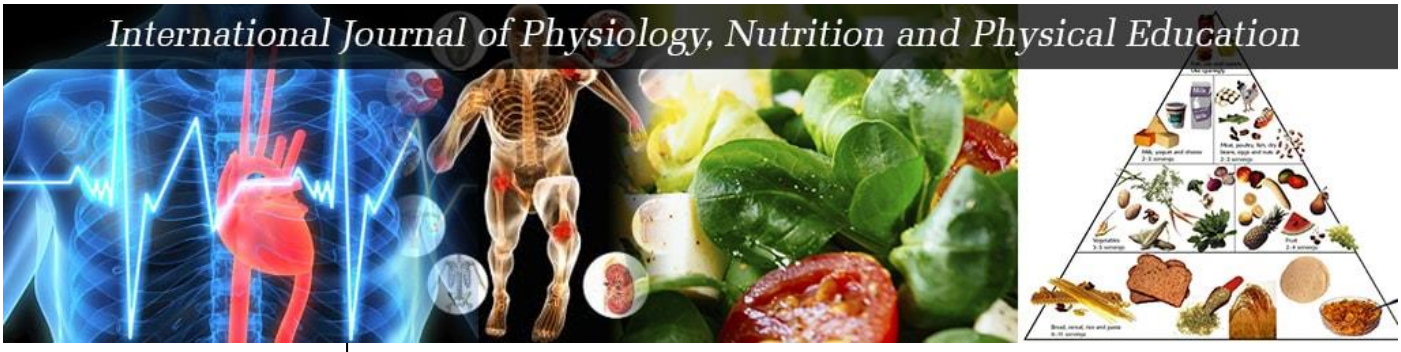

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Relationship of selected anthropometric measurements with motor fitness performance of volleyball players

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Abstract
The aim of this study was to examine relationships between anthropometric measurements with motor fitness performance of volleyball players. For the Present study source of data was taken from Warud Taluka, Dist. Amravati (M.S.) who participated in Inter College level volleyball players. For the present study 20 subjects were selected from volleyball players. Age of subjects was ranging between 18 to 25 years. The subjects were selected by purposive sampling method. Following equipments would be used for collection of data: 1) The weight of each subject was taken on a leveled platform weighing machine and the weight was recorded nearest to half a kilogram, 2) The height of the subject was measured with the help of stadiometer and Score was recorded to nearest of centimeters, 3) Arm length was measured with help of flexible non-stretchable steel tape to nearest of a centimeter, 4) Leg length was measured with help of flexible non-stretchable steel tape to nearest of a centimeter, 5) Speed was measured by administering 50 meter dash, 6) Agility was measured by administering 4×10 yard Shuttle run and 7) Muscular endurance was by administering bent-knee sit-ups. The statistical analysis and interpretation of data pertaining to the score of anthropometric measurement and motor fitness performance of volleyball players have been presented. To find out relationship of anthropometric with motor fitness performance Inter Correlation Matrix, statistical technique was employed. Result: There was significant relationship weight, leg length, arm length, speed, agility, muscular endurance with height; significant relationship of leg length, arm length, agility, and muscular endurance with weight, insignificant relationship of speed with weight, significant relationship of arm length, speed, agility; significant relationship of muscular endurance with leg length, insignificant relationship of speed, agility with arm length, significant relationship of muscular endurance with arm length; significant relationship between agility and speed and insignificant relationship of muscular endurance with speed and agility.

Keywords: Anthropometric, motor fitness, performance

Introduction
Anthropometry is the science of measuring human body and its parts. It is used us an aid to the study of human evaluation and variation. The study of human physical measurements is deal by another science anthropometry, which has wide application as one of the essential parameters constituting the selective diagnostics of any game or sport. The study of "Body Type" has a significant place in the field of sports. Anthropometric indices alder in evaluating potentiality for athletic performance. The physical structure especially the height and arm length have definite decisive advantage in many games and sports. Similarly segmental length of individual body parts the arm length specifically is of considerable advantage in selected events in athletics and in certain games [1].

Fitness in the human body what fine tuning is to an engine. It enables us to perform up to our potential. Fitness can be described as a condition that helps us for better look, pleasant feel and do our best. More specifically, it is "the ability to perform daily tasks vigorously and alertly, with energy left over for enjoying leisure time activities and meeting emergency demands. It is the ability to endure, to bear up, to withstand stress, to carry on in circumstances where an unfit person could not continue, and is a major basis for good health and well being" [2].

Fitness involves the performance of the heart and lungs, and the muscles of the body. And since what we do with our bodies also effects what we can do with our minds, fitness influences to some degree qualities such as mental alertness and emotional stability [3].

Methodology

For the Present study source of data was taken from Warud Taluka, Dist. Amravati (M.S.) who participated in Inter College level volleyball players. For the present study 20 subjects were selected from volleyball players. Age of subjects was ranging between 18 to 25 years. The subjects were selected by purposive sampling method. Following equipments would be used for collection of data:

A) Anthropometric Measurements:

(i) Weight: The weight of each subject was taken on a leveled platform weighing machine and the weight was recorded nearest to half a kilogram.

(ii) Height: The height of the subject was measured with the help of stadiometer and Score was recorded to nearest of centimeters.

(iii) Arm Length: Arm length was measured with help of flexible non-stretchable steel tape to nearest of a centimeter.

(iv) Leg Length: Leg length was measured with help of flexible non-stretchable steel tape to nearest of a centimeter.

B) Motor Fitness Components:

(i) Speed: Speed was measured by administering 50 meter dash.

(ii) Agility: Agility was measured by administering 4×10 yard Shuttle run.

(iii) Muscular endurance: Muscular endurance was by administering bent-knee sit-ups.

Statistical analysis

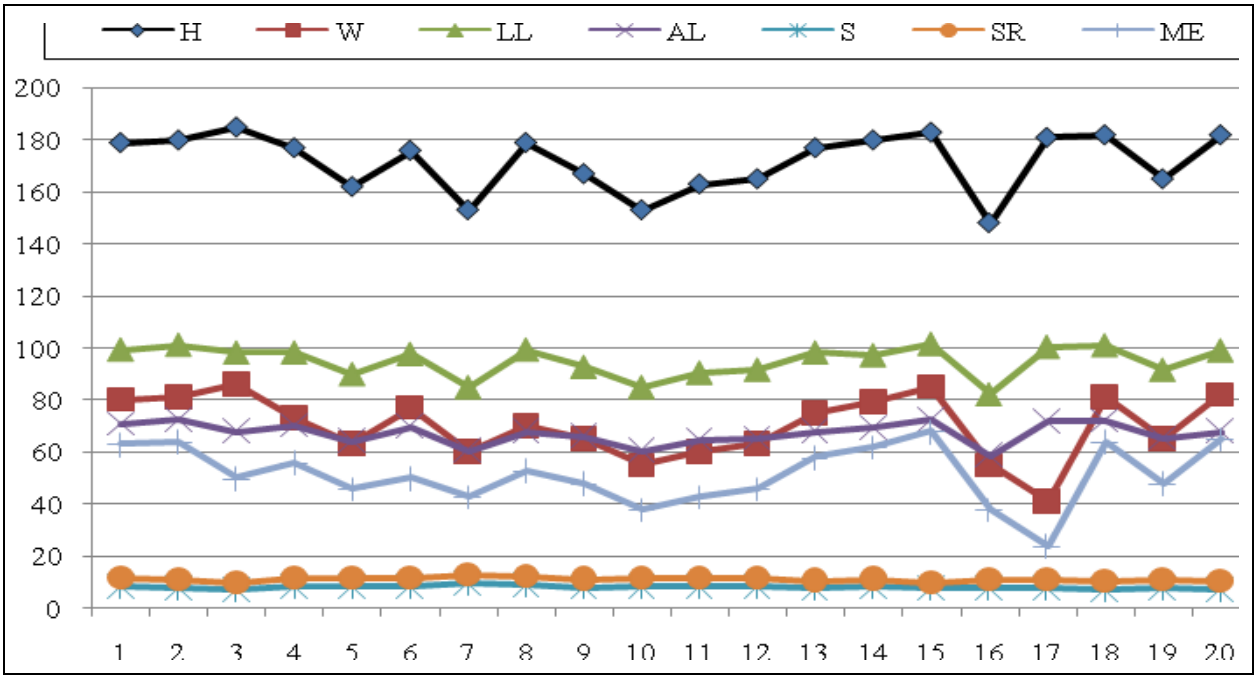
The statistical analysis and interpretation of data pertaining to the score of anthropometric measurement and motor fitness performance of volleyball players have been presented. To find out relationship of anthropometric with motor fitness performance Inter Correlation Matrix, statistical technique was employed.

Table 1: Inter Correlation Matrix

Variables	H	W	LL	AL	S	A	ME
H	1						
W	0.667	1.000					
LL	0.981	0.623	1.000				
AL	0.929	0.568	0.969	1.000			
S	-0.514	-0.423	-0.457	-0.411	1.000		
A	-0.536	-0.489	-0.472	-0.431	0.952	1.000	
ME	0.594	0.921	0.597	0.566	-0.316	-0.356	1

**H=Height (cm), W=Weight (Kg), LL=Leg Length (cm), AL=Arm Length (cm), S=Speed, A=Agility, ME=Muscular endurance

From the above tables the under mentioned summary had drawn in respect of the interrelationship of each component to other.



Graph 1: Relationship of selected anthropometric measurements with motor fitness performance of volleyball players

Table 2: Interpretation of Correlation coefficient

Coefficient(r)	Relationship
.00 to .20	Negligible
.20 to .40	Low
.40 to .60	Moderate
.60 to .80	Substantial
.80 to 1.00	High to very high

Table 3: Summary of the Inter correlation Matrix

Sr. No.	Variable	Calculated 'r'	Relationship
1	Weight-Height	0.667*	Substantial
2	Leg Length-Height	0.981*	High To Very High
3	Arm Length -Height	0.929*	High To Very High
4	Speed -Height	-0.514*	Moderate
5	Agility –Height	-0.536*	Moderate
6	Muscular endurance –Height	0.594*	Moderate
7	Leg Length- Weight	0.623*	Substantial
8	Arm Length- Weight	0.568*	Moderate
9	Speed- Weight	-0.423	Moderate
10	Agility- Weight	-0.489*	Moderate
11	Muscular endurance- Weight	0.921*	High To Very High
12	Arm Length-Leg Length	0.969*	High To Very High
13	Speed-Leg Length	-0.457*	Moderate
14	Agility-Leg Length	-0.472*	Moderate
15	Muscular endurance-Leg Length	0.597*	Moderate
16	Speed-Arm Length	-0.411	Moderate
17	Agility-Arm Length	-0.431	Moderate
18	Muscular endurance-Arm Length	0.566*	Moderate
19	Agility-Speed	0.952*	High To Very High
20	Muscular endurance-Speed	-0.316	Low
21	Muscular endurance-Agility	-0.356	Low

*Level of Significance = 0.05, Tabulated 'r' 0.05 (18) = .444

From the above given table-1 after doing its minutely observation, it is clear that the relationship of weight with height (0.667) is substantial, leg length with height (0.981) is high to very high, arm length with height (0.929) is high to very high, speed with height (-0.514) is moderate, agility with height (-0.536) is moderate, muscular endurance with height (0.594) is moderate, leg length with weight (0.623) is substantial, Arm length with weight (0.568) is moderate, Speed with weight (-0.423) is moderate, agility with weight (-0.489) is moderate, muscular endurance with weight (0.921) is high to very high, arm length with leg length (0.969) is high to very high, speed with leg length (-0.457) is moderate, agility with leg length (-0.472) is moderate, muscular endurance with leg length (0.597) is moderate, speed with arm length (-0.411) is moderate, agility with arm length (-0.431) is moderate, muscular endurance with arm length (0.566) is moderate, agility with speed (0.952) is high to very high, muscular endurance with speed (-0.316) is low, muscular endurance with agility (-0.356) is low.

Conclusions

Based on the analysis and within the limitations of present study, it was concluded that:

1. There was significant positive relationship between weight and anthropometric measurement of Height.
2. There was significant positive relationship between leg length and anthropometric measurement of Height.
3. There was significant positive relationship between arm length and anthropometric measurement of Height.
4. There was significant negative relationship between speed and anthropometric measurement of Height.
5. There was significant negative relationship between agility and anthropometric measurement of Height.
6. There was significant positive relationship between muscular endurance and anthropometric measurement of Height.
7. There was significant positive relationship between leg length and anthropometric measurement of weight.
8. There was significant positive relationship between arm length and anthropometric measurement of weight.
9. There was insignificant negative relationship between speed and anthropometric measurement of weight.
10. There was significant negative relationship between agility and anthropometric measurement of weight.
11. There was significant positive relationship between muscular endurance and anthropometric measurement of weight.
12. There was significant positive relationship between arm length and anthropometric measurement of leg length.
13. There was significant negative relationship between speed and anthropometric measurement of leg length.
14. There was significant negative relationship between agility and anthropometric measurement of leg length.
15. There was significant positive relationship between muscular endurance and anthropometric measurement of leg length.
16. There was insignificant negative relationship between speed and anthropometric measurement of arm length.
17. There was insignificant negative relationship between agility and anthropometric measurement of arm length.
18. There was significant positive relationship between muscular endurance and anthropometric measurement of arm length.
19. There was significant positive relationship between agility and speed.
20. There was insignificant negative relationship between muscular endurance and speed.
21. There was insignificant negative relationship between muscular endurance and agility.

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