

**A COMPARATIVE STUDY OF ARM STRENGTH, LEG STRENGTH AND
CARDIO RESPIRATORY ENDURANCE OF VOLLEYBALL AND
HANDBALL INTERCOLLEGIATE PLAYERS OF SGB, AMRAVATI
UNIVERSITY, AMRAVATI**



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ABSTRACT

The main objective of the study was to Compare arm strength, leg strength and cardio respiratory endurance of volleyball and handball intercollegiate players of SGB, Amravati University (M.S). 50 subjects were taken on the bases of simple random sampling method, out of which twenty (25) as volleyball and twenty (25) as handball players of intercollegiate level of SGB, Amravati University, Amravati of Maharashtra State. The age of the subjects ranged between 17-28 years. To analyze the arm strength, leg strength and cardio respiratory endurance of both these groups i.e. volleyball and handball players the following tests were used. Pull ups for measuring arm strength, standing broad jump for measuring leg strength and YMCA 3-minute step test for measuring cardio respiratory endurance. The analysis of data was done by using statistical technique 't'- test for finding the significance difference of arm strength, leg strength and cardio respiratory endurance of volleyball and handball players and the level of significance was set at 0.05 levels ($p < 0.05$). Hence both the volleyball and handball players were equal in arm and leg strength but unequal in cardio respiratory endurance. Handball players were better in cardio respiratory endurance as compared to volleyball players

Keywords: Arm Strength, Leg Strength, Cardio Respiratory Endurance, Volleyball & Handball Intercollegiate Players.

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Page 1

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INTRODUCTION

Cardio respiratory endurance is a measurement of how well your heart, lungs, and muscles work together to keep your body active over an extended period of time. Exercisers can improve cardio respiratory endurance by participating in a program of regular aerobic exercise. Improved cardio respiratory fitness provides numerous health benefits. Volleyball is a popular team sport in which two teams of six players are separated by a net. Each team tries to score points by grounding a ball on the other team's court under organized rules. It has been a part of the official program of the Summer Olympic Games since Tokyo 1964. Handball (also known as team handball, European handball or Olympic handball) is a team sport in which two teams of seven players each (six out court players and a goalkeeper) pass a ball using their hands with the aim of throwing it into the goal of the other team. A standard match consists of two periods of 30 minutes, and the team that scores more goals wins.

OBJECTIVE OF THE STUDY

The main objective of the study was to Compare arm strength, leg strength and cardio respiratory endurance of volleyball and handball intercollegiate players of SGB, Amravati University, Amravati.

MATERIAL METHOD

50 Subjects were taken on the bases of simple random sampling method, out of which twenty (25) as volleyball and twenty (25) as handball players of intercollegiate level of SGB, Amravati University, Amravati of Maharashtra State. The age of the subjects ranged between 17-28 years. The various equipments that were used for the collection of data were a metal or wooden bar for measuring arm strength. Floor, mat and measuring tape for measuring leg strength. 12 inch high bench, stop-watch, metronome and chairs for measuring cardio respiratory endurance.

STATISTICAL ANALYSIS AND INTERPRETATIONS OF THE DATA

Table No-I
Table Showing the Comparison between the Means of Volleyball and Handball Intercollegiate Players in Pull UPS

Test		Mean	SD	D	S.E	't' ratio
Pull Ups	Volleyball Players	7.8	1.91	0.95	0.69	1.38
	Handball Players	8.75	2.41			

The value of Volleyball and Handball players in pull ups is 7.8 and 8.75 respectively. Standard Deviation value of Volleyball and Handball players is 1.91 and 2.41 respectively. Value of 't' ratio is 1.38; this value is not significant at 0.05 level. To be significant at 0.05 level, the value of 't' ratio should be greater or equal to 2.02.

Figure No-I

The Difference between the Mean of Pull UPS Performance of Volleyball and Handball Intercollegiate Players

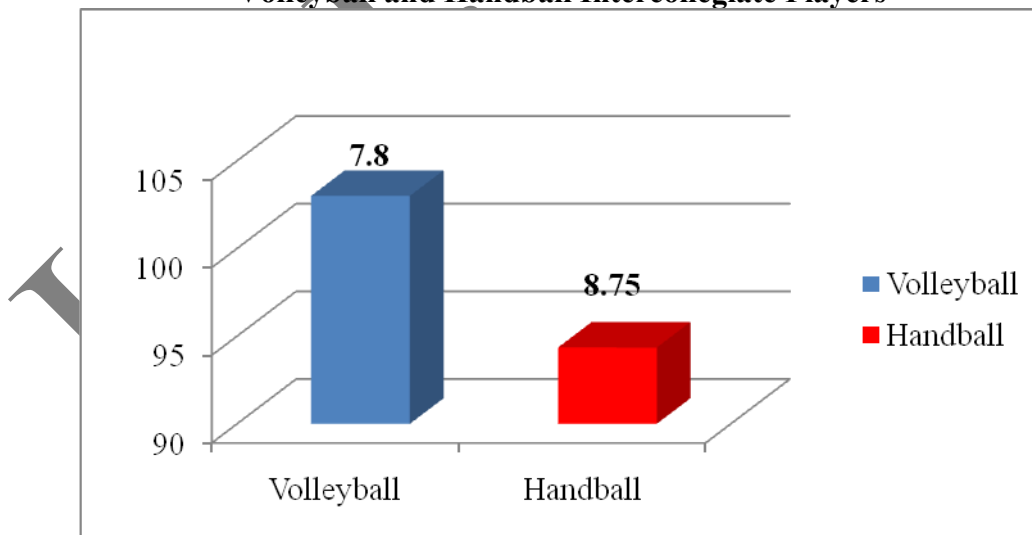


Table No-II
Table Showing the Comparison between the Mean of Volleyball and Handball Intercollegiate Players in Standing Broad Jump

Test		Mean	S.D	D	S.E	't' ratio
Standing Broad Jump	Volleyball Players	2.12	0.14	0.05	0.056	0.89
	Handball Players	2.17	0.21			

The mean value of volleyball and handball players is 2.12 and 2.17 respectively. Standard Deviation value of volleyball and handball players is 0.14 and 0.21 respectively. Value of 't' ratio is 0.89, this value is not significant at 0.05 level. To be significant at 0.05 level, the value of 't' ratio should be greater or equal to 2.02.

Figure No-II
The Difference between the Means of Standing Broad Jump Performance of Volleyball and Handball Intercollegiate Players

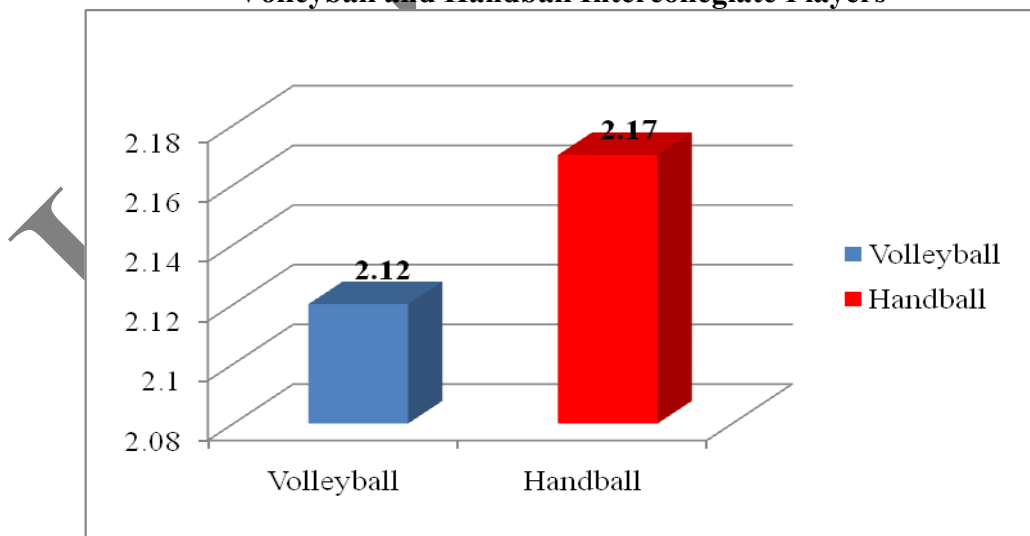


Table No-III
Table showing the comparison between the means of Volleyball and Handball Intercollegiate Players in YMCA 3-minute step test

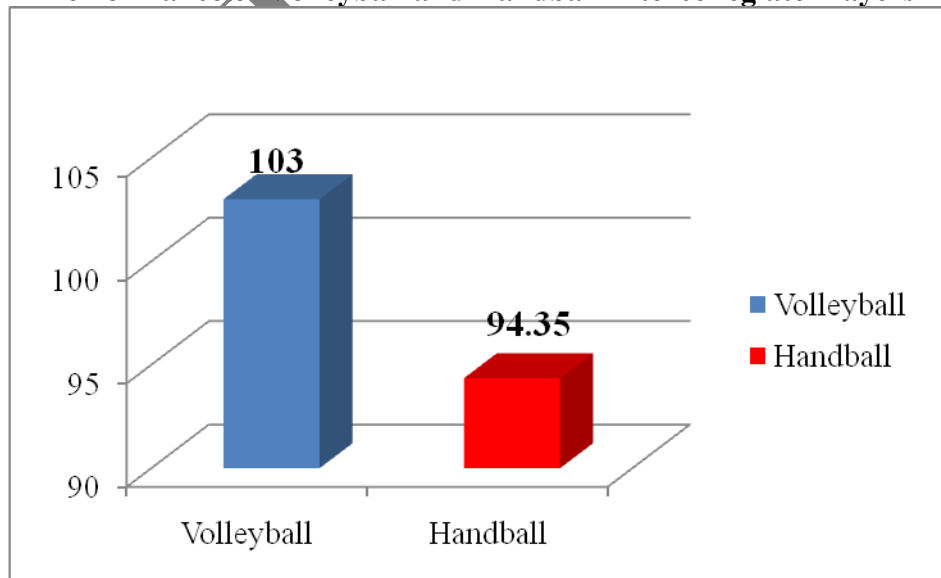
Test		Mean	S.D	D	S.E	't' ratio
YMCA Min. Step Test	Volleyball Players	103	8.42	8.65	2.3	3.17*
	Handball Players	94.35	8.82			

*Significant at .05 level of confidence

The mean value of volleyball and handball players in YMCA3-minute step test is 103 and 94.35 respectively. Standard Deviation value of volleyball and handball players is 8.42 and 8.82 respectively. Value of 't' ratio is 3.17, this value is significant at .05 level

Graph No-III

The Difference between the Means of Standing YMCA-3 Minute Step Test Performance of Volleyball and Handball Intercollegiate Players



CONCLUSION

Within the limitation of the present study and on the basis of the findings, the following conclusions were drawn:-

- On comparing the Arm Strength of Volleyball and Handball Players. It was observed that even though the average Mean of Volleyball Players were less than that of Handball Players, there was no significant difference among the Players.
- The analysis concluded that both the Volleyball Handball Players were equal in Arm Strength.
- After comparing the Leg Strength of Volleyball and Handball Players. It was observed that even though the averages Mean of Volleyball Players were less than that of Handball Players, there was no significant difference among the Players. The analysis concluded that both the Volleyball Handball Players were equal in Leg Strength.
- On comparing the Cardio Respiratory Endurance of Volleyball and Handball Players, it was observed that even though the average Mean of Volleyball Players were greater than that of Handball Players, there was significant difference among the Players.
- Hence, the analysis concluded that both the Volleyball and Handball Players were unequal in Cardio Respiratory Endurance.

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Page 7

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