1	7.33
52	Gurlamber Singh	12.58	6.94	52	Akashdeep Singh	9.12	7.3
53	Gurparkash Singh	12.7	6.9	53	Raman Kumar	9.9	7.1
54	Jashandeep Singh	12.13	7.35				
55	Amandeep Singh	10.21	7.18				
56	Jaspreet Singh	10.19	7.26				

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 over head medicine ball throw test with p-value 0.00. So the players of Punjabi University Patiala and Panjab University Chandigarh have not the same muscular power of upper body. But there

was not a statistical significance difference in 50 meters run test with with p-value 0.365. So the players of Punjabi University Patiala and Panjab University Chandigarh have the same ability of speed. The male players of Circle Style Kabaddi Panjab University Chandigarh were better in muscular power of upper body than the players of Punjabi University Patiala.

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