



## Comparative Study of Physical Fitness between Volleyball Player and Cricket Player in Meerut Region

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### Abstract

**Introduction:** *The objective of this study was to investigate the physical fitness between volleyball players and cricket players in Meerut region. Another objective of the study was to compare Physical Fitness between volleyball players and cricket players. The third objective of the study was to compare physical fitness of the players having the different sports participation at national, state, university and regional level games.*

**Methods:** *The subject of this study was selected forty volleyball and cricket players who have participated in national, state, university and regional level games. Twenty players were selected from volleyball players while another twenty players were selected from cricket players. The age level of subjects ranged from 18 to 22 years. All the subjects were residing at Meerut region. Necessary data were collected for agility, upper body muscle strength, abdominal strength, speed, explosive strength and endurance with the help of AAPHER youth fitness Test items such as; 6x10mtr run (Shuttle Run), Chin-ups, sit-ups, 50mtr. Dash run standing broad jump and 600mtr run. All the subjects were residing at Meerut region. To find out significant deference between volleyball and cricket player in Meerut region t-test was used and to find out significant physical fitness component of the players having different back ground of sports participation at national, university, state level and regional level Analysis of Variance was used. The level of significance was set at .05 levels.*

**Results and Discussion:** *The result reveals that there was significant ( $p < .05$ ) between the volleyball and cricket players in Physical fitness component (shuttle run, 50 mtr. dash, standing brood jump & 600 mtr. run) and insignificant was found between the players of volleyball and cricket in physical fitness component (chin-ups & sit-ups), compare physical fitness component among the means of national, state, university and regional level volleyball games players was found shuttle run & 600 mtr. run which is significant and value of chin-ups, sit-ups, 50 mtr. dash & standing broad jump which is insignificant and compare physical fitness component among the means of national, state, university and regional level cricket games players was found shuttle run, chin-ups, sit-ups, 50 mtr. dash & 600 mtr. run which is significant and value of standing broad jump which is insignificant at .05 level with  $(3, 16) = 3.24$ .*

**Keywords:** *Physical Fitness, Players, Volleyball, Cricket*

## INTRODUCTION

The sports world comprises not only of winning and losing but also of playing a game with positive attitude. Today the emphasis is on excelling in whatever one does, whether one is on the field for playing or one is training the players; both have a very responsible and important role to perform.

This can only be possible through scientific, systematic and planned sports training as well as channelizing them into appropriate games and sports by finding out their potentialities.

Physical fitness is a required element for all the activities in our society. Health related physical fitness of an individual is mainly dependent on lifestyle related factors such as daily physical activity levels. It was believed that the low physical fitness level of an individual is associated with higher mortality rate. Physical fitness is also considered as the degree of ability to execute a physical task under various ambient conditions. Physical fitness of an individual has three main aspects.

Physical fitness in the ability of the organism to make adequate physical and emotional adjustment of the demand of every day. Therefore, the concept of Physical fitness in terms of daily requirement which are assented to carry out his job effectively but also is left with every to their himself in leisure time pursuit in addition to meet unforeseen emergencies. Physical fitness is the most important factor for the progress in the general life as well as, field of sports if the citizens of the country want to improve in any field may be sports or general life. Physical fitness is essential. It is therefore the responsibility of every country to promote physical fitness of its citizens because physical fitness is the basic requirements for the tasks to be under taken by an individual in his life.

## METHODS

The 40 subjects for the study were randomly selected that is 20 players were selected from volleyball players while another twenty players were selected from cricket players. The age level of subjects ranged from 18 to 22 years. All the subjects were residing at Meerut region. Necessary data were collected for agility, upper body muscle strength, abdominal strength, speed, explosive strength and endurance with the help of AAPER youth fitness Test items such as; 6x10mtr run (Shuttle Run), Chin-ups, sit-ups, 50mtr. dash run standing broad jump and 600mtr run. To find out significant deference between two groups, t-test was employed and compare physical fitness component of the players having different back ground of sports participation at national, university, state level and regional level Analysis of Variance was used. The level of significance was set at .05 levels.

## RESULTS OF THE STUDY

TABLE - 1

**T-Ratio of the means of physical fitness component between volleyball and cricket Game players**

Physical Fitness Component	Players			t-ratio
		Volleyball	Cricket	
Shuttle Run	Mean	6.1	4.55	2.413
	S.D.	1.07	2.67	
Chin-Ups	Mean	6.3	5.85	1.839*
	S.D.	.801	.745	
Sit-Ups	Mean	6.45	6.25	.954*
	S.D.	.686	.638	
50 Mtr. Dash	Mean	6.05	3.60	3.929
	S.D.	1.16	2.54	
Standing Brood Jump	Mean	6.20	4.10	4.454
	S.D.	.762	1.97	
600 Mtr. Run	Mean	6	4.7	4.1
	S.D.	.684	1.26	

\*Insignificant at .05 level

t-value required to be significant at 38 df = 2.02

From table -1 it is evident that 't' value of shuttle run is 2.413, 50 mtr. Dash 3.929, standing brood jump 4.454 & 600 mtr. run 4.1 which is significant at .05 level with 38 df. And value of chin-ups is 1.839 & sit-ups is .954 which is insignificant at .05 level with 38 df.

To find out shuttle run among the means of national, state, university and regional level volleyball game players, analysis of variance statistics was used in table-2.

**TABLE-2**

**Analysis of Variance in shuttle run among the means of national, state, university and regional level volleyball games players**

Source of Variance	d.f	SS	MSS	F-ratio
Between Group	3	61.75	20.583	4.499*
Within Group	16	73.20	4.575	

\*Significant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The value shown in table-2 clearly indicates that the F-Value calculated is much higher than the required value to be significant. Farther the mean difference among national, state, university and regional level volleyball game players through post hoc test was computed which are presented in the following tables.

**Table-3**

**Comparison of shuttle run among national, state, university and regional level volleyball games players**

National level players	State level players	University level players	Regional level players	M.D	C.D.
7	5.4			1.6	2.862*
7		2.6		4.4	
7			3.2	3.8	
	5.4	2.6		2.8	
	5.4		3.2	2.2	
		2.6	3.2	0.6	

\*Significant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The post hoc test to compare the shuttle run among national, state, university and regional level volleyball game players has clearly revealed the in significant difference between the volleyball players of national and university level player where the calculated mean difference found (4.4) and national and regional level players where the calculated mean difference found (3.8). Whereas the score did not reveal any significant difference between the volleyball players of national and state level player, state and university level player, state and regional level players and university and regional level players. The calculated value also did not reveal any significant difference.

To find out chin-ups among the means of national, state, university and regional level volleyball game players, analysis of variance statistics was used in table-4.

**TABLE-4**

**Analysis of Variance in chin-ups among the means of national, state, university and regional level volleyball games players**

Source of Variance	d.f	SS	MSS	F-ratio
Between Group	3	.60	.20	.276*
Within Group	16	11.60	.725	

\*Insignificant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The value shown in table-4 clearly indicates that the F-Value calculated is much lower than the required value to be significant. Hence it is stated that, no significant relationship exist among the means of national, state, university and regional level volleyball game players.

To find out sit-ups among the means of national, state, university and regional level volleyball game players, analysis of variance statistics was used in table-5.

**TABLE-5**

**Analysis of Variance in sit-ups among the means of national, state, university and regional level volleyball games players**

Source of Variance	d.f	SS	MSS	F-ratio
Between Group	3	1.35	.450	.947*
Within Group	16	7.60	.475	

\*Insignificant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The value shown in table-5 clearly indicates that the F-Value calculated is much lower than the required value to be significant. Hence it is stated that, no significant relationship exist among the means of national, state, university and regional level volleyball game players.

To find out 50 mtr. dash among the means of national, state, university and regional level volleyball game players, analysis of variance statistics was used in table-6.

**TABLE-6**

**Analysis of Variance in 50 mtr. dash among the means of national, state, university and regional level volleyball games players**

Source of Variance	d.f	SS	MSS	F-ratio
Between Group	3	.950	.317	.211*
Within Group	16	24	1.50	

\*Insignificant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The value shown in table-6 clearly indicates that the F-Value calculated is much lower than the required value to be significant. Hence it is stated that, no significant relationship exist among the means of national, state, university and regional level volleyball game players.

To find out standing broad jump among the means of national, state, university and regional level volleyball game players, analysis of variance statistics was used in table-7.

**TABLE-7**

**Analysis of Variance in standing broad jump among the means of national, state, university and regional level volleyball games players**

Source of Variance	d.f	SS	MSS	F-ratio
Between Group	3	2	.667	1.156*
Within Group	16	9.2	.576	

\*Insignificant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The value shown in table-7 clearly indicates that the F-Value calculated is much lower than the required value to be significant. Hence it is stated that, no significant relationship exist among the means of national, state, university and regional level volleyball game players.

To find out 600 mtr. run among the means of national, state, university and regional level volleyball game players, analysis of variance statistics was used in table-8.

**TABLE-8**

**Analysis of Variance in 600 mtr. run among the means of national, state, university and regional level volleyball games players**

Source of Variance	d.f	SS	MSS	F-ratio
Between Group	3	5.20	1.733	9.905*
Within Group	16	2.80	.175	

\*Significant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The value shown in table-8 clearly indicates that the F-Value calculated is much higher than the required value to be significant. Farther the mean difference among national, state, university and regional level volleyball game players through post hoc test was computed which are presented in the following tables.

Table-9

**Comparison of 600 mtr. run among national, state, university and regional level volleyball games players**

National level players	State level players	University level players	Regional level players	M.D	C.D.
6.6	6.2			.4	0.55*
6.6		6		.6	
6.6			5.2	1.4	
	6.2	6		.2	
	6.2		5.2	1	
		6	5.2	.8	

\*Significant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The post hoc test to compare the 600 mtr. run among national, state, university and regional level volleyball game players has clearly revealed the in significant difference between the volleyball players of national and university level player where the calculated mean difference found (.4), national and regional level players where the calculated mean difference found (1.4), state and regional level players where the calculated mean difference found (1) and university and regional level players where the calculated mean difference found (.8). Whereas the score did not reveal any significant difference between the volleyball players of national and state level player and state and university level player. The calculated value also did not reveal any significant difference.

To find out shuttle run among the means of national, state, university and regional level cricket game players, analysis of variance statistics was used in table-10.

TABLE-10

**Analysis of Variance in shuttle run among the means of national, state, university and regional level cricket games players**

Source of Variance	d.f	SS	MSS	F-ratio
Between Group	3	61.75	20.583	4.499*
Within Group	16	73.20	4.575	

\*Significant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The value shown in table-15 clearly indicates that the F-Value calculated is much higher than the required value to be significant. Farther the mean difference among national, state, university and regional level cricket game players through post hoc test was computed which are presented in the following tables.

Table-11

**Comparison of shuttle run among national, state, university and regional level cricket games players**

National level players	State level players	University level players	Regional level players	M.D	C.D.
7	5.4			1.6	2.867*
7		2.6		4.4	
7			3.2	3.8	
	5.4	2.6		2.8	
	5.4		3.2	2.2	
		2.6	3.2	-.6	

\*Significant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The post hoc test to compare the shuttle run among national, state, university and regional level cricket game players has clearly revealed the in significant difference between the cricket players of national and university level player where the calculated mean difference found (4.4) and national and regional level players where the calculated mean difference found (3.8). Whereas the score did not reveal any significant difference between the cricket players of national and state level players, state and university level players, state and regional level players and university and regional level players. The calculated value also did not reveal any significant difference.

To find out chin-ups among the means of national, state, university and regional level cricket game players, analysis of variance statistics was used in table-12.

TABLE-12

**Analysis of Variance in chin-ups among the means of national, state, university and regional level cricket games players**

Source of Variance	d.f	SS	MSS	F-ratio
<b>Between Group</b>	3	7.35	2.45	12.250*
<b>Within Group</b>	16	3.20	.20	

\*Significant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The value shown in table-12 clearly indicates that the F-Value calculated is much higher than the required value to be significant. Farther the mean difference among national, state, university and regional level cricket game players through post hoc test was computed which are presented in the following tables.

Table-13

**Comparison of chin-ups among national, state, university and regional level cricket games players**

National level players	State level players	University level players	Regional level players	M.D	C.D.
6.6	6.2			.4	.599*
6.6		5.6		1	
6.6			5	1.6	
	6.2	5.6		.6	
	6.2		5	1.2	
		5.6	5	.6	

\*Significant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The post hoc test to compare the chin-ups among national, state, university and regional level cricket game players has clearly revealed the in significant difference between the cricket players of national and university level player where the calculated mean difference found (1), national and regional level players where the calculated mean difference found (1.6), state and university level players where the calculated mean difference found (.6), state and regional level players where the calculated mean difference found (1.2) and university and regional level players where the calculated mean difference found (.6). Whereas the score did not reveal any significant difference between the cricket players of national and state level players. The calculated value also did not reveal any significant difference.

To find out sit-ups among the means of national, state, university and regional level cricket game players, analysis of variance statistics was used in table-14.

TABLE-14

**Analysis of Variance in sit-ups among the means of national, state, university and regional level cricket games players**

Source of Variance	d.f	SS	MSS	F-ratio
<b>Between Group</b>	3	2.95	.983	3.278*
<b>Within Group</b>	16	4.8	.3	

\*Significant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The value shown in table-14 clearly indicates that the F-Value calculated is much higher than the required value to be significant. Farther the mean difference among national, state, university and regional level cricket game players through post hoc test was computed which are presented in the following tables.

Table-15

## Comparison of sit-ups among national, state, university and regional level cricket games players

National level players	State level players	University level players	Regional level players	M.D	C.D.
6.4	6.6			.2	.734*
6.4		6.4		0	
6.4			5.6	.8	
	6.6	6.4		.2	
	6.6		5.6	1	
		6.4	5.6	.8	

\*Significant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The post hoc test to compare the sit-ups among national, state, university and regional level cricket game players has clearly revealed the in significant difference between the cricket players of national and regional level player where the calculated mean difference found (.8), state and regional level players where the calculated mean difference found (1) and university and regional level players where the calculated mean difference found (.8). Whereas the score did not reveal any significant difference between the cricket players of national and state level players, national and university level players and state and university level players. The calculated value also did not reveal any significant difference.

To find out 50 mtr. dash among the means of national, state, university and regional level cricket game players, analysis of variance statistics was used in table-16.

TABLE-16

## Analysis of Variance in 50 mtr. dash among the means of national, state, university and regional level cricket games players

Source of Variance	d.f	SS	MSS	F-ratio
Between Group	3	79.60	26.533	9.827*
Within Group	16	43.20	2.70	

\*Significant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The value shown in table-16 clearly indicates that the F-Value calculated is much higher than the required value to be significant. Farther the mean difference among national, state, university and regional level cricket game players through post hoc test was computed which are presented in the following tables.

Table-17

## Comparison of 50 mtr. dash among national, state, university and regional level cricket games players

National level players	State level players	University level players	Regional level players	M.D	C.D.
6	4.6			1.4	2.203*
6		3.2		2.8	
6			.6	5.4	
	4.6	3.2		1.4	
	4.6		.6	4	
		3.2	.6	2.6	

\*Significant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The post hoc test to compare the 50 mtr.dash among national, state, university and regional level cricket game players has clearly revealed the in significant difference between the cricket players of national and university level player where the calculated mean difference found (2.8), national and regional level players where the calculated mean difference found (5.4), state and regional level players where the calculated mean difference found (4) and university and regional level players where the calculated mean difference found (2.6). Whereas the score did not reveal any significant difference between the cricket players of national and state level players and state and university level players. The calculated value also did not reveal any significant difference.

To find out standing broad jump among the means of national, state, university and regional level cricket game players, analysis of variance statistics was used in table-18.

**TABLE-18**

**Analysis of Variance in standing broad jump among the means of national, state, university and regional level cricket games players**

Source of Variance	d.f	SS	MSS	F-ratio
Between Group	3	8.20	2.73	.667*
Within Group	16	65.60	4.10	

\*Significant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The value shown in table-18 clearly indicates that the F-Value calculated is much lower than the required value to be significant. Hence it is stated that, no significant relationship exist among the means of national, state, university and regional level cricket game players.

To find out 600 mtr. run among the means of national, state, university and regional level cricket game players, analysis of variance statistics was used in table-19.

**TABLE-19**

**Analysis of Variance in 600 mtr. run among the means of national, state, university and regional level cricket games players**

Source of Variance	d.f	SS	MSS	F-ratio
Between Group	3	20.20	6.733	10.773*
Within Group	16	10	.625	

\*Significant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The value shown in table-19 clearly indicates that the F-Value calculated is much higher than the required value to be significant. Farther the mean difference among national, state, university and regional level cricket game players through post hoc test was computed which are presented in the following tables.

**Table-20**

**Comparison of 600 mtr. run among national, state, university and regional level cricket games players**

National level players	State level players	University level players	Regional level players	M.D	C.D.
5.8	5.4			.4	1.06*
5.8		4.4		1.4	
5.8			3.2	2.6	
	5.4	4.4		1	
	5.4		3.2	2.2	
		4.4	3.2	1.2	

\*Significant at .05 level

\*F-Value required to be significant at  $.05(3, 16) = 3.24$

The post hoc test to compare the 600 mtr.dash among national, state, university and regional level cricket game players has clearly revealed the in significant difference between the cricket players of national and university level player where the calculated mean difference found (1.4), national and regional level players where the calculated mean difference found (2.6), state and regional level players where the calculated mean difference found (2.2) and university and regional level players where the calculated mean difference found (1.2). Whereas the score did not reveal any significant difference between the cricket players of national and state level players and state and university level players. The calculated value also did not reveal any significant difference.



## DISCUSSION OF THE RESULTS

The present investigation was designed to know the physical fitness between volleyball players and cricket players in Meerut region. The purpose of this study was many folds and revealed some specific differences between the players. Though, the research scholar did not tend to explore personal life of players but, some of the facts could not be unattended hence; found necessary to know the physical fitness between volleyball players and cricket players in Meerut region.

The AAPHER youth fitness Test used for the purpose helped to know the significant difference in various physical aspects of the players. Before getting into conclusion of the study.

The result of the study revealed significant difference between the mean scores of volleyball players and cricket players in relation to physical fitness. The mean score of shuttle run, 50 mtr. dash, standing broad jump and 600 mtr. jump volleyball players were found higher than the cricket players and the mean score of chin-ups and sit-ups volleyball players were found lower than the cricket players.

The result of present study is also on the line of the studies conducted by S. S. Suri (2012) they found all the variables were added up to find out the overall fitness of the Football Players and Athletes. The paired t-Test was used to find out the significant difference, if any among Football players and Athletes on selected certain variables separately in all the cases 0.05 level of confidence was used to test the significance.

The result of the study also revealed significant difference among the mean scores of national, state, university and regional level volleyball players in relation to physical fitness (Shuttle run and 600 mtr. run) and insignificant difference among the mean scores of national, state, university and regional level volleyball players in relation to physical fitness (Chin-ups, sit-ups, 50 mtr. run and standing broad jump).

The study also revealed significant difference among the mean scores of national, state, university and regional level cricket players in relation to physical fitness (Shuttle run, chin-ups, sit-ups, 50 mtr. dash and 600 mtr. run) and insignificant difference among the mean scores of national, state, university and regional level volleyball players in relation to physical fitness (standing broad jump).

The result of present study is also on the line of the studies conducted by I. S. Malik, C. Singh & Rajesh (2015) they found mean was computed for comparison of players of different districts. To assess the significance of differences between the means in case of significant F-value, Least Significant Difference (LSD) test was applied. The level of significance was .05. From the findings of the study it was evident that the Football players of Rohtak were better in comparison to the Football players of other districts i.e. Rewari, Bhiwani and Mohindergarh in almost all the physical fitness variables.

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