

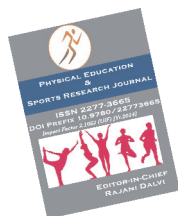
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COMPARISON OF PHYSICAL, PHYSIOLOGICAL AND PSYCHOLOGICAL VARIABLES BETWEEN FEMALE VOLLEYBALL AND BADMINTON PLAYERS



Mantu Baro¹ and Subhas Chandra Nandi²

¹Associate Professor of Physical Education and Sports, Dibrugarh University, Assam.

²Guest lecturer, Sri Ramkrishna Sarada Vidya Mahapitha, Hooghly, W.B.

ABSTRACT

The purpose of this study was to compare physical, physiological and psychological variables between inter collegiate female volleyball and badminton players. To achieve the purpose of this study, thirty female players, that is fifteen badminton players and fifteen volleyball players were selected as subjects from various departments of Burdwan University, and their age ranged from 18 to 25 years. These subjects were tested on Speed by 50 yard dash, Agility by Semo Agility test, Cardio-respiratory endurance by 12 minute run and walk, Resting Pulse Rate by Electronic sphygmomanometer, Leg

strength by Standing Broad Jump, Reaction Time by Visual reaction time Direct RT computerized software, Resting Respiratory Rate by up-down movement of the lower abdomen, Vital Capacity by Spirometer, Personality (Introversion-Extroversion, Stability-Instability) by Eyzank personality inventory. The collected data was analyzed using independent 't' ratio to find out the significant difference between volleyball and badminton players. The study was concluded that there is significant difference in Speed, Agility, Cardio respiratory Endurance, Leg strength and Resting Respiratory Rate. There was no significant difference in Reaction Time, Resting Pulse Rate, Vital Capacity and Personality between players of volleyball and players of badminton. It is concluded that both games demands greater explosive power for better performance. The nature of both games varies, although the skills like spiking and jump shot require explosive power as a result of this no difference is elicited between the groups.



KEY WORDS: Physical, Physiological, Psychological, Volleyball, Badminton

INTRODUCTION

‘Sports’ is a popular spectacle and a mass social movement of contemporary times. In the process of historical development sports has occupied a prominent place both in the moral culture of a society. Its social significance continues to soar. In the modern days ‘sports for all’ become a very popular slogan. Participation in sports will yield optimum physical fitness and positive health for all. In the hurry scenario of modern life people need more exercise to keep their body and mind fit to execute the day-to-day activities effectively.

In today’s world, sport without doubt has an important place among leisure activities. Due to its inherent characteristics, sport should not be regarded as a mere leisure activity. On the other hand, doing sports with the view of making good use of leisure time can make some contributions to better understanding of the qualities and importance of sports. Widely accepted slogans such as “Mass sport”, “life-long sport”, “sport for everyone” and “sport for healthy life” should penetrate into every segment of society to encourage people to do sports in their leisure time (12). “Sport is a physical, mental and technical effort to compete and win for athletes; a process arousing excitement and aesthetic feelings for spectators and in general, a scientific phenomenon that is developed with the contributions from scientific disciplines such as anatomy, physiology, orthopedics, bio-mechanic and psychology. According to another definition, it is a competitive, cooperative and cultural concept leading to socialization and developing physical and spiritual well-being by performing some activities with or without equipment, individually or in groups while enabling the individual to make good use of leisure time (3). The most visible purpose of leisure activities is, besides physical training and its accompanying gains, to compete and win.

Method

To achieve the purpose of this study, thirty female players, that is fifteen badminton players and fifteen volleyball players, were randomly selected as subjects from west Bengal belong to age group of 18 to 25 years. Since the subjects had been undergoing training for a considerable period there for it was considerable that they possess good level of technique of espionage. Before conducting the tests, all the subjects were oriented and purpose of the test procedures clearly explained to the subjects.

Selection of Variables and criterion measures:

On the basis of available literature and researcher own understanding following Motor fitness, physiological and psychological variables were selected and test were also used to measure them respectively.

S.No.	Variable	Test used
1.	Speed	50 yard dash
2.	Agility	Semo agility
3.	Cardio-respiratory endurance	12 minute run and walk
4.	Leg strength	Standing Broad Jump
5.	Reaction Time	Visual reaction time Direct RT computerized software
6.	Resting Pulse Rate	Electronic sphygmomanometer
7.	Resting Respiratory Rate	up-down movement of the lower abdomen
8.	Vital Capacity	Spirometer
9.	Personality (Introversion-Extroversion)	Eyzank personality inventory
10.	Personality (Stability-Instability)	Eyzank personality inventory

Statistical Procedure

Descriptive statistics was used to find out the status between the players of Volleyball games and Badminton games in relation to motor fitness variables of Speed, Agility, Cardio-respiratory endurance, Leg Strength and Reaction Time, Physiological variables i.e. Resting Pulse Rate, Respiratory rate and Vital capacity and The Psychological variables of Introversion-Extroversion and Stability-Instability. To find out the significant difference between volleyball and badminton players independent 't' ratio was applied. In all the cases, 0.05 level of confidence was fixed to test the significance, which was considered as an appropriate.

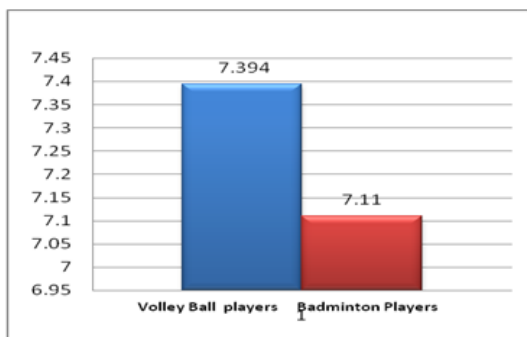
**Table – I:
Comparison of Speed between Volleyball players and Badminton players**

Group	Mean	SD	M. D.	S. E.	't' value
Volleyball Players	7.394	0.477	.284	.140	2.028*
Badminton Players	7.11	0.266			

*Significant at 0.05 level $t_{0.05}(15) = 1.753$

Table -I and Graph 1 shows that the calculated value of t (2.028) was higher than value of (1.753). So we can say that Volley ball player were significantly different from Badminton players.

**Diagram -1
Mean Difference in Speed (Between Volley Ball players And Badminton Players)**



**Table – II:
Comparison of Agility between Volleyball players and Badminton players**

Group	Mean	SD	M. D.	S. E.	't' value
Volleyball Players	13.934	0.343	1.113	0.224	4.986*
Badminton Players	12.821	0.797			

*Significant at 0.05 level $t_{0.05}(15) = 1.753$

Table -II and Graph 2 shows that the calculated value of t (4.986) was higher than value of (1.753). So we can say that Volley ball player were significantly different from Badminton players.

Graph -2
Mean Difference in Agility between Volley Ball players and Badminton Players

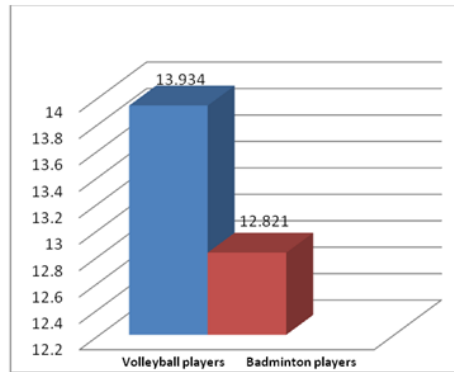


Table -III:
Comparison of Cardio respiratory Endurance between Volleyball players and Badminton players

Group	Mean	SD	M.D.	S. E.	't' value
Volleyball Players	1740	63.947	90	18.897	4.76*
Badminton Players	1830	35.606			

*Significant at 0.05 level $t_{0.05}(15) = 1.753$

Table -III and Graph 3 shows that the calculated value of t (4.76) was higher than value of (1.753). So we can say that Volley ball player were significantly different from Badminton players.

Graph -3
Mean Difference of Cardio Respiratory Endurance between Volley Ball players and Badminton Players

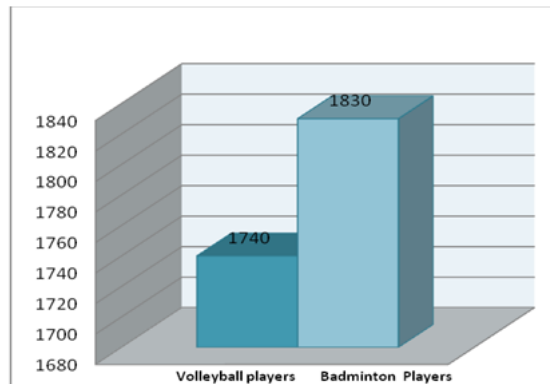


Table -IV:
Comparison of Leg Strength between Volleyball players and Badminton players

Group	Mean	SD	M.D.	S.E.	't' value
Volleyball Players	124.266	3.99	5.333	1.916	2.78*
Badminton Players	118.933	6.26			

*Significant at 0.05 level $t_{0.05}(15) = 1.753$

Table -IV and Graph 4 shows that the calculated value of t (2.78) was higher than value of (1.753). So we can say that Volley ball player were significantly different from Badminton players.

Graph -4
Mean Difference in Leg Strength (Between Volley Ball players And Badminton Players)

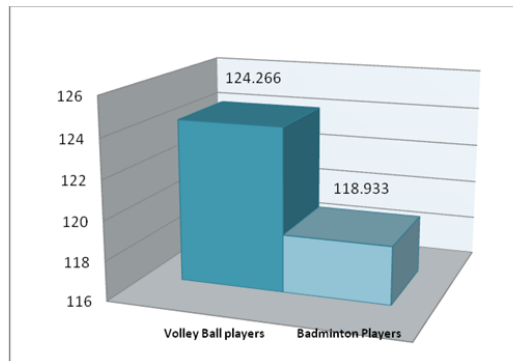


Table –V:
Comparison of Reaction Time between Volleyball players and Badminton players

Group	Mean	SD	M.D.	S.E.	't' value
Volleyball Players	283.46	18.867	1.82	6.690	0.272
Badminton Players	281.64	17.764			

Table –V and Graph 5 shows that there was no significance difference found between players of Volley Ball games and players of Badminton games at 0.05 level of significance with 15 degrees of freedom, as calculated 't' value (0.272) is less than tabulated 't' value (1.753).

Graph -5
Mean Difference in Reaction Time (Between Volley Ball players And Badminton Players)

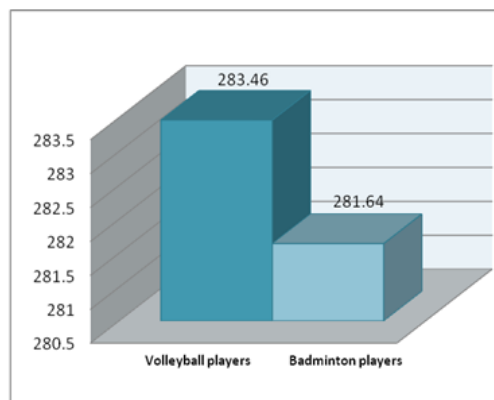


Table –VI:
Comparison of Resting Pulse Rate between Volleyball players and Badminton players

Group	Mean	SD	M.D.	S.E.	't' value
Volleyball Players	60.8	4.212	1.4	1.499	0.933
Badminton Players	59.4	3.996			

*Significant at 0.05 level $t_{0.05}(15) = 1.753$

Table–VI and Graph 6 shows that there was no significance difference found between players of Volley Ball games and players of Badminton games at 0.05 level of significantly with 15 degrees of freedom, as calculated ‘t’ value (0.933) is less than tabulated ‘t’ value (1.753).

Graph -6
Mean Difference in Resting Pulse Rate between Volley Ball players and Badminton Players

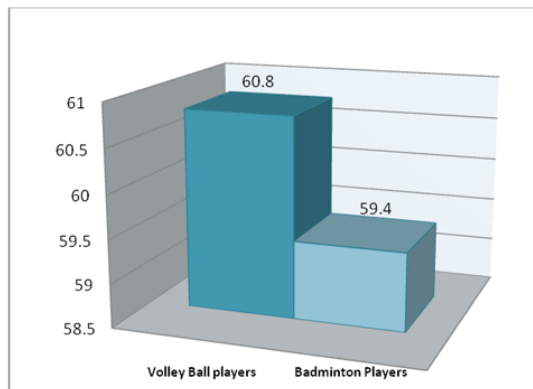


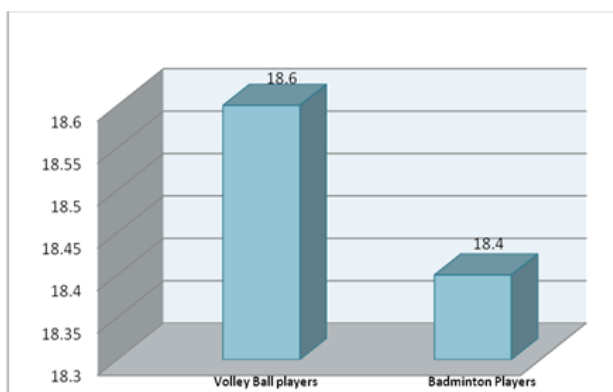
Table –VII:
Comparison of Resting Respiratory Rate between Volleyball players and Badminton players

Group	Mean	SD	M.D.	S.E.	t' value
Volleyball Players	18.6	3.22	.20	1.033	1.93*
Badminton Players	18.4	2.38			

*Significant at 0.05 level $t_{0.05}(15) = 1.753$

Table –VII and Graph 7 shows that the calculated value of t (1.93) was higher than value of (1.753). So we can say that Volley ball player were significantly different from Badminton players.

Graph -7
Mean Difference of Resting Respiratory Rate between Volley Ball players and Badminton Players



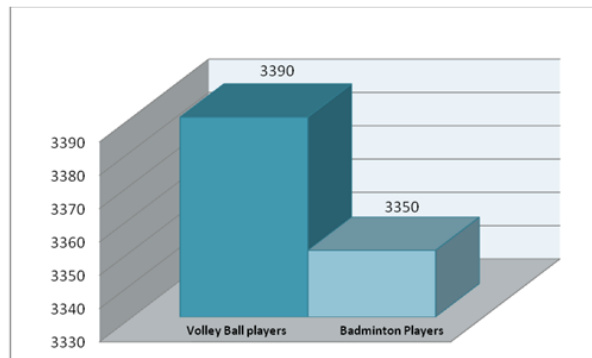
**Table –VIII:
Comparison of Vital Capacity between Volleyball players and Badminton players**

Group	Mean	SD	MD	SE	't' value
Volleyball Players	3390	135.224	40	50.165	0.797
Badminton Players	3350	139.51			

*Significant at 0.05 level $t_{0.05 (15)} = 1.753$

Table –VIII and Graph 8 shows that there was no significance difference found between players of Volley Ball games and players of Badminton games at 0.05 level of significantly with 15 degrees of freedom, as calculated 't' value (0.797) is less than tabulated 't' value (1.753).

**Graph -8
Mean Difference of Vital Capacity between Volley Ball players and Badminton Players**



**Table –IX:
Comparison of Stability instability between Volleyball players and Badminton players**

Group	Mean	SD	MD	SE	't' value
Volleyball Players	12.8	4.66	1.6	1.806	-0.885
Badminton Players	14.4	5.22			

*Significant at 0.05 level $t_{0.05 (15)} = 1.753$

Table –IX and Graph 9 shows that there was no significance difference found between players of Volley Ball games and players of Badminton games at 0.05 level of significantly with 15 degrees of freedom, as calculated 't' value (-0.885) is less than tabulated 't' value (1.753).

**Graph -9
Mean Difference of Stability instability between Volley Ball players and Badminton Players**

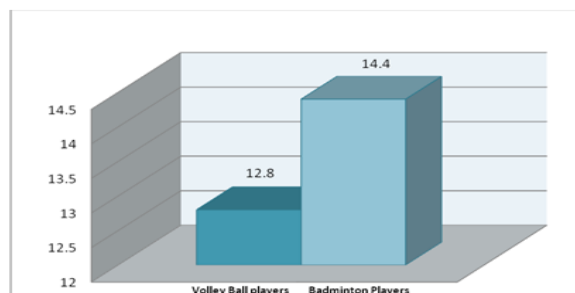


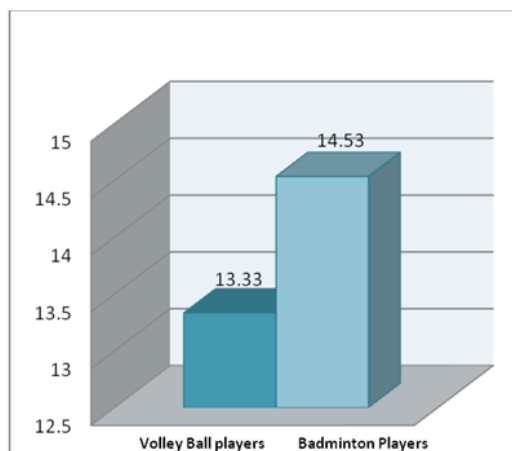
Table X:
Comparison of Introversion Extroversion between Volleyball players and Badminton players

Group	Mean	SD	M.D.	S.E.	't' value
Volleyball Players	13.33	5.5	1.2	1.724	-0.691
Badminton Players	14.53	3.79			

*Significant at 0.05 level $t_{0.05}(15) = 1.753$

Table –X and Graph 10 shows that there was no significance difference found between players of Volley Ball games and players of Badminton games at 0.05 level of significantly with 15 degrees of freedom, as calculated 't' value (0.691) is less than tabulated 't' value (1.753).

Graph -10
Mean Difference in Introversion Extroversion between Volley Ball players and Badminton Player



Discussion of Findings

From the finding of this study it has been observed that there was significant difference between players of Volley Ball games and players of Badminton game in relation to Speed, Agility, Cardio Respiratory Endurance, Leg Strength and Resting Respiratory Rate variables. The Volley Ball players were found greater in Leg strength where players of Badminton game were found greater in Speed, Agility, Cardio respiratory endurance and Resting Respiratory Rate.

Both games need agility based and speed endurance based training programme and training method is entirely different, more weight training and jumping exercises are very common. Nature and demand of body physique is totally different in comparison to players of Indigenous game. That is the reason of difference.

CONCLUSION

In this light of the findings, it was concluded that players of Badminton Games are better in Speed, Agility, Cardio respiratory endurance and Resting Respiratory Rate. Whereas players of Volley ball game were found greater only in Leg strength.

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Mantu Baro

Associate Professor of Physical Education and Sports,
Dibrugarh University, Assam.