ORIGINAL ARTICLE

PREDICTION OF BASKETBALL PLAYING ABILITY ON THE BASIS OF SELECTED ANTROPOMETRICAL VARIABLES

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Abstract:

Background: *The objective of the study was to predict basketball playing ability on the basis of selected anthropometrical variables".*
Method: *For the purpose of study, twenty male basketball players of BHU were selected. Their age ranged from 18-25 years of age. Basketball playing ability was selected as a dependent variable and Anthropometry was considered as Independent Variable. The basketball playing ability was measured by johnson basketball test and anthropometric variables were measured by anthropometrical kit. To find out the significant relationship Pearson's Product Moment correlation and find out the joint contribution multiple correlation was used and 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, Percentage of body fat at 0.05 level of significance and multiple correlation to Height, Weight, Arm length, Leg length, Chest girth, Calf girth are 0.948 and regression equation Y= -108.924 -1.245(Height) -1.235(Weight) +2.475(Arm Length) +3.083(Leg Length) - 0.740(Chest Girth) +1.331(Calf Girth)*
Conclusions: *It is noticed that Height, Weight, Arm length, Leg Length, Chest girth and Calf girth were predict basketball playing ability.*

KEY WORDS:

Anthropometric, Basketball playing Ability.

INTRODUCTION

Sport is an important ingredient of physical education and is a worldwide phenomenon today. The unprecedented popularity and better organization of sports activities and competitions would have been impossible without the recognition of the important of sports competitions in the world. The world has realized the importance of sports for the modern civilizations. (Uppal, 1992)

Anthropometry is the measurement of man, living or dead, and consists primarily in the measurement of the dimensions of the body. Anthropometry has also been defined as the science of measurement applied to the human body and includes measurements of height, weight, and selected body and limb girths. The use of anthropometry is a standardized method to compare bodybuilders and other athletes in the areas of muscle, body proportionality, and fat tissue. A first area of assessment is body composition. Bodybuilding, unlike performance sports, is characterized by aesthetics and by body dimensions.

Basketball is a sport played by two teams of five players on a rectangular court. The objective is to shoot a ball through a hoop 18 inches (46 cm) in diameter and 10 feet (3.0 m) high mounted to a backboard at each end. Basketball is one of the world's most popular and widely viewed sports

Basketball was originally played with a soccer ball. The first balls made specifically for basketball

were brown, and it was only in the late 1950s that Tony Hinkle, searching for a ball that would be more visible to players and spectators alike, introduced the orange ball that is now in common use. Dribbling was not part of the original game except for the "bounce pass" to teammates. Passing the ball was the primary means of ball movement. Dribbling was eventually introduced but limited by the asymmetric shape of early balls. Dribbling only became a major part of the game around the 1950s, as manufacturing improved the ball shape.

OBJECTIVE OF THE STUDY

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

METHODOLOGY

Selection of Subjects

For the purpose of study, twenty young basketball players belonging to the age level of 18 to 25 years in BHU selected as the subject for the study.

Selection of Variable

Score of Johnson basketball test for playing ability was selected as a dependent variables and Anthropometry was considered as an independent variable.

Criterion Measure

Performance of playing ability of basketball was measure to Johnson basketball test which consists field goal speed, Basketball throws for accuracy and speed dribble test. Anthropometric measurement measured by Anthropometric kit.

Statistical Analysis

1)To characterize the anthropometric and playing ability of basketball player, descriptive statistic was used.
2)To find out correlation between dependent variable (Basketball Playing Ability) and independent variables (Anthropometric), Pearson's Product Moment method of correlation was used.
3)To find out joint contribution of independent variables (Selected Anthropometric) in predicting dependent variable (Basketball Playing Ability), Multiple Correlation was used.
4)For predicting dependent variable (Basketball Playing Ability) on the basis of independent variables (Anthropometric), multiple regression equation will be 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 selected anthropometrical variables to basketball performance

Variables	Correlation coefficient
Height	0.695^*
Weight	-0.375
Arm Length	0.662^*
Leg Length	0.695^*
Chest Girth	-0.157
Calf Girth	0.400
Percentage of Body Fat	-0.593^*

Significant at .05 levels

$r._{05}(18) = 0.443$

Table -1 revealed that basketball performance was found significantly correlated with Height, Arm length, Leg length, Percentage of body fat at 0.05 level of significance, while basketball performance was found insignificantly correlated with Weight, Chest girth and Calf girth at 0.05 level of significance.

Table-1(A)
Combined contribution of anthropometric variables of basketball performance

Criterion Variables	Independent Variables	Coefficient of Multiple Correlation
Basketball Performance	Height	0.948[*]
	Weight	
	Arm Length	
	Leg Length	
	Chest Girth	
	Calf Girth	

Significant at .05 levels
$r._{05}(13) = 0.513$

Table-1A revealed that Height, Weight, Arm Length, Leg length, Chest Girth and Calf girth, were found jointly correlated with basketball performance at 0.05 level of significance, were calculated 'R' 0.948> tabulated 'R' 0.513.

Table-1(B)
Model Summary

R square	Standard Error
0.899	2.46566

Table-1(C)
ANOVA Table

	Sum of Square	d.f	Mean Square	F	Significant
Regression	435.097	6	72.516	11.928[*]	.001
Residual	48.64	8	6.079		
Total	483.733	14	78.595		

Tab $F_{0.05}(6, 8) = 3.58$

Finding of table revealed that developed regression model is significant for prediction of criterion variable and model can be used for further prediction, while value of 'F' 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 six anthropometric variables resulted in the following-

Equation

Y= -108.924 -1.245(Height) -1.235(Weight) +2.475(Arm Length) +3.083(Leg Length) -   0.740(Chest Girth) +1.331(Calf Girth)

DISCUSSION

In this study an equation was developed for predict basketball playing ability on the basis of selected anthropometric variables. For the data analysing first we applying correlation to find out the relationship of selected anthropometrical variables to basketball performance. As far as the basketball players are concerned the result of the study clearly indicates that in case of basketball performance a significant correlation was found with Height, Arm length, Leg length, and Percentage of body fat. This

may be attributed to the fact that height of the players can be a determinant factor in increasing speed since it increases the stride length and height is determinant factor to basketball playing ability. As far as body fat percentage in concerned the fact that all the players observed were reaching that stage requires a very strenuous schedule followed for a long duration of time, Hence the players have a very high fitness level and an optimum level of muscle mass required for the nature of the game. In the case of leg length the length of leg is determinant factor to increase height and speed due to the reason of stride length. Arm length makes reach easy for shooting basketball and also make easy to tackle the ball. Multiple correlation coefficient between anthropometric variables i.e Height, Weight, Arm length, Leg length, Chest girth and Calf girth, (R=0.948) are also highly significant. So these anthropometrical variables develop equation for predicting basketball playing ability.

CONCLUSION

On the basis of analysis of data as well as in view of observation along with the objective and within the limitation of the present study the conclusions are
In basketball playing ability Height, Arm length, Leg length, Percentage of body fat were found significant with anthropometric variables.

Multiple correlation coefficients are 0.948.

REFERENCES

1.Aman Singh Sisodiya and Monica Yadav (2010). Relationship of Anthropometric Variables to Basketball Playing Ability, Journal of Advances in Developmental Research 1 (2) : 191-194
2.Bloomfield J, Peter A. Fricker and Kenneth D. Fitch (1995) Can running injuries be effectively prevented?, The Journal of Sports Science and Medicine 1, 161.
3.Campos, F. A. D.; Daros, L. B.; Mastrascusa, V.; Dourado, A. C.; Stanganelli, L. C. R. (2009). Anthropometric profile and motor performance of junior badminton players. Brazilian Journal Biomotricity, v. 3, n. 2, p. 146-151.
4.Caruso JF, Ramey E, Hastings LP, Monda JK, Coday MA, McLagan J, Drummond J., (2009). Anthropometry as a predictor of high speed performance. International Journal of Sports Medicine. 30(7):522-5.
5.E Bénéfice, T Fou&é, R M Malinat and G Beunen (1995). Anthropometric and motor characteristics of Senegalese children with different nutritional histories. Child care, health and development, 22 (3). 151-165.
6.Jeremy M.Sheppard,1,2 John B.Cronin,2,3 Tim J.Gabbett,4 Michael R.Mcguigan,2 Naroa Etxebarria,1 And Robert U.Newton2. (2008) Relative Importance of Strength, Power, and Anthropometric Measures to Jump Performance of Elite Volleyball Players, Journal of Strength and Conditioning Research, 22(3)/758–765
7.Miroljub Ivanovi 1 and Uglješa Ivanovi 2(2011). Anthropometric and Motor Determinants Of Endurance Running In Pre-Adolescent Age, Acta Kinesiologica 5,1: 34-39
8.Naser Rashiti, Nazim Myrtaj, Sabri Tahiri, Fadil Nika, Mimoza Shkodra(2010) Characteristics anthropometric and Motor Tests for Short Running on 100 Meters (Females), Proceedings of Chemical technologies, Biotechnologies and Food Technologies, 48 (9).
9.Radmila Kosti , Ratomir uraškovi , Saša Panteli , Dobrica Živkovi , Slavoljub Uzunovi , Mladen Živkovi (2009). Physical Education and Sport Vol. 7, No 1, pp. 101 – 112.

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