

Vol II Issue IX

ISSN No : 2230-7850

Monthly Multidisciplinary
Research Journal

*Indian Streams
Research Journal*

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RNI MAHMUL/2011/38595

ISSN No.2230-7850

Indian Streams Research Journal is a multidisciplinary research journal, published monthly in English, Hindi & Marathi Language. All research papers submitted to the journal will be double - blind peer reviewed referred by members of the editorial Board readers will include investigator in universities, research institutes government and industry with research interest in the general subjects.

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“Relationship Of Selected Physical And Anthropometric Variables With Spike Jump Performance Of Volleyball Players”

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Abstract:

The present study was taken by the investigator to find out the Relationship of Selected Physical and Anthropometric Variables with Spike Jump Performance of Volleyball Players. For the present study ten male volleyball players of Lakshmbai National University of Physical Education, Gwalior was selected as a subject of the study and Selected Physical and Anthropometric Variables of the study were speed, explosive leg strength, agility, standing height, weight, leg length and arm length. Pearson's product moment correlation coefficient was used in order to determine the significance relationship of selected Physical and Anthropometric variables with spike jump performance of Volleyball players and the level of significance was set at 0.05. The analysis of the study revealed that there was significant relationship of selected physical and Anthropometric variables namely Explosive leg strength, Agility, Standing height and Arm length with the spike jump performance of volleyball players and no significant relationship of selected physical and Anthropometric variables namely Weight, 50 Yard dash and Leg length with the spike jump performance of volleyball players.

KEY WORDS: Physical Variables, Anthropometric Variables, Spike Jump, Performance, Volleyball

INTRODUCTION

Sports are as old as human society and it has achieved a universal following in the modern times. It now enjoys popularity with other form of social activity. It has become an integral part of the educational process. Millions of men follows different sports event all over the world with an enthusiasm boarding on directions many participate in the activity for the man of it or for health, strength and fitness. They are rewarded for their interest and hard work. They have to put in a lot of hard work for years together. These athletes are not born but made. They have to show a lot of patience and grasp the details of event technique. Regular physical exercise and participation in game and sports help to improve the physical fitness is essential to adapt to the new situation and to tackle new technique. This is only possible through the improvement of science. Strength of muscle is necessary if one is to perform normal daily activities in an efficient manner. Strength in excess of this amount enables the student to perform them more easily and effectively. The students should have sufficient strength to live more fully and completely in leisure time pursuits. Strength can be measured by such test items as the chins, dips, pushups and standing broad jump. One of the most important factors influencing movement is agility, involved in co-ordinating quickly and accurately the big muscles of the body in a particular activity. One's level of agility is probably a result of both innate capacity and training and experience.

The physical fitness and anthropometric variables are very important factors to achieving high vertical jump performance for volleyball players. On the basis of this, scholar has taken the study to find out Relationship of Selected Physical and Anthropometric Variables with Spike Jump Performance of Volleyball Players. The study as delimited to the selected Physical and Anthropometric variables. The study was further delimited to ten National level male Volleyball players of Lakshmbai National University of Physical Education, Gwalior.

Please cite this Article as : Sameer Kumar Yadav , “relationship Of Selected Physical And Anthropometric....: Indian Streams Research Journal (Oct. ; 2012)

On the basis of available of literature and scholars own understanding of problem it was hypothesized that there may be significance difference in Selected Physical and Anthropometric Variables with Spike Jump performance of Volleyball Players.

METHODOLOGY

For the purpose of the study ten male students of Lakshmbai National University of Physical Education, Gwalior, who participated at National level were selected as a subject of the study. The selection of Physical and Anthropometric variables was done through review of all the scientific literature pertaining to the Physical and Anthropometric variables were related and likely to contribute for better spike jump performance and finally selection was made through consultation with experts. Physical variables as well as Anthropometric variables selected as the criterion for the present study were as follows-

Physical variables	Test to measure the physical variable
Speed	50 yard dash
Explosive leg strength	Standing brought jump
Agility	Shuttle run (4x10)
Anthropometric variables	Selected Anthropometric variables were measured from their reference point.
Standing height	
weight	
Leg length	
Arm length	

Standing broad jump was measured in centimeters by the help measuring tape and nail on jumping pit.50 yard dash and shuttle run (4x10) was measured to the nearest 1/10 of a second and for this purpose Stop Watches was used as necessary equipment. Standing height was measured to the nearest centimeters by measuring tape on smooth wall. Weight was recorded in kilograms with weighing machine while the subjects were dressed in shorts only. Arm length measurement was taken from the acromium to the tip of the middle fingers to the nearest half centimeter by measuring steel tape. Leg length measurement was recorded from the greater trochanter (Head of the femur) to the outside edge of the center of the foot to the nearest half centimeter by measuring steep tape. And the spike jump performance was taken as the subject reaches up as high as possible with one hand and marks the wall with the tips of the fingers. Measurement was recorded in centimeter.

In order to determine the significance relationship of selected Physical and Anthropometric variables with spike jump performance of Volleyball players, the Pearson's product moment correlation coefficient was employed and the level of significance was set at 0.05.

FINDINGS

To find out the relationship of selected Physical and Anthropometric Variables with the performance of vertical jump of volleyball players Pearson's product moment correlation coefficient was employed. The level of significance was set at 0.05 level. The descriptive analysis of the selected variables was presented in table 1.

Table 1
DISCRIPTIVE ANALYSIS OF SELECTED VARIABLES AND SPIKE JUMP PERFORMANCE
OF VOLLEYBALL PLAYERS

	Variables	Mean	SD
Physical Variables	speed	7.41	.403
	Explosive leg strength	2.52	.109
	Agility	10.30	.369
Anthropometric Variables	Standing Height	177	5.10
	Weight	73.166	4.227
	Arm Length	82.11	2.368
	Leg Length	92.55	3.24
Spike Jump Performance		2.92	.102

The graphical representation of mean of selected Physical, Anthropometric Variables and Spike Jump Performance has been presented in figure 1.

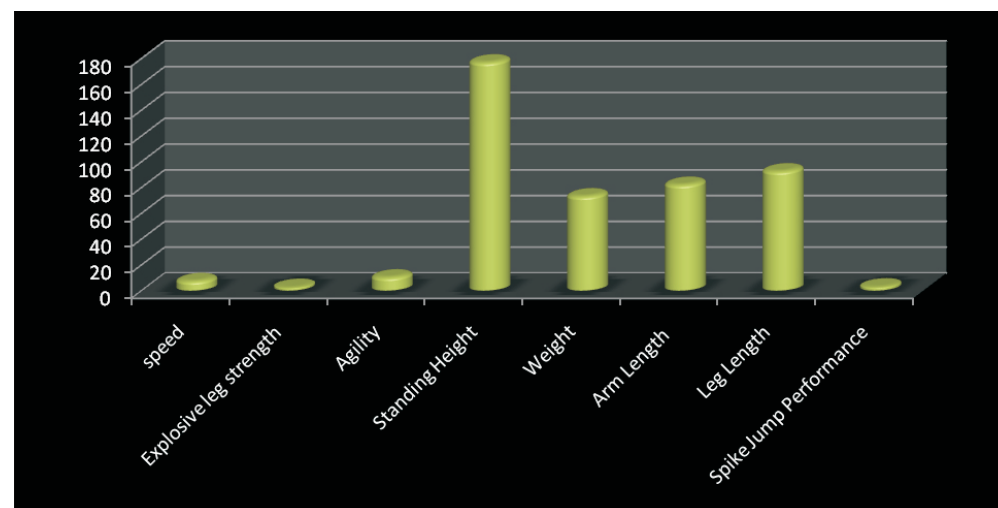


Fig. 1 Mean of Selected Physical, Anthropometric Variables and Spike Jump Performance of Volleyball Players

The significance relationships of selected Physical and Anthropometric Variables with the performance of Vertical Jump in Volleyball Players were presented in Table 2.

Table 2
RELATIONSHIP OF SELECTED PHYSICAL AND ANTHROPOMETRIC
VARIABLES WITH THE PERFORMANCE OF VERTICAL JUMP

Physical and Anthropometric Variables	Correlation Coefficient
speed	.147
Explosive leg strength	.681*
Agility	.757*
Standing Height	.652*
Weight	.225
Arm Length	.635*
Leg Length	.371

*significant (r) .05 (8) = 0.632

It was evident from the table 2 that co-efficient of correlation of selected physical and Anthropometric variables namely Explosive leg strength, Agility, Standing height and Arm length were .681, .757, .652 and .635 respectively, which were significant at 0.05 level of significance with 8 degree of freedom. It indicates that there is significant relationship With Spike Jump performance of Volleyball players.

Finding of the table 2 also reveals that co-efficient of correlation of selected physical and Anthropometric variable i.e. Speed, Weight and Leg length with the vertical jump performance were not statistically significant at 0.05 level of significance. Appearance of such type of results indicates that there is no significant relationship of selected physical and Anthropometric variables namely Explosive leg strength, Agility, Standing height and Arm length with Spike Jump performance of volleyball players.

DISCUSSION

The statistical analysis of the data revealed that Spike Jump performance of volleyball players was significantly related to the selected physical and Anthropometric variables namely Explosive leg strength, Agility, Standing height and Arm length. Apparently Explosive leg strength, Agility, Standing height and Arm length are essential for volleyball players in order to give efficient Spike Jump performance.

This might be attributed to the fact that jump height is a crucial factor in volleyball and the leg muscles plays important role in vertical jump performance so with good explosive leg strength a player can reach higher for spike.

Agility helps a player to move quickly and at the same time it facilitate a player for approach run, which helps to attain good horizontal velocity.

In volleyball a team needs to be superior in spiking and blocking above the net and it is vital important to spike, block and set higher above the net than the opponent, for this purpose height is one of the deciding factors and it was found that the winning team was mostly taller than the average height of the first three teams.

Arm length is given more emphasis for selection and talent identification in volleyball because with good arm length a player can reach higher than the other player if rests of the needed characteristics are same. So it is one of the deciding elements for the purpose of good spike jump reach.

Apart from this a player needs a good approach run, counter movement of legs and arm swing, moment execution, crouch position and angle of take-off for better performance in spike jump.

CONCLUSION

The finding of the study shows the significant relationship of selected physical and Anthropometric variables namely Explosive leg strength, Agility, Standing height and Arm length with the Spike Jump performance of volleyball players.

The statistical finding also indicates that there was no significant relationship of selected physical

and Anthropometric variables namely Weight, 50 Yard dash and Leg length with the Spike Jump performance of volleyball players.

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