

## A Critical Study On The Effect Of Physical Fitness Parameters And Psychological Factors On Service And Repeated Volley Performance Of Collegiate Men Volleyball Players Of Hyderabad Karnataka Region

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### Introduction:

Volleyball has developed into a highly competitive sport which requires a high level of physical and psychological fitness. The game at high level of competition requires quick, sudden movement and fast reactions. Volleyball matches have no time limit and matches can last several hours if the teams are evenly matched and for this the player has to be very sound physically as well as psychologically (Sandhu, 1989).

In volleyball performance depends on well developed physical qualities, which are agility, acceleration, strength, and vertical jumping, and superior anticipation and decision-making skills. Volleyball performed on an area requires high-speed whole body movements. Many of these are in response to the motion of a ball, opposition players, or team-mates. Thus, volleyball is an intermittent sport that combines active and passive phases of play and requires players to compete in frequent short bouts of high-intensity exercise, followed by periods of low-intensity activity. Also, volleyball is an intermittent sport that vertical jump is a fundamental part of the spike, the block, and the topspin and floating serves. The most effective spike in volleyball is likely dependent on vertical jump height and the body position adopted before ball contact. Specifically, a high vertical jump in volleyball is a critical component in hitting and blocking. Indeed, the vertical jump is a common tool used to assess explosive strength in volleyball athletes. During volleyball competitive players are involved in defensive and offensive jumping activities where power, strength, agility, and speed are required.

### Objectives Of The Study:

The following are the major objectives of the study.

1. To Analyze The Effect Of Physical Fitness Parameters on the service and repeated volley performance of collegiate Volleyball players of Hyderabad Karnataka Region.
2. To Analyze The Effect Of Psychological Factors On The Service And Repeated Volley Performance Of Collegiate Volleyball players of Hyderabad Karnataka Region.

### Hypotheses Of The Study:

1. There would be significant effect of physical fitness parameters on the service and repeated volley performance of collegiate Volleyball players of Hyderabad Karnataka Region.
2. There may be significant effect of psychological factors on the service and repeated volley performance of collegiate Volleyball players of Hyderabad Karnataka Region.

### Review Of Related Literature

A study of relevant literature is an essential step to get a full picture of what has been done with regards to the problem under study. The investigator has made an honest and sincere attempt to locate the similar studies made by various scholars, through internet, textbooks, magazine, journals, research quarterlies and dissertation abstracts. Such collected references have been presented in logical order of importance and sequence of merit in this chapter.

**Russell and Lange Volleyball Skill Test:** Russell and Lange (1940) worked with achievement tests for junior high school girls. They selected the repeated volleys test and the serve test from the French and Cooper battery. The volleys test was modified to involve three trials of 30 sec each at the 3 ft restraining line. The reliability computed on two trials and 0.90 for the sum of three trials. Seven

judges used a four point scale from excellent to poor in the validity studies. They rated 66 players during a tournament play. The validity correlations ranged from 0.61 to 0.67, but when corrected for attenuation and random errors were 0.63 to 0.80.

**Govind B. Taware et.al (2013).**

Background: Ball games require comprehensive ability including physical, technical, mental and tactical abilities. Among them, physical abilities of players exert marked effects on the skill of the players themselves and the tactics of the team. Therefore players must have the physical abilities to meet the demand of the sport. Volleyball is one of the most popularly played games in the world. Unfortunately, the level of performance of the Indian volleyball players lags far behind the international standards. Aim of the Study: The present study was aimed to assess flexibility, muscular endurance, power and cardio-respiratory endurance of volleyball players and to compare the results with age matched controls. Also, to compare the findings of the volleyball players with that of the international norms from the available literature and to make some suggestions for the improvement in their performance level.

**Material and Methods:**

The study was carried out in 40 male volleyball players aged between 17 to 26 years and 40 ages matched male controls. Physical fitness parameters namely flexibility, muscular endurance, power and cardio-respiratory endurance were measured, data was analyzed using unpaired 't'-test. Results: It was observed that all physical fitness parameters were significantly more in players as compared to their aged-matched controls but when values of the subjects were compared to international standards; our subjects were behind the recommended norms for the elite volleyball players. Conclusion: The volleyball players have more advantage of flexibility muscular endurance, power and cardio-respiratory endurance. Key Words: Flexibility, Muscular Endurance, Power, Cardio-Respiratory Endurance, Bicycle Ergometry, VO2 max.

**Sample For The Study:**

The sample selected for the present study are men collegiate Volleyball players ranging 20-25 years of age were selected from six districts of

Hyderabad Karnataka region. A total of 300 samples are selected by simple random sampling procedure.

**Sample Design**

DISTRICTS	VOLLEYBALL PLAYERS		TOTAL
	HIGH	LOW	
KALABURAGI	25	25	50
BELLARY	25	25	50
RAICHUR	25	25	50
YADGIRI	25	25	50
BIDAR	25	25	50
KOPPAL	25	25	50
GRAND TOTAL	150	150	300

**Tools Used:**

1. Selected Physical Fitness Tests: 30 Meter Dash, 505 Agility Test, Sit and Reach Test and Vertical Jump Test.
2. Russel-Lange Volleyball Test.
3. Bhargava's Achievement Motive Test
4. Self-confidence Questionnaire (SCQ) developed by M. Basavanna (1971).
5. Test Administration:
6. The researcher was visited to various Degree Colleges of Hyderabad Karnataka region prior to respective level Volleyball tournaments. The tests were administered to men Volleyball players who are going to participate in the respective level Volleyball tournaments. The researcher was collected the data related to present study in the following methods,

**Selected Physical Fitness Tests:**

- **30 Meter Dash:**

Sprint or speed tests can be performed over varying distances, depending on the factors being tested and the relevance to the sport.

Purpose: The aim of this test is to determine acceleration and speed.

**Equipment required:** [Measuring Tape](#) or marked track, [stopwatch](#) or [timing gates](#), [cone markers](#), flat and clear surface of at least 50 meters.

**Procedure:**

The test involves running a single maximum sprint over 30 meters, with the time recorded. A thorough warm up should be given,

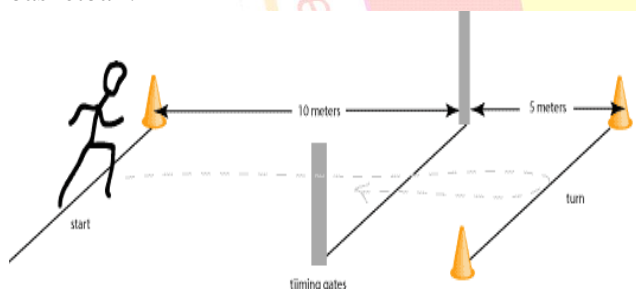
including some practice starts and accelerations. Start from a stationary position, with one foot in front of the other. The front foot must be on or behind the starting line. This starting position should be held for 2 seconds prior to starting, and no rocking movements are allowed. The tester should provide hints for maximizing speed (such as keeping low, driving hard with the arms and legs) and encouraged to continue running hard through the finish line.

**Results:**

Two trials are allowed, and the best time is recorded to the nearest 2 decimal places. The timing starts from the first movement (if using a stopwatch) or when the timing system is triggered, and finishes when the chest crosses the finish line and/or the finishing timing gate is triggered.

**505 Agility Test:**

The 505 Agility test is a test of 180 degree turning ability. The test may also be adapted for sport specific testing by having the subject dribble a soccer ball or hockey ball through the course, or bounce a basketball.



**Equipment required:** [gates](#) or [stopwatch](#), [non-slip surface](#), [cone markers](#), [start/stop timing](#), [running](#)

**Procedure:**

Markers are set up 5 and 15 meters from a line marked on the ground. The athlete runs from the 15 meter marker towards the line (run in distance to build up speed) and through the 5 m markers, turns on the line and runs back through the 5 m markers. The time is recorded from when the athletes first runs through the 5 meter marker, and stopped when they return through these markers (that is, the time taken to cover the 5 m up and back distance - 10 m total).

**The best of two trails time is recorded.** The turning ability on each leg should be tested. The subject

should be encouraged to not overstep the line by too much, as this will increase their time.

**Sit and Reach Test;**

The sit and reach test is a common measure of flexibility, and specifically measures the flexibility of the lower back and hamstring muscles. This test is important as because tightness in this area is implicated in lumbar lordosis, forward pelvic tilt and lower back pain. This test was first described by Wells and Dillon (1952) and is now widely used as a general test of flexibility.

**Procedure:**

This test involves sitting on the floor with legs stretched out straight ahead. Shoes should be removed. The soles of the feet are placed flat against the box. Both knees should be locked and pressed flat to the floor - the tester may assist by holding them down. With the palms facing downwards, and the hands on top of each other or side by side, the subject reaches forward along the measuring line as far as possible. Ensure that the hands remain at the same level, not one reaching further forward than the other. After some practice reaches, the subject reaches out and holds that position for at one-two seconds while the distance is recorded. Make sure there are no jerky movements. See also video demonstrations of the [Sit and Reach Test](#).

**Scoring:**

The score is recorded to the nearest centimeter or half inch as the distance reached by the hand. Some test versions use the level of the feet as the zero mark, while others have the zero mark 9 inches before the feet. There is also the [modified sit and reach test](#) which adjusts the zero mark depending on the arm and leg length of the subject. There are some [norms for the sit and reach test](#) and also examples of some actual [athlete results](#).

**Vertical Jump Test (Sergent Jump, Vertical Leap):**

This procedure describes the method used for directly measuring the vertical jump height jumped. There are also timing systems that measure the [time of the jump](#) and from that calculate the vertical jump height.

**Purpose:** to measure the leg muscle power

**Equipment required:** [Measuring tape](#) or [marked wall](#), chalk for marking wall (or [Vertical](#) or [jump mat](#)).

**Procedure:**

The athlete stands side on to a wall and reaches up with the hand closest to the wall. Keeping the feet flat on the ground, the point of the fingertips is marked or recorded. This is called the [standing reach height](#). The athlete then stands away from the wall, and leaps vertically as high as possible using both arms and legs to assist in projecting the body upwards. The jumping technique can or cannot use a countermovement. Attempt to touch the wall at the highest point of the jump. The difference in distance between the standing reach height and the jump height is the score. The best of three attempts is recorded.

**Scoring:** The jump height is usually recorded as a distance score.

**Russel - Lange Volleyball Test:**

**Test Objective:** To measure volleyball playing ability

**Equipment:** Volleyballs, stop watch, scoring material, wall and floor marking.

**Administration and directions:****Includes two tests**

**Volley:** Marked on wall at net height of 7.5 feet from floor (line is 10 feet wide). A parallel line of same length is marked 3 feet from wall. On an audible signal the student, starts the test with an underhand movement to toss the ball against the wall from behind the restraining line. The ball is repeatedly volleyed for 30 seconds. The action may be restarted at any time from behind the restraining line.

**Serve:** Figure to right reflects marking. From the serving area behind the end line, student completes two trials of 10 legal serves.

**Psychological Tests Administer;**

To collect necessary data pertaining to present study through questionnaire method. The subjects were administered to the Achievement Motivation Test (ACMT) and Self confidence Inventory. The data were in the form of answer given by the subjects in response to the various questions of the questionnaire. The subjects will complete answering the questionnaire within the stipulated time after which the questionnaires will be collected back and the standard scoring key was used to get the score. The scores were analyzed with the help of the

standardized norms [key] provided in the tabular supplement of tests manual.

**Statistical Analysis:**

- Descriptive statistics: Included a mean and standard deviation for selected Coordinative abilities and Leg explosive strength of tall and short Volleyball players.
- Paired t-test: For comparison of Collegiate Volleyball players with respect to Physical fitness, Psychological and Performance.

**One Way ANNOVA:** Performed to find out analysis of variance in Physical fitness, Psychological level and Performance among Collegiate Volleyball players. Karl Pearson's correlation coefficient or Spearman rank correlation coefficient: Performed to assess the relationships between Physical fitness, Psychological level and Performance among Collegiate Volleyball players. The statistical significance was set at 0.05 level of significance

**Analysis Of Data And Interpretation Of Data**

The analysis of data and interpretation of results are done based on the following steps;

1. Analysis Of Achievement Motivation And Self Confidence Level Among Inter Collegiate Volleyball Players Of Kalaburgi, Raichur, Yadgiri, Ballary, Koppal, And Bidar Districts
2. Analysis Of Physical Fitness Level Among Inter-Collegiate Volleyball Players Of Kalaburgi, Raichur, Yadgiri, Ballary, Koppal, And bidardistricts
3. Comparison Of Volleyball Playing Ability Of High And Low Achievement Motivation And Self Confidence Inter- Collegiate Volleyball Players Of Kalaburgi, Raichur, Yadgiri, Ballary, Koppal,AndBidardiDistricts
4. Comparison Of Volleyball Playing Ability Of High And Low Physical Fitness Level Inter-Collegiate Volleyball Players Of Kalaburgi, Raichur, Yadgiri, Ballary, Koppal, And Bidar Districts
5. Analysis Of Variance (ANOVA) Volleyball Playing Ability High And Low Physical Fitness Level Inter- Collegiate Volleyball Players Of Kalaburgi, Raichur, Yadgiri, Ballary, Koppal, And Bidar Districts

**Based on the findings and results of present study the following conclusions were drawn,**

It Is Concluded That The Kalaburagi, Raichur And Ballary Districts Inter-collegiate Volleyball Players Are Having High Achievement Motivation. Similarly, The Yadgiri, Koppal And Bidar Districts Inter-collegiate Volleyball Players Are Having Low Achievement Motivation.

1. There Is A Significant Difference In 30 Mtrs. Speed Test Between Kalaburagi, Raichur, Yadgir, Koppal And Bidar Districts Inter-collegiate Volleyball Players.
2. There Is No Significant Difference In 30 Mtrs. Dash Speed Test Between Kalaburagi And Ballary Districts Inter-collegiate Volleyball Players.
3. There Is A Significant Difference In 30 Mtrs. Speed Test Between Kalaburagi, Raichur, Yadgir, Koppal And Bidar Districts Inter-collegiate Volleyball Players.
4. There Is No Significant Difference In 30 Mtrs. Dash Speed Test Between Kalaburagi And Ballary Districts Inter-collegiate Volleyball Players.
5. There Is A Significant Difference In Sit And Reach Test Between Kalaburagi, Raichur, Yadgir, Koppal And Bidar Districts Inter-collegiate Volleyball Players.

**Recommendations:**

Based on the findings and results of present study the following recommendations were drawn,

1. It is recommended that based on the study results coaches and trainers can prepare scientific training programmers for Volleyball players for better performance.
2. The data and results can be used by concerned public instruction departments of Hyderabad Karnataka region for the improvement of performances in the Volleyball players.
3. Similar kind of studies on various games can be studied for effective performance.

**References:**

1. Anilkumar (2014), Comparison status of strength and speed between Kho-Kho and Kabaddi male players, International Journal of Multidisciplinary Research and Development, Vol. 1(7): 63-66.
2. Collins, D. R., and Hodges, P. B. (2001). A Comprehensive Guide to Sports Skills Tests and Measurement (2nd ed.). Lanham, MD: Scarecrow Press. Page 288-290.
3. Devender K. Kansal (1996). Test and Measurement in Sports and Physical Education. D.V.S. Publications Kalkaji, New Delhi.
4. Dreyer G (1921), The assessment of physical fitness by correlations of vital capacity and certain measurement of the body, Newyork. Paul B. Hoeber.

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