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## **ANTHROPOMETRIC MEASUREMENTS OF URBAN AND RURAL VOLLEYBALL PLAYERS**

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# Anthropometric Measurements of Urban and Rural Volleyball Players

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**Abstract – The purpose of this study was to compare the anthropometric characteristics of Urban and Rural volleyball players at different level of competition. Male volleyball players, was selected for the present study. The purposive sampling technique was used to select the subjects. All the study was assessed for height, weight, lengths, circumferences, diameters and skin fold thicknesses. An independent samples t-test revealed that Urban and Rural volleyball players had significantly higher height, arm length, upper leg length and lower leg length as compared to Urban and Rural volleyball players. Urban and Rural volleyball players were also found to have significantly greater elbow diameter, shoulder diameter, hip diameter, knee diameter, calf circumference, chest circumference, upper arm circumference and fore arm circumference. Urban and Rural volleyball players had significantly greater biceps, triceps, subscapular and suprailiac skin fold as compared to Urban and Rural volleyball players.**

**Keywords: Anthropometric, Measurements, Urban and Rural, Volleyball Players, etc.**

## INTRODUCTION

Anthropometry is the measurement of body size and proportions. The measurements include body weight, height, circumference, skin fold thickness and bony widths and lengths. Anthropometric measurements are widely used to assess and predict performance in various sports. Anthropometric measurements and morphological characteristics play an important role in determining the success of a sportsperson. Volleyball belongs to sport activities in which anthropometric characteristics of its participants influence the level of sport performance. It was established that Urban and Rural volleyball players compared to most other athletes have distinctive anthrop-morphological characteristics (Yadav, 2015). An athlete's anthropometric characteristics represent important prerequisites for successful participation in any given sport. Body height, being the most characteristic trait of Urban and Rural volleyball players is significantly conditioned genetically. Many previous studies have evaluated anthropometric profile of Urban and Rural volleyball player (Gangey and Kerketta, 2016. Mishra *et. al.*, 2015. Walter, 1952). Therefore, the purpose of this study was to compare the anthropometric characteristics of Urban and Rural volleyball players at different level of competition.

## REVIEW OF LITERATURE:

Volleyball is a team game played by two teams on a playing court divided by a net. There are different versions existing for specific situation in order to offer the versatility of the game to everyone. The object of the game is to send the ball over the net in control to ground it on the opponent's court, and to prevent the same attempt by the opponent. The team has three hits for returning the ball (in addition to the block contact). The ball is set in play with a service: hit by the server over the net to the opponents. The rally continues until the ball is grounded on the playing court, goes "out" or a team fails to return it properly. Anthropometry is the methodical quantitative representation of the human body. Anthropometry helps to study the relationship between the size and shape of the human body and sports performance. Anthropometric techniques are used to measure the complete and relative variability in size and shape of the human body (Johnson and Nelson, 1982. Devi, 1985. Joseph, 1983). Depending on the purpose, anthropometric instrumentation may consist of weighing scale, anthropometry, skinfold caliper, body volume tanks, with bioelectrical impedance analyzers. Expert of this field use internationally standardized techniques to determine athletes and use calculations of body composition, dimensions, proportion and ratio to assist improve sport performance. In recent volleyball measurement, evaluation, analysis and

interpretation of player's team performance are very essential in scientific training and development of top class team. Match analysis and tests are the most important means to obtain data and subjective information on the performance of players and team during the match. Scouting has become a tool used by every coach to get ready their team for the competition. The study was delimited to Urban and Rural level players and selected anthropometric variables. The study was further restricted to the Urban and Rural volleyball playing performance which was evaluated through a subject rating in playing ability for each player by a panel of three experts. The study was hypothesized that there would be significant relationship between selected anthropometrical variable with the Urban and Rural volleyball playing performance (Barrow and Rosemary, 1979. Kansal, 2008. Singh and Singh, 2013).

### Volleyball Playing Performance Measure:

Performance in volleyball was selected as the dependent variable. Performance score was obtained through a subject rating in playing ability for each player by a panel of three experts, who evaluated and rated each player on a scale of 5 broad areas of passing, serving, setting, blocking, and attacking (Gangta and Singh, 2012). The combined score of each player in five areas served as the final score of his overall playing ability score in volleyball. For each criteria maximum 10 marks and over all 50 marks were awarded for measuring the performance (Kumar and Singh, 2013). There are three experts over all scoring score 150. In order to achieve greater consistency and objectivity in the judges' ratings, a detailed break up skills and areas of competency along with detailed explanation of as to how scores are to be awarded, was provided to the judges. Reliability of tests was established by test retest method.

### ANTHROPOMETRIC VARIABLES MEASURE:

**Weight-** The players stand erect in the center of the scaled platform of a portable weighing machine wearing minimal cloth. The weight was recorded in kilogram.

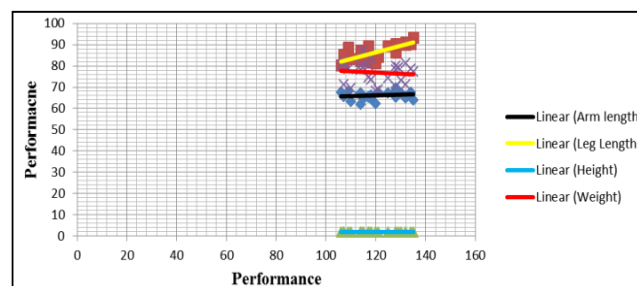
**Height-** The height was measured with the help of an anthropometric rod. The measurement was taken with the individual standing straight against an upright wall. The measurement was taken in meter.

**Arm Length-** The subject hangs his right arm at the side of the body and measurement from the acromion process to tip of the middle finger. The measurement was taken in centimeter.

**Leg Length-** The subject stand facing forward. The measurement was taken from greater trochanter to heel of the feet in centimeter.

**Table 1: Relationship of selected anthropometric variables with Urban and Rural volleyball playing performance**

Anthropometric Variables	N	Mean	S. D.	Correlation Coefficient (r)	Sig.(2-tailed)
Height	25	01.80	0.026	.723*	.000
Weight	25	76.89	5.026	-.119	.571
Arm length	25	66.05	1.896	.169	.419
Leg length	25	86.41	3.846	.745*	.000



**Fig 1: Graphical representation of selected anthropometric variables with relationship of Urban and Rural volleyball playing performance**

### DISCUSSION:

The study was conceptualized with the purpose to find out the relationship between selected anthropometrical variable with the volleyball playing performance. The knowledge about difference of selected anthropometric variables is very important for training and performance implementation in volleyball. The finding of the study also be utilized while consider the factor for the selection of Urban and Rural player training age, experience, and fitness etc. The finding indicating the requirement of the involvement of Urban and Rural player in the match could be used by the coaches while planning the training program bearing in mind the tactical plan for the player. Based on the findings of the study it was revealed that the anthropometrical variable Height and Leg length were significantly correlated with playing performance. In recent volleyball each team tries to reach high and jump high to make playing action like block and spike more complex for opponent while performed over the net and due to this reason more importance has to be given on team's attack, block and service because these are the offensive action and team's most of the points are achieve through these playing action, along with this, winning probability become more with an effective block and to make the team more stronger in these playing actions Height and Leg Length has to be given more importance. Even it has been seen the team composition at international rank the average height and leg length of the top class teams are mounting which shows the significant importance of height in volleyball.

## CONCLUSION:

Following conclusions were drawn from the present study-

- The statistical finding showed that there was significant relationship of anthropometric variable i.e. Height with the volleyball playing performance.
- The statistical finding showed that there was significant relationship of anthropometric variable i.e. Leg length with the volleyball playing performance.
- The statistical finding showed that there was no significant relationship of anthropometric variable i.e. Weight and Arm length with the volleyball playing performance.

They observed that Urban and Rural players had better anthropometric measurements as compared to Urban and Rural volleyball player. In case of skin fold measurements, the Urban and Rural volleyball players had significantly greater skinfolds thickness as compare to Urban and Rural volleyball players. The skinfold thicknesses of four sites, biceps, triceps, subscapular and suprailiac, of Urban and Rural volleyball players. The skinfold thickness is significantly higher in the Urban and Rural volleyball players group, indicating that the inter-school volleyball players had a greater quantity of subcutaneous fat deposition. It is concluded that various anthropometric characteristics has clear impact on the competition level of the Urban and Rural volleyball players.

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