Enclosure-I

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FINAL REPORT

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Project Title:

The Study of Components Related to Physiology, Body Composition and Kinetic Motor Ability of the Players selected for different Games at Inter University level Competitions

INTRODUCTION:

To come-up as a successful sportsman it is extremely necessary to keep the body fit and in shape and also keep the interior systems like respiratory system, digestive system, circulatory system etc. working with full efficiency. Physical exercises provide solution to these needs and help us to remain physically and mentally fit.

The body is a complex system made up of various tissues and organs, which in connection to each other performs specific tasks naturally so as to allow the living being to execute day-to-day physical and mental actions.

It would be interesting to make a study of functionality of various body organs or system of organs with respect to predefined physical exercises and analyze the results in terms of different parameters like pulse rate, blood pressure, lung capacity,hemoglobin, body-fat content, body weight & height, Kinetic motor ability, muscular power, muscular endurance, speed, coordination etc.

Additionally such a study will prove to be of great importance in context of interdisciplinary relevance. The basic principles involved in the work deals with Medical Sciences as well as Physics, while the analytical part will cover the basics and facts related to Physical Education. Moreover physiology, psychology, kinesiology, physiotherapy, yogic therapy etc. are the other fields relevant with the problem. In short the study would provide a rich opportunity to deal with many fields of interest owing to its versatility.

The present project was aimed to make a methodical study of a group of players, comprising a team, which qualified to play at least at and above the State level Competitions. Each player and thereby the entire team acts as a system for carrying out observations. Observations were be carried out in terms of various factors mentioned above, before and after the planned practice sessions during different time in a given year and during different events of competitions.

The objectives, methodology, results etc. are discussed briefly in the next sub-sections.

OBJECTIVES OF THE PROJECT

Below mentioned Objectives were sorted out for the Project entitled:**The Study of Components Related to Physiology, Body Composition and Kinetic Motor Ability of the Players selected for different Games at Inter University level Competition.**

Three main objectives considered were as listed below:

1. To establish an inter-relationship between functionality of body organs, their coordination and exercises carried out by a player during planned practice sessions.

2. To provide a tailor made exercise or a set of exercises to a player as per his/her requirement based on the functionality of their body organ to achieve the best fitness and skills for the game of interest – with an ultimate goal to win the race.

3. Based on the above facts and observations provide better solutions to a team of players for the game of interest so as to achieve the needed skill and performance with less effort and in a more effective way.

METHEDOLOGY AND IMPORTANT RESULTS:

The main purpose of the studywas to comparethe Physiological,BodyCompositionand Kinetic Motor Ability Variablesof Volleyball Players as well as Badminton Playersatdifferentlevelsof Competitions.As discussed in the methodology the data for Physiological, Body composition and Kinetic Motor ability were obtained using sophisticated instruments for both the games for individual players of all the three Universities. To know the differences in the selectedvariables ANOVA Tables were calculated and thereby Mean Differenceswere obtained empirically.

The data obtained for different groups/ Universities were used for ANOVA (**An**alysis **O**f **Va**riance) table calculations. For Volleyball each team consisted of 12 players making total number of players to 36. Similarly for Badminton each team consisted of 5 players making total number of players to 15.

Table-1 below characterizes the variables (data) in terms of Physiological aspects, Body composition and Kinetic Motor ability tests carried out during practice sessions of each team:

Table – 1:

Data Type	Variable (data)	Measuring Instrument
Physiological	Blood Pressure (BP) (Systolic & Diastolic)	Digital BP Monitor
	Pulse Rate (PR)	Digital Pulse Rate Monitor
	Haemoglobin (Hb)	Hemo check Meter
	Vital Capacity (VC)	Sphygmomanometer
Body Composition	Height (H – cm)	Simple Scale
	Weight (W – Kg)	Digital Weighing Machine
	Total Body Fat (TBF)	Digital Inner Scan Monitor *(Tanita Make)*
	Body Mass Index (BMI)	Digital Inner Scan Monitor *(Tanita Make)*
Kinetic Motor Ability	Seat Ups	Counting
	Pull Ups	Counting
	Broad Jump	Measuring Tape
	Shuttle Run	Time Keeping

According to the number of players and teams, the base value used for ANOVA tables for Volleyball and Badminton games are as mentioned below:

1. Volleyball: F = 0.05, (2, 33) = **3.28**
2. Badminton: F = 0.05, (2, 12) = **3.68**

Based on the above derived values, the ANOVA tables were prepared for Systolic Blood Pressure, Diastolic Blood Pressure, Pulse Rate,

Hemoglobin, Vital Capacity, Seat Ups, Pull Ups, Broad Jump, Shuttle Run, Weight, Body Fat and Body Mass Index, as specified in Table – 2 above.

The results were obtained using the derived statistical values of different ANOVA tables, which also includes North Carolina Fitness tests. The results are briefly listed below:

1. **Systolic Blood Pressure:**
   - Volleyball: F = 1.50 (< 3.28): No significant difference.
   - Badminton: F = 0.05 (< 3.68): No Significant difference.
2. **Diastolic Blood Pressure:**
   - Volleyball: F = 2.39 (< 3.28): No significant difference.
   - Badminton: F = 1.09 (< 3.68): No Significant difference.
3. **Pulse Rate:**
   - Volleyball: F = 1.35 (< 3.28): No significant difference.
   - Badminton: F = 0.09 (< 3.68): No Significant difference.
4. **Hemoglobin:**
   - Volleyball: F = 1.26 (< 3.28): No significant difference.
   - Badminton: F = 0.80 (< 3.68): No Significant difference.
5. **Vital Capacity:**
   - Volleyball: F = 19.22 (> 3.28): Significant difference. LSD Test was carried out
   - Badminton: F = 1.42 (< 3.68): No Significant difference.

6. **Seat Ups:**

- Volleyball: F = 3.12 (< 3.28): No significant difference.
- Badminton: F = 1.49 (< 3.68): No Significant difference.

7. **Pull Ups:**

- Volleyball: F = 5.71 (> 3.28): Significant difference. LSD Test was carried out
- Badminton: F = 3.74 (> 3.68): Significant difference. LSD Test was carried out

8. **Broad Jump:**

- Volleyball: F = 4.39 (> 3.28): Significant difference. LSD Test was carried out
- Badminton: F = 3.11 (< 3.68): No significant difference.

9. **Shuttle Run:**

- Volleyball: F = 4.18 (> 3.28): Significant difference. LSD Test was carried out
- Badminton: F = 4.33 (> 3.68): Significant difference. LSD Test was carried out.

10. **Weight:**

- Volleyball: F = 7.54 (> 3.28): Significant difference. LSD Test was carried out
- Badminton: F = 11.08 (> 3.68): Significant difference. LSD Test was carried out

11. **Body Fat:**

- Volleyball: F = 1.76 (< 3.28): No significant difference.
- Badminton: F = 10.53 (> 3.68): Significant difference. LSD Test was carried out

12. **Body Mass Index:**

- Volleyball: F = 3.51 (> 3.28): Significant difference. LSD Test was carried out
- Badminton: F = 33.85 (> 3.68): Significant difference. LSD Test was carried out.

RESULTS' DISCUSSION AND OBJECTIVES ACHIEVED:

The purpose of this work was to study the components related to Physiology, Body Composition and Kinetic Motor Ability of Players Selected for Different Games at Inter University Level Competitions.

This study was delimited to the players who were selected in Inter University Level from Gujarat Vidyapith, Sardar Patel University and Gujarat University.

- **Discussion of the Findings**

It will be revealed from the analysis of data that there was no significant difference in systolic and diastolic blood pressure, pulse rate and haemoglobin in volleyball and badminton players among three different universities. There was significant difference in vital capacity in volleyball players of the three Universities of the Gujarat State.

(1) The analysis of motor components show that there was no significant difference in abdominal muscle endurance but there was significant difference in arm and shoulder strength, explosive leg strength and agility in players of volleyball and badminton among three different universities.

(2) The parameters of body composition like weight, total body fat and BMI shown significant difference in both games in three different universities.

(3) It will be also observed from the results of physiological variables that the systolic blood pressure was more in players of volleyball and badminton of Gujarat University compare to the other two universities.

(4) Pulse rate will be higher in players of volleyball and badminton games of Sardar Patel University compare to other two universities.

(5) The values of hemoglobin are higher in players of both games of Gujarat Vidyapeeth. There was shown significant difference in vital capacity of volleyball players of Gujarat Vidyapeeth.

(6) The results of Motor ability components shows that the strength and endurance of abdominal muscles was more in volleyball players of SardarPatel University and badminton players of Gujarat Vidyapeeth compare to other two universities.

(7) The players of both games shown significant differences in arm and shoulder strength, further it was observed that the players of Gujarat Vidyapeeth stands more compare to players of other universities.

(8) There was also significant difference in explosive strength among three different universities and players of volleyball and badminton of Gujarat Vidyapeeth shown more explosive leg strength compare to other two universities.

(9) There was also significant difference in agility and speed among three different universities.

(10) The players of Gujarat University showhigherresults in compare to other two universities.

(11) The analysisof body composition components revealed that there was significant difference in weight, total body fat and BMI in players of volleyball and badminton of three different universities.

(12) It was also observed that the players of Gujarat University in both games proved higher in compare to other two universities.

All the above discussion and the results reviled there off clearly shows that the three main objectives have been successfully achieved from the project work.

SUGGESSTIONS BASED ON RESULTS OF THE WORK:

The most outstanding characteristics of any research that it must contribute something new to the development of the societyconcerned, So, the investigator had made an attempt to the implications of the study undertaken. The present study has its implications for parents, teacher and educational Administrators too.

The researcher wants to give the following suggestion to the increase the systolic and diastolic blood pressure, pulse rate and hemoglobin in volleyball and badminton players among three different universities. There was significant difference in vital capacity in volleyball players of the three Universities of the Gujarat State.

The suggestions are as follows:

(1) The players are equal in the systolic and diastolic blood pressure, pulse rate and haemoglobin in volleyball and badminton players among three different universities. There was significant difference in vital capacity in volleyball players of the three Universities of the Gujarat State.

(2) The educator should specially construct appropriate curriculum to increase thesystolic and diastolic blood pressure, pulse rate and hemoglobin in volleyball and badminton players among three different universities.

(3) Special subsidiary should be provided so that the teacher may implicate necessary change to increase theirsystolic and diastolic blood pressure, pulse rate and hemoglobin in volleyball and badminton players.

(4) New courses, training programs, seminar, debate and all such other activities should be made compulsory for the trainers for upgrading players' power

and the systolic and diastolic blood pressure, pulse rate and hemoglobinparticularly in volleyball and badminton players at inter-university competitions.

(5) The teacher should organize activities him the systolic and diastolic blood pressure, pulse rate and hemoglobin.

On the basis of the conclusions drawn the following recommendations have been made for further research:

(1) Similar study may be conducted in other games.

(2) Similar study may be conducted on female players also.

(3) Study may be done with subjects belonging to different age groups.

(4) This type of study can also be conducted on subjectsresiding in different environmental condition of India.

(5) This type of study can be conducted to study various aspects of player related to his/ her physical fitness and skill pertaining to a game of interest.

This study may be beneficial to other researchers as a base study.

PUBLICATION:

*J. Chauhan & B. Joshi, "A comparative Study of Selected Physiological Variables of Inter University Level Volleyball Players of Different Universities",**Educational Bridge,Vol-1(3), May – June-2014, pp-24.** **(Acknowledgement: UGC Minor Research Project: F. 23-2624/11 WRO)***

REFERENCES:

1. **Warner W. K. Hizer**, *"Life Time Physical Fitness and Wellness"*, Colorado Morten Publishing Co., **1988, pp-57**.
2. **Charles A. Bucher & D. A. Woost**, *"Foundation of Physical Education and Sports"*, Mosby College Publishing, (Saint Louis), 3rd Ed., **1985, pp-89.**
3. **Daver Victor**, *"Fitness for Elementary School Children and Youth"*, Verges Publishing Co., **1964, pp-146**.
4. **Pradhuman R. Bhatt**, *"SarirVigyan, Arogya Shastra & Ramat Vigyan"*, DhavalPrakashan (Ahmedabad), **1999, pp-08**.
5. **Carltone R. Mayors**, *"Measurement in Physical Education"*, the Ronald Press Co. (New York), **1974, pp-258.**

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