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A study on physiological and motor fitness variables among the Volleyball and Handball players

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Abstract
A new system of psychological training specifically designed for Volleyball and Handball, now assures that players that use it will have a significant advantage over their opponents. Every athlete who uses this two part basic mental training system will master the mental skills needed to consistently perform at their best. The study is based on secondary data. In this paper find out that it is also the intention of the investigator to find the out whether differences in the independent variable namely group of players (Volley ball and Hand ball players) with respect to Vital capacity, Diastolic blood pressure, 50 meters Speed and Endurance of 1000 meters and consequently others. The Volley ball players and Hand ball players do not differ statistically significant with respect to their vital capacity at 5% level of significance. In this paper result shows that the correlation coefficient between vital capacity, diastolic blood pressure, speed 50 meters and endurance 1000 meters of Volley ball players. The vital capacity, diastolic blood pressure of volley ball players variable are positive significant in psychological aspects but diastolic blood pressure variable is positive but not significant in this concept.

Keywords: blood pressure, heart rate, speed, endurance, stress, vital capacity

1. Introduction
Motor fitness is regarded as the preparedness for performance with special regard for big muscles activity, in a more general phase of physical fitness. Fundamental and success of all games and sports is higher level of physical and motor fitness. Under any hypothesis, a secured and fit body is a re-requisite to become a top-level performer in any of the games and sports. Prakash (1984) conducted a research programme on comparison of selected physiological and physical factors of soccer and cricket players.

During Competition in Psychology
Volleyball
I think this has helped me understand where my teammates are coming from ad it helped let me know what I can do to be the best teammate I can be. I know what motivates my team, so I try to do those things. Psychological counseling helped me deal with fears, stress, and nerves. I looked forward to the sessions. At this point, the relationship side of the activities has been the most beneficial in that knowing my teammates and what how I can help them is extremely worthwhile. We did a lot of helpful teambuilding and just hanging out to get to know each other better. It was fun and I looked forward to the exercises we did.

Hand Ball
Hand ball is a popular team game, an exciting game with many dramatic single combats, a competitive sport which requires technical and tactical versatility of the players, a splendid fight between the goal getter and the goal-keeper. A team game played in the whole world. It is a sport where you can play indoors or outdoors on grass or timbered floor. It is where players are encouraged to be athletic being flamboyant ad inventive and above all work together as team. It is one of the most popular sports in the world. It is played on all 5 habitable continents and around 150 nations play the game. At least 15 million people from all over the world and all works of life play the game. It helps you keep fit and healthy. Its rule promotes and encourages diversity of principles and philosophies. It is one of the most popular spectator sports to watch, whether it is at the Olympic Games or at continental championship or a domestic match. It is a game that is grate to watch on television. But nothing beats the experience being amongst the passion of the fans. Hand ball is one of the rare game and also second fastest game in the world. It is a game played between two teams of seven players each in an area of 40 x 20 meter under certain rules and regulation.

2. Statement of the Problem
The purpose of the study was to analysis of Physiological and Motor Fitness Variables among Volleyball and Handball Players.

3. Objectives of the Study
- To study the significant difference between Volley ball and Hand ball Players with respect to their vital capacity.
- To study the significant difference between Volley ball and Hand ball Players with respect to diastolic blood pressure.
- To study the significant difference between Volley ball and Hand ball Players with respect to 50 meters speed.
- To study the significant difference between Volley ball and Hand ball Players with respect to endurance of 1000 meters Run.

- To study the significant relationship between vital capacity, diastolic blood pressure,50 meters Speed and endurance 1000 meters Run of Volley ballplayers.
- To study the significant relationship between vital capacity, diastolic blood pressure, 50 meters Speed and endurance 1000 meters Run of Hand ball players.

4. Hypotheses

- It was hypothesized that there will be a significant of Physiological and Motor Fitness Variables among Volley Ball and Hand Ball Players at Intercollegiate Players Level.
- There is no significant difference between Volley ball and Hand ball Players with respect to their vital capacity.
- There is no significant difference between Volley ball and Hand ball Players with respect to diastolic blood pressure.
- There is no significant difference between Volley ball and Hand ball Players with respect to 50 meters speed.
- There is no significant difference between Volley ball and Hand ball Players with respect to endurance of 1000 meters.
- There is no significant relationship between vital capacity, diastolic blood Pressure, speed 50 meters and endurance 1000 meters of Volley ball players.
- There is no significant relationship between vital capacity, diastolic blood Pressure, speed 50 meters and endurance 1000 meters of Hand ball players.

Limitation of the Study

The limitation of the present study is as follows

1. The food habits, other regular habits and life style are not controlled.
2. The regular activities of the students will not be controlled.
3. Family background of the subject will not be considered.
4. Environmental factors, which contribute to the mental ability of the players, were not taken into consideration.
5. The response of the subject to the questionnaire might not be.
6. Honest in all cases and this was recognized as a limitation.

Delimitation

The present study was delimited in the following aspects.

1. The study will be restricted to 20 Volley Ball and 20 Hand Ball players.
2. The age limit of the subject will be limited to the range of 18 to 25 years.
3. The study was restricted to two physiological variables namely blood pressure and heart rate, Motor Fitness variables are speed and endurance.

Significance of the Study

1. The study will be helping the players to find out physiological and Motor Fitness factors.
2. The study will help the coaches, volley ball and hand ball players.

Definitions and Explanation of the terms

Speed

Rate of change of displacement of the object is called as speed.

Endurance

Endurance is the result of physical capacity of the individual to certain movement over a period of time.

Vital Capacity

The maximum volume of gas that can be expelled from the lungs following a maximum inspiration is called Vital Capacity.

Vital Capacity is the maximum amount of air which can be transported in one voluntary expiration.

Methodology

In the methodology is selection of subjects, selection of variables, reliability of the data, instrumental reliability, testers competence, subjects reliability, orientation of the subjects, collection of the data and statistical techniques employed for anglicizing the data have been described.

Selection of Subjects

A total of 40 inter collegiate level consist of volley ball and hand ball players were randomly selected.

Selection of Variables

The research scholar reviewed the available scientific literature, books, journals, periodicals, and magazine and research papers pertaining to the study. Taking into confederation of the importance of these variables and the feasibility criteria for these following variables were selected for the investigator.

Physiological Variables

1. Blood Pressure
2. Heart Rate

Motor Fitness Variables

1. Speed
2. Endurance

Reliability of Data

The reliability of data was ensured by establishing the instrument reliability and subject reliability.

Subject Reliability

As the same subjects were used to measure for self-confidence and achievement motivation of ability with questionnaires by the same investigator were considered reliable.

Collection of Data

The administration of the test and the method of the collection data were explained while collecting the data.

Physiological Variables
1. Blood Pressure
2. Heart Rate

Blood Pressure and Heart Rate was measured by using Standard Instrument.

Motor Variables
Speed and Endurance was measured in Track

50 Meters Dash (Speed)
Purpose: To measure speed and acceleration.
Equipment : Stop watch, (one per time keeper) whistle, wooden clapper, finishing posts, woolen thread. Accuracy measure 50 meters straight.
Test description : Fifty meters dash was used to test the speed of each subject. They were allowed to warm-up on their own before the actual performance. They were instructed to do their best. In order to get the best performance an element of competition was introduced as the subjects ran in groups of four each.
On the signal "on your marks", subjects stood with the front foot behind the starting line (the crouch start was not allowed) when ready (and still). The starting signal was given and subjects sprinted the distance avoiding any tendency, to declare in anticipation of the finish.

Scoring: Time to the nearest tenth of a second on the better of two attempts was noted and recorded.
1000 Miters Run: (Endurance)
Purpose: Test to measure cardiovascular endurance.
Equipments: Stop watch wooden clapper, whistle, score sheet.
Test Description: The 1000 meter. Run test was conducted at on the 400 meters track during evening section. The subjects were assembled and were instructed. Subjects were made to run in four batches of twenty each. They used standing, start, and race started on the sound of the clapper. The subjects ran 1000 meter and at the end time is considered for the data.

Vital Capacity
Vital capacity was measured with the help of Drag Spiro meter.
It was ensured that the pointer of the scale was at the zero mark at the beginning of the test. The object took two deep breaths before starting the test and then after fullest inhalation the subject placed the mouth piece attached to the nose connected to the Spiro meter in his mouth, taking care to see that no air escaped through the edges of the mouth piece. The subject exhaled slowly and studying while bending forward slightly until the maximum volume of air could be expelled without taking in a second breath. The subjects were instructed to take care that they blew out only through the breath and not by the nose even partially. The nose of each subject was clipped a nose clip to prevent the air from escaping through the nose. The score of vital capacity for each subject was recorded in liters.

Statistical Techniques
The data that were collected from the subjects were treated statistically. To find out the significance difference among the volley ball and hand ball players for the main purpose of the study was "A study on Physiological and motor fitness among volley ball and hand ball players." Then the data were analyzed with reference to the objectives and hypotheses by using student unpaired 't' test and Karl Pearson's correlation coefficient by using SPSS 21.0 statistical software and results were obtained thereby have been interpreted.

5. Result and Discussion
After the data had been collected, it was processed and tabulated using Microsoft Excel - 2000 Software. The data collected on Vital capacity, Diastolic blood pressure, 50 meters Speed and Endurance of 1000 meters of Volley ball and Hand ball players. The main purpose of the study was "A study on Physiological and motor fitness among Volley ball and Hand ball players". Then the data were analyzed with reference to the objectives and hypotheses by using student unpaired t-test and Karl Pearson's correlation coefficient by using SPSS 21.0 statistical software and the results obtained thereby have been interpreted.
It is also the intention of the investigator to find the out whether differences in the independent variable namely group of players (Volley ball and Hand ball players) with respect to Vital capacity, Diastolic blood pressure, 50 meters Speed and Endurance of 1000 meters and consequently others. The results are presented in the following section.
Hypothesis-1: There is no significant difference between Volley ball and Hand ball players with respect to their vital capacity to achieve this hypothesis, the t test was applied and the results are presented in the following table.

Table 1: Results of t test between Volley ball and Hand ball players with respect to their vital capacity

Players	Mean	SD	t-value	p-value	Signi.
Volley Ball	2340.0000	687.7882	0.9214	0.3627	NS
Hand ball	2150.0000	614.3032			

***Sources*:** Author calculation

From the results of the above table, we had seen that,
The Volley ball players and Hand ball players do not differ statistically significant with respect to their vital capacity ($t=0.9214$, $p>0.05$) at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected. It means that, the Volley ball players and Hand ball players have similar vital capacity.

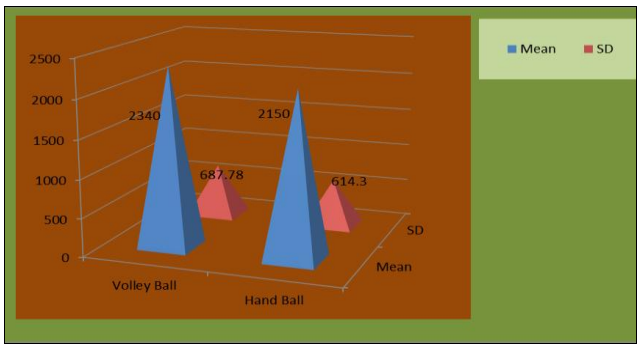

Fig 1

Hypothesis-2: There is no significant difference between Volley ball players, Hand ball players and Kabaddi players with respect to diastolic blood pressure
To achieve this hypothesis, the t test was applied and the results are presented in the following table.

Table-2: Results of t test between Volley ball and Hand ball players with respect to diastolic blood pressure.

Players	Mean	SD	t-value	p-value	Signi.
Volley Ball	82.8000	7.7092	-0.1757	0.8615	NS
Hand ball	83.2500	8.4721			

***Sources*:** Author calculation

From the results of the above table, we had seen that
The Volley ball players and Hand ball players do not differ statistically significant with respect to their diastolic blood pressure (t=-0.1757, p>0.05) at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected. It means that, the Volley ball players and Hand ball players have similar diastolic blood pressure.

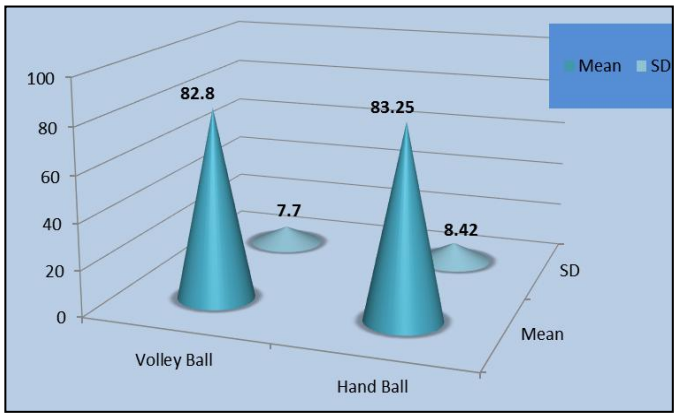

Fig 2

Hypothesis-3: There is no significant difference between Volley ball players, Hand ball players and Kabaddi players with respect to 50 meters speed
To achieve this hypothesis, the t test was applied and the results are presented in the following table.

Table 3: Results of t test between Volley ball and Hand ball players with respect to 50 meters speed

Players	Mean	SD	t-value	p-value	Signi.
Volley Ball	6.7580	0.7245	0.7086	0.4829	NS
Hand ball	6.5840	0.8253			

***Sources*:** Author calculation

From the results of the above table, we had seen that,
The Volley ball and Hand ball players do not differ statistically significant with respect to their 50 meters speed (t=0.7086, p>0.05) at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected. It means that, the Volley ball players and Hand ball players have similar 50 meters speed.

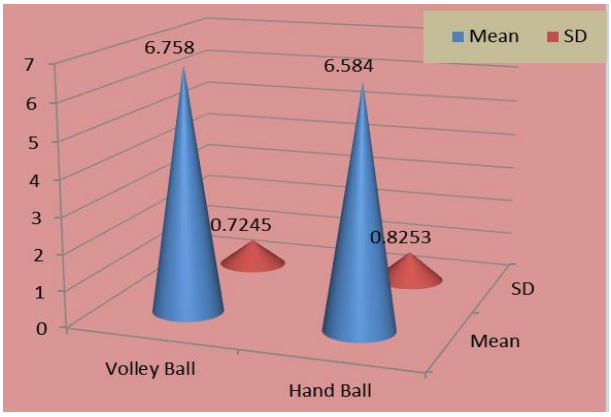

Fig 3

Hypothesis-4: There is no significant difference between Volley ball players, Hand ball players and Kabaddi players with respect to endurance of 1000 meters To achieve this hypothesis, the t test was applied and the results are presented in the following table.

Table 4: Results of t test between Volley ball players, Hand ball players and Kabaddi players with respect to endurance of 1000 meters

Players	Mean	SD	t-value	p-value	Signi.
Volley Ball	3.8350	0.4229	0.9805	0.3330	NS
Hand ball	3.7000	0.4476			

***Sources*:** Author calculation

From the results of the above table, we had seen that,
The Volley ball players and Hand ball players do not differ statistically significant with respect to their endurance of 1000 meters (t=0.9805, p>0.05) at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected. It means that, the Volley ball players and Hand ball players have similar endurance of 1000 meters.

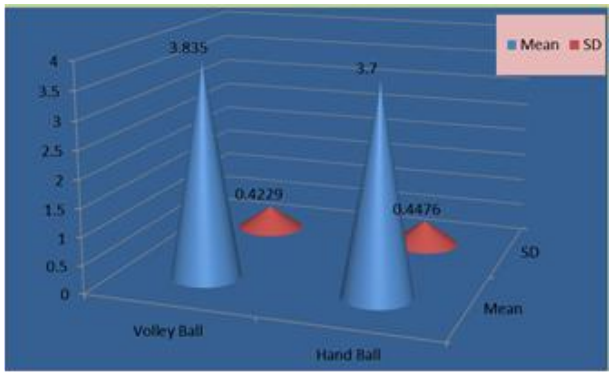

Fig 4

Hypothesis-5: There is no significant relationship between vital capacity, diastolic blood pressure, speed 50 meters and endurance 1000 meters of Volley ball players
To achieve this hypothesis, the Karl Pearson's correlation coefficient technique has been applied and the results are presented in the following table.

Table 5: Results of correlation coefficient between vital capacity, diastolic blood pressure, speed 50 meters and endurance 1000 meters of Volley ball players

Variables	Vital capacity	Diastolic blood pressure	50 meters speed	Endurance of 1000 meters
Vital capacity	1.0000			
Diastolic blood pressure	0.2081	1.0000		
50 meters Speed	-0.0041	0.0029	1.0000	
Endurance of 1000 meters	-0.2597	-0.0812	0.3244	1.0000

***Sources*:** Author calculation

From the results of the above table, we seen that,

1. The relationship between vital capacity and diastolic blood pressure of Volley ball players (r=0.2081, p>0.05) is found to positive and statistically not significant at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected.
2. The relationship between vital capacity and 50 meters speed of Volley ball players (r=-0.0041, p>0.05) is found to negative and statistically not significant at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected.
3. The relationship between vital capacity and endurance 1000 meters of Volley ball players (r=-0.2597, p>0.05) is found to negative and statistically not significant at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected.
4. The relationship between diastolic blood pressure and 50 meters speed of Volley ball players (r=0.0029, p>0.05) is found to positive and statistically not significant at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected.
5. The relationship between diastolic blood pressure and endurance 1000 meters of Volley ball players (r=-0.0812, p>0.05) is found to negative and statistically not significant at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected.
6. The relationship between 50 meters speed and endurance 1000 meters of Volley ball players (r=0.3244, p>0.05) is found to positive and statistically not significant at 5% level of significance. Hence the null hypothesis is accepted and alternative hypothesis is rejected.

Hypothesis-6: There is no significant relationship between vital capacity, diastolic blood pressure, speed 50 meters and endurance 1000 meters of Hand ball players

To achieve this hypothesis, the Karl Pearson's correlation coefficient technique has been applied and the results are presented in the following table.

Table 6: Results of correlation coefficient between vital capacity, diastolic blood pressure, speed 50 meters and endurance 1000 meters of Hand ball players

Variables	Vital capacity	Diastolic blood pressure	50 meters speed	Endurance of 1000 meters
Vital capacity	1.0000			
Diastolic blood pressure	0.5132*	1.0000		
50 meters Speed	0.1622	-0.1540	1.0000	
Endurance of 1000 meters	0.3765	-0.0118	0.1571	1.0000

*Significant at 5% level of significance (p<0.05)

From the results of the above table, we seen that,

- The relationship between vital capacity and diastolic blood pressure of Hand ball players (r=0.5132, p<0.05) is found to positive and statistically significant at 5% level of significance. Hence, the null hypothesis is rejected and alternative hypothesis is accepted. It means that, vital capacity increases with increase in diastolic blood pressure of Hand ball players
- The relationship between vital capacity and 50 meters speed of Hand ball players (r=0.1622, p>0.05) is found to positive and statistically not significant at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected.
- The relationship between vital capacity and endurance 1000 meters of Hand ball players (r=0.3765, p>0.05) is found to positive and statistically not significant at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected.
- The relationship between diastolic blood pressure and 50 meters speed of Hand ball players (r=-0.1540, p>0.05) is found to negative and statistically not significant at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected.
- The relationship between diastolic blood pressure and endurance 1000 meters of Hand ball players (r=-0.0118, p>0.05) is found to negative and statistically not significant at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected.
- The relationship between 50 meters speed and endurance 1000 meters of Hand ball players (r=0.1571, p>0.05) is found to positive and statistically not significant at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected.

6. Summary, conclusion, suggestions

Summary

The purpose of the study is to find out the significant difference between Volley ball and Hand ball players with respect to their vital capacity, diastolic blood pressure and 50 meters speed. A total of 40 inter collegiate level consist of volley ball and hand ball players were randomly selected.

The research scholar reviewed the available scientific literature, books, journals, periodicals, and magazine and research papers pertaining to the study. Taking into confederation of the importance of these variables and the feasibility criteria for these following variables were selected for the investigator.

The study will be restricted to 20 Volley Ball and 20 Hand Ball players. The age limit of the subject will be limited to the range of 18 to 25 years.

7. Conclusion

Within the limitations of the present study and on the basis of the findings the following conclusions are drawn;

- The Volley ball players and Hand ball players have similar vital capacity.
- The Volley ball players and Hand ball players have similar diastolic blood pressure.
- The Volley ball players and Hand ball players have similar speed.
- The Volley ball players and Hand ball players have similar endurance.
- Vital capacity increases with increase in diastolic blood pressure of Hand ball players

8. Suggestions

The following recommendations are made on the basis of the results obtained from the study, which may be useful for further research work:

1. The same type of study may be undertaken by selected other games
2. To make the study more authentic and valid the study may be repeated on large samples.
3. The same study may be taken on girls of the same age group.
4. It is also recommended that a similar study may be repeated by selected subjects to different age, sex, and level of achievement other than those employed in the present study.

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