



# Comparative Study of Explosive power and Hand grip strength Between Rural and Urban Female Volleyball players

Dr. Nirlep Kaur

Assistant Professor in Physical Education  
GNNC Doraha, Ludhiana

## **Abstract:-**

The game of Volleyball has recently been recognized as one of the leading sports in the world. This game is played in almost 80 countries and at least 25 of them have recognized the game as major sports. Performance in games and sports is outcome of player's fitness such as motor fitness, Motor ability, physical fitness and psychological etc. However the present study deals with comparison of explosive power and hand grip strength within two samples i.e. rural and urban female volleyball players of S.S.S. Nagar of Punjab ranging in age of 15 to 18 years. Each subject was tested by 4 motor ability tests i.e. standing Broad Jump, two hand medicine balls throw, Right hand grip strength and left hand grip strength. Total 80 subjects were tested in which 40 from rural area schools and 40 from urbanize schools. The data was analyzed through statistical tools i.e. mean, SD, SEM, CV and Z test. It was found that rural female volleyball player is stronger than urban players in case of explosive power of legs and arms and right hand grip strength. It was found that there is no significant difference between the performances of left hand grip strength in both samples.

Key Words: Volleyball, Motor Fitness, Motor Ability, Physical Fitness, Explosive Power

## **Introduction:-**

The game of volleyball has recently been recognized as one of the leading sports in the world. The game is played in almost 80 countries and at least 25 of them have recognized the game as major sports. This game achieved the recognition when it became part of Olympic Games in 1964 in India. It came via Y.M.C.A. college of Physical Education Madras. Now it is being played in schools, Colleges, Universities, clubs and institutions. The game of Volleyball requires more efficiency of technical skills with more emphasis on fitness.

**Fitness:** - The team fitness consists of many terms as Physical fitness, motor fitness and motor ability. These all are different terms which are often used synonymously. Fitness becomes the most important aspect as far as performance is concerned; Jesus (1947) states that cardiovascular endurance is of primary importance for fitness.

**Motor ability:** - Motor ability is the ability of an individual in those elements which underline the motor performance and physical fitness such as speed, strength, flexibility, agility, explosive power, endurance, co-ordination, balance and power. Motor ability refers to level to which one has developed his innate capacity to learn skills. The role of motor ability is phenomenal in modern competitive volleyball. In the words of Johnson and Nelson (1982). "It is one's acquired and innate ability to display fundamental motor skills rather than highly specialized sports event." In all sports activities some amount of resistance has to be overcome. Explosive power of legs, arms and hand grip strength plays important role in volleyball performance. The present study explores the comparison of explosive power and hand grip strength of rural and urban female volleyball players.

### Objective of the Study:

- 1) The objective of study is to identify the comparison of explosive power and hand grip strength among rural and urban female Volleyball players.
- 2) To give emphasis on the strength of arms of volley ball players

### Hypothesis.

- 1) There is no significant difference of explosive power between rural and urban female volleyball players.
- 2) There is no significant difference between hand grip strength of rural & urban female volleyball players.

**Material and Method:** - Total Eighty (N=80) female Volleyball players of age 15 to 18 years were selected randomly. 40 players were taken from urban school and 40 were from rural area's school. All sample area taken from S.B.S. Nagar, Punjab. Only those players were taken in this study who had participated at least District level tournament. Following Four Motors ability tests were selected for the purpose of the study.

S.No	Motor ability test	Purpose of test	
1	Standing Broad Jump	Explosive power of legs	AAHPER (1976)
2	Two hand medicine ball throw	Explosive power of arms & shoulders	Barrow Mc Gee (1964)
3	Right hand grip strength	To measure hand strength	Mccloy (1954)
4	Left hand grip strength	To measure hand strength	Mccloy (1954)

**Statistical Tools:-** The following statistical tools were applied for analysis of data i.e. arithmetic Mean X- Standard Deviation (SD), Standard Error of Mean (S.E.M.), coefficient of variation (C.V) and 'Z' test.

## Analysis and interpretation of Data

**TABLE 1****Standing Brood Jump**

S.No	Group	Number	X-Mean	SD	Sem	Cv	Z Tets
1	Rural	40	172.3	21.88	3.46	12.70	2.73
2	Urban	40	168.0	27.83	4.40	16.56	

Table 1 shows the results of explosive power of legs of rural and urban female volleyball players. The mean X- value of rural player's amount to 172.3, SD 21.88, SEM 3.46 and CV is 12.70. Whereas in case of urban players X- 168.0, SD 27.83, SEM 4.40 and CV is 16.56. It means urban player's performance has more variability or we can say that rural player's performance is more consistent as compare to urban players. As critical value of 'Z' is 1.96 levels of 0.05 and the calculated value are 2.73 which is more than the critical value. It shows that there is significant difference between the explosive power of the rural & urban female volleyball players.

**TABLE II****Two hand Medicine Ball throw**

S.No	Group	Number	X-Mean	SD	Sem	Cv	Z Tets
1	Rural	40	410.0	58.75	9.29	14.05	2.73
2	Urban	40	399.6	78.45	12.41	19.63	2.73

Table II shows the result of explosive power of arm and shoulders of rural & urban female volleyball players. The mean values of rural players are X 410.0, SD 58.75 and SEM 9.29. Whereas in case of urban players this shows the mean value is X- 399.6, SD 8.45 and SEM 12.41. In case of CV (Co-efficient Variables) rural players' value is 14.05 and urban players is 19.61. It means urban player's performance has more variability and rural player's performance is more consistent than urban players. On the other hand calculated 'Z' value is 2.73 which is more than the critical value of 'Z' at level of 0.05 i.e. 1.96. This shows that there is significant difference between explosive power of arms & shoulders strength of rural & urban players. So First Hypothesis is rejected that there is no difference between the levels of explosive power in two samples.

**TABLE III****Right Hand Grip Strength**

S.No	Group	X-Mean	SD	Sem	Cv	Z Tets
1	Rural	28.60	8.36	1.32	29.26	2.58
2	Urban	26.17	9.14	1.44	34.93	

Table III shows the result of right hand strength of rural & urban female volleyball players it is found the calculated values of rural players as mean X is 28.60, SD 8.36, SEM 1.32, and in urban players mean value is 26.17, SD 9.14 and SEM 1.44 the CV values are as 29.26 and 34.93 for rural and urban players respectively. Urban player's performance has more variability and rural players grip strength performance is more consistent than urban players 'Z' value is 2.58 which is more than the critical value i.e. 1.96. So it shows that there is significant difference between rural and urban players performance.

**TABLE IV****Left hand Grip Strength**

S.No	Group	Number	X-Mean	SD	Sem	Cv	Z Tets
1	Rural	40	24.50	7.76	1.22	31.68	1
2	Urban	40	23.60	8.79	1.39	37.27	

Table shows performance of Left hand grip strength of the rural and urban player. The calculated values are as mean X- 24.50, SD 7.76, SEM 1.22 of rural players and urban players score is as mean X- 23.60, SD 8.79, SEM is 1.39 C.V. Values shows that in Urban players performance has more variability and rural players performance is more consistent than urban players performance .But 'Z' values shows that there is no significant difference between the performance of two samples.

**Conclusion:-**

- 1) The rural Female Volleyball players are stronger than urban players of S.B.S. Nagar in case of explosive power & right hand strength.
- 2) There is no significant difference between rural & urban players left hand grip strength. At last, it can be concluded that the mean value & C.V. of all tests shows that the rural players performed better than urban players with little difference. There is mixed response regarding different motor ability tests.

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