



## ANTHROPOMETRIC VARIABLES AS PREDICTOR OF PLAYING ABILITY OF NATIONAL MALE BASKETBALL PLAYERS

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### ABSTRACT

**Background:** The objective of the study was anthropometric variables as predictor of playing ability of national male basketball players.

**Method:** For the purpose of study, twenty male National basketball players were selected. Basketball playing ability was selected as a dependent variable and Anthropometry was considered as Independent Variable. The basketball playing ability was measured by judges rating and anthropometric variables were measured by anthropometrical kit. To find out the significant relationship Pearson's Product Moment correlation and to find out the joint contribution multiple correlations was used and to find out prediction multiple regression equation was used. The level of significance was set at .05 level.

**Results:** Basketball performance was found significantly correlated with Height, Arm length, Leg length, at 0.05 level of significance and multiple correlation to Height, Weight, Arm length, Leg length, Chest girth, Calf girth are 0.669 and regression equation  $Y = -8.360 + .182(\text{Height})$ .

**KEYWORDS:** anthropometric variables, Male Basketball Players, anthropometrical kit.

### INTRODUCTION :

Basketball is an athletic sport, usually played on an indoor court in which two competing teams of five players each attempt to score by throwing an inflated ball so that it descends through one of two baskets suspended, at each end of the court, above their heads. The team scoring the most such throws, through field goals or foul shots, wins the game. Because of its continuous action and frequent scoring, basketball is one of the most popular in spectators as well as participant sports in the world.

Changes in body dimensions reflect the overall health and welfare of individuals and population. Anthropometry is used to assess and predict performance, health and survival of individuals and reflect the economic and social wellbeing of population. Anthropometry is widely used in inexpensive and non-invasive measure of the

general nutritional status of an individual or a population group. Recent studies have demonstrated the applications of anthropometry to include the prediction of who will be benefited from interventions, identifying social and economic inequity and evaluating responses to interventions.

### OBJECTIVE OF THE STUDY

The objective of the study was Prediction of Basketball Playing Ability on the Basis of Selected Anthropometrical Variables.

### METHODOLOGY

#### Selection of Subjects

For the purpose of study, twenty young male basketball players of national level belonging to the age level of 18 to 25 years from Varanasi region were selected as the subject for the study.

### CRITERION MEASURES

1.Height was measured by Stadiometer and recorded in

centimetre.

2. Weight was measured by digital weighing machine and recorded in kilogram.
3. Leg length was measured by steel tape and recorded in centimetre.
4. Arm length was measured by steel tape and recorded in centimetre
5. Calf girth was measured by steel tape and recorded in centimetre.
6. Chest girth was measured by steel tape and recorded in centimetre.

### STATISTICAL ANALYSIS

1. To find out correlation between dependent variable (Basketball Playing Ability) and independent variables (Anthropometric), Pearson's Product Moment method of correlation was used.
2. To find out joint contribution of independent variables (Selected Anthropometric) in predicting dependent variable (Basketball Playing Ability), Multiple Correlation was used.
3. For predicting dependent variable (Basketball Playing Ability) on the basis of independent variables (Anthropometric), multiple regression equation was used.

### FINDINGS

The data was analyzed using product moment correlation to find out relationship of selected anthropometrical variables to basketball performance. The results pertaining to the relationship are presented in Table no-1.

**TABLE-1**  
**Relationship of Anthropometric Variables to Basketball Playing Ability**

Variables	Correlation coefficients
Weight	.231
Height	.669*
Leg Length	.653*
Arm Length	.508*
Chest Girth	.312
Calf Girth	.311

Significant at .05 level

$r_{0.05} (18) = 0.443$

Table -1 revealed that Basketball Performance was found significantly correlated with Height, Arm Length and Leg Length as the correlation coefficient values (.669, .508, .653) were found higher than the tabulated value at 0.05 level of significance. Basketball Performance was found not significantly with Weight, Chest Girth, and Calf Girth as the correlation coefficient values were found lower than the tabulated value at 0.05 level of significance.

**Table-2**  
**Combined Contribution of Anthropometric Variables to Basketball playing ability**

Dependent Variables	Independent Variables	Coefficient of Multiple Correlation
Basketball Playing Ability	Weight	.669*
	Height	
	Leg Length	
	Arm Length	
	Chest Girth	
	Calf Girth	

Significant at .05 level

$r_{0.05} (13) = 0.513$

Table-2 indicates significant relationship between criterion variable (Basketball Playing Ability) and independent variables (Selected Anthropometric variables) as coefficient of multiple correlations 0.669 is higher than the tabulated value at 0.05 level of significance.

**TABLE-3**  
**Model Summary**

<b>R square</b>	<b>Adjusted R square</b>	<b>Standard Error</b>
.447	.417	1.60

The above table-3 shows that Adjusted R Square (.417) as predictor was included, which means that 41.7% of the variance in the performance of Basketball player was associated with changes in the Anthropometric variables.

**TABLE-4**  
**Analysis of Variance for the Regression**

	<b>Sum of Square</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Significant</b>
Regression	37.493	1	37.493	14.57	.001
Residual	46.307	18	2.573		
Total	83.800	19	40.366		

**\* Significant at .05 level**

**$F_{0.05}(1, 18) = 4.41$**

Finding of table-4 revealed that developed regression model is significant for prediction of criterion variable and model can be used for further prediction, as value of 'F' (14.57) was found significant at 0.05 level of significance.

### **MULTIPLE REGRESSION ANALYSIS**

The multiple regression equation for predicting the basketball performance on the basis of relative contribution of one anthropometric variable resulted in the following-

**Equation:**

$$Y = -8.360 + .182(\text{Height})$$

### **DISCUSSION**

The findings of the statistical analysis have shown dominant role of selected variables for the Male Basketball players in terms of predictor of Basketball performance. From anthropometric variables Height, Arm Length and Leg Length were found to be significant in Basketball performance of Male Basketball players. Height, Arm Length and Leg Length is determinant factor to basketball playing ability. The statistical analysis of the data has clearly indicated that those selected anthropometric variables which were not significantly related to Male Basketball performance i.e. Weight, Chest Girth, and Calf Girth. But in relation to multiple correlations, a significant multiple correlation coefficients were found between anthropometric variables and Male Basketball performance.

In equation height could provide a reasonably good estimation of basketball performance of male basketball player.

## CONCLUSION

In basketball playing ability Height, Arm length, Leg length, were found significant with anthropometric variables. Multiple correlation coefficients are 0.669.

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