

## RELATIONSHIP BETWEEN ANTHROPOMETRIC AND SKILL PERFORMANCE VARIABLES OF VOLLEYBALL PLAYERS

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### Abstract:

*In sport, the characteristics of physical, physiological, psychological, sociological and anthropometrical are functionally associated with the performance of a player or an athlete. Considering the requirements of these characteristics in sport, each sport has its own entity since they differed from one another in nature. Meanwhile, though a particular sport has been defined in the requirements of these characteristics, within variance in sport may arise because of variations exist among the players of particular sport in terms of physical and anthropometric aspects. Anthropometry is the measurements of the body to discover its exactly dimension and the proportions of its parts(Hardick,1939). In general, the structure of human body is explained by its height and weight(Cwten,1974, Krakower;1935)). But in sport, players with same height and weight may not be similar in the efficiency of execution of movement and sustainable capacity since the segments of body part are varied in terms of its length, width, and circumference.*

### KEYWORDS:

Anthropometric , Skill Performance , Volleyball Players , physiological.

### INTRODUCTION

Such variations exist on anthropometrical among the team members, mechanically affect them which results in consume energy for unwanted movements. Thus the player anthropometric functions are significantly influence the execution of skill and overall performance in sport. To empirically analyze this, the game volleyball was chosen for this study. The game volleyball is a team sport playing with volleying the ball over the net of eight feet. In this game the fundamental skills are passing, serving, blocking and spiking. Of these the skills of serving, blocking and spiking though significantly influenced by the physical aspects of arm strength, arm explosive power and leg explosive power, the instrument to exercise these of leg length and arm length of a player is the most significant one. The desirable arm length and leg length helps the player in the game of volleyball to successfully complete the movements related to spiking, blocking and serving with less amount of energy consumption and play with endure throughout the game.

With this perspective, the present study has been carried out to identify the relationship between the skills of volleyball and anthropometric aspects of volleyball players at inter-collegiate level.

### PURPOSE AND HYPOTHESIS OF THE STUDY

The purpose of the study was to find out the relationship between anthropometric and selected skill performances of inter collegiate volleyball players. Based on the nature of the game and impact of anthropometric on volleyball skills, it was hypothesized that there may be relationship among the playing ability, Arm length, Leg Length and height of the Inter Collegiate volley ball players.

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**METHODOLOGY**

To achieve the purpose of the study the means and methods used in selection of subjects, variables, tools used in collection of data and treatment of data were explained briefly here. As subjects, the volleyball players participated in the intercollegiate tournaments of Thoothukudi and Tirunelveli Districts were selected randomly 90 . The age of the subjects was fixed in the range of 18 to 25 years. In selecting the variables, the opinion of physical education teachers, high level players and coaches was sought to determine the anthropometric components that are involve in execution of skills. Based on the discussion, the selected variables are: anthropometric (height, arm length leg length) and skill variables (passing, blocking, serving, defense and attack). In order to ensure the quality of data, the investigator had a meeting with them and explained the purpose and significance of the study. The selected subjects were tested on anthropometric and skill variables using standardized test items. The collected data on anthropometric and skill performance variables of volleyball players were treated with the product moment correlation (SPSS VERSION 16) to study the relationships among the variables used in the study. The results derived from the product moment correlation are tested at 0.05 level. The results of this are given in the table 1-2

**TABLE -1**  
**Descriptive statistics on Anthropometric and Skill performance variables of Volleyball players**

<b>Leg Length</b>	<b>108.63</b>	<b>5.02</b>
<b>Arm Length</b>	<b>59.9</b>	<b>3.78</b>
<b>Height</b>	<b>182.66</b>	<b>5.62</b>
<b>Service</b>	<b>6.43</b>	<b>0.49</b>
<b>Attack</b>	<b>6.76</b>	<b>0.61</b>
<b>Block</b>	<b>6.63</b>	<b>0.54</b>
<b>Defense</b>	<b>6.10</b>	<b>0.78</b>
<b>Pass</b>	<b>6.33</b>	<b>0.47</b>

**TABLE -2**  
**Relationship between anthropometric and skill performance variables of volleyball players**

	<b>Service</b>	<b>Attack</b>	<b>Block</b>	<b>Passing</b>	<b>Defense</b>
<b>Height</b>	<b>0.10</b>	<b>0.62</b>	<b>0.54</b>	<b>0.48</b>	<b>0.61</b>
<b>Arm length</b>	<b>0.46</b>	<b>0.51</b>	<b>0.57</b>	<b>0.62</b>	<b>0.34</b>
<b>Leg length</b>	<b>0.71</b>	<b>0.51</b>	<b>0.41</b>	<b>0.22</b>	<b>0.29</b>

**RESULTS**

Arm length is positively related with skill performance variables of service (0.46) attack(0.51) Block(0.57),Passing (0.62),and Defensive(0.34), From the it was inferred That The Relationship of Arm Length with Attack ,Block, and Passing was Statistically Significant since the obtained 'r' value of there are found to the higher than required critical value(0.34) Besides when testing the relationship of Arm Length with their Defense statistically not significant

Leg Length is positively related with skill performance variables of service (0.71) attack(0.51) Block(0.41),and Passing (0.22), Defensive(0.29), From the it was inferred That The Relationship of Arm Length with Attack ,Block, was Statistically Significant since the obtained 'r' value of there are found to the higher than required critical value(0.22) and (0.29) .Besides when testing the relationship of Leg Length with their Passing and Defense statistically not significant.

Height is positively related with skill performance variables of service (0.10) Attack(0.62) Block(0.54),Passing (0.48),and Defensive(0.61), From the it was inferred That The Relationship of height with Attack ,Block, and Passing was Statistically Significant since the obtained 'r' value of there are found to the higher than required critical value(0.31) Besides when testing the relationship of height with Service and Defense statistically not significant

### DISCUSSION ON FINDINGS

The results derived from the product moment correlation on testing the relationship between anthropometric and skill performance variables are discussed as follows. The anthropometric components of arm strength, leg length, and height are positively related (Herald Smith's, 1969) with the skill performance variables of serving, passing, attack and defense. In nature volleyball is a game having the major skills of passing, serving, blocking and attacking. In the execution of skills, the arm length, leg length, height significantly influenced in achieving the performance the arm length. It has been substantiated by the findings of Dhilipkumar (1984) in his study of comparison of selected motor components and anthropometric variables. In the skills performance of serving and blocking, the arm length of the players helps to send the ball to the place where they want to send the ball with resultant force determined (Joseph, 1983). Besides, mechanically the length arm increase the force arm and decrease the consumption of energy during the play, are highly a needed one in the execution of skills such as attacking, and blocking. Players with good height (Krakower, 1935) consumes less amount of energy and easily blocking the ball from opponent side (Amusn, 1979). Thus such a functional association exists between anthropometric and skill performance variables may have the chance to get significant relationship.

### CONCLUSIONS

Based on the results, the following conclusion has been made.

The anthropometric components of leg length and arm length and height are having the significant relationships positively related to skill performance variables of serving, passing, attack, blocking and defense. Of the selected skills for serving and blocking both arm length and leg length are help the player to execute the skills efficiently and successfully. During the serving the arm length of the player is increasing the application of force and makes the accuracy in point of application. In such a way the physical aspect of height is playing very crucial role in blocking and attack specifically during the deciding matches. Thus the obtained results lead to concluded that anthropometric components specifically arm length, leg length functionally associated with the skill performance variables of service, passing, attacking and defence.

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