ACADEMIC SPORTS SCHOLARS

ISSN: 2277-3665
IMPACT FACTOR : 5.3149(UIF)
VOLUME - 6 | ISSUE - 10 | OCTOBER - 2017

PREDICTION OF PLAYING ABILITY OF MALE HOCKEY PLAYERS ON THE BASIS OF ANTHROPOMETRIC VARIABLES

Sanjay Kumar Prajapati

ABSTRACT :

Background: *The objective of the study was to prediction of hockey playing ability on the basis of anthropometric variables.*

Method: *For the purpose of study, twenty male National hockey players were selected. Hockey 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 find out the joint contribution multiple correlations was used and find out prediction multiple regression equation was used. The level of significance was set at .05 levels.*

Results: *hockey performance was found significantly correlated with Height, Weight and Arm length, at 0.05 level of significance and multiple correlation to Height, Weight, Arm length, Leg length and Thigh Girth are 0.795 and regression equation Y= -3.638 +.099(Height)-.087(Weight)*

KEYWORDS : *Playing Ability , Male Hockey Players , Anthropometric Variables , basketball playing ability.*

INTRODUCTION

The sports world comprises not only of winning and losing but also of playing a game. With positive attitude today, the emphasis is on excelling in whatever one does, whether one is on the field playing or one is training the players; both have a very responsible and important role to perform.

Field hockey is played on gravel, natural grass, sand-based or water-based artificial turf, with a small, hard ball. The game is popular among both males and females in many parts of the world, particularly in Europe, Asia, Australia, New Zealand and South Africa. In most countries, the game is played between single-sex sides, although they can be mixed-sex.

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.

Anthropometrical variables play a dominant role especially at higher level of sports competitions. The scholar is of opinion that height, arm length, weight, leg length, thigh girth, may be basic pre-requisites for attaining top-level performance in Hockey.

OBJECTIVE OFTHE STUDY

The objective of the study was to Prediction of Hockey Playing Ability on the Basis of Anthropometrical Variables.

METHODOLOGY

Selection of Subjects

For the purpose of study, twenty young hockey men players belonging to the age level of 17 to 21 years in national tournament 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. Chest girth was measured by steel tape and recorded in centimetre.
6. Playing ability was measured by three judges rating and recorded in composite score of the judges.

STATISTICAL ANALYSIS

1. To find out correlation between dependent variable (Hockey 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 (Hockey Playing Ability), Multiple Correlation was used.
3. For predicting dependent variable (Hockey 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 hockey performance. The results pertaining to the relationship are presented in Table no-1.

TABLE-1

Relationship of Anthropometric Variables to Hockey Playing Ability

Variables	Correlation coefficients
Weight	-.544*
Height	.585*
Leg Length	-.402
Arm Length	.526*
Chest Girth	-.040

Significant at .05 levels
r. (18) =0.443

Table -1 revealed that Hockey Performance was found significantly correlated with Height, Weight and Arm Length as the correlation coefficient values (.585, -.544, .526) were found higher than the tabulated value at 0.05 level of significance. Hockey Performance was found not significantly with Chest Girth and Leg Length, 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 of Hockey Performance

Dependent Variables	Independent Variables	Coefficient of Multiple Correlation
Hockey Playing Ability	Weight	.795*
	Height	
	Leg Length	
	Arm Length	
	Chest Girth	

Significant at .05 levels
R. (14) =0.513

Table-2 indicates significant relationship between criterion variable (Hockey Performance) and independent variables (Selected Anthropometric variable) as coefficient of multiple correlations 0.795 is higher than the tabulated value at 0.05 level of significance.

TABLE-3
Model Summary

R square	Adjusted R square	Standard Error
.632	.589	.663

The above table 3 shows that Adjusted R Square (.589) as predictor was included, which means that 58.9% of the variance in the performance of Hockey player was associated with changes in the Anthropometric variables.

TABLE-4
Analysis of Variance for the Regression

	Sum of Square	df	Mean Square	F	Significant
Regression	12.857	2	6.429	14.624*	.001
Residual	7.473	17	.440		
Total	20.330	19	6.869		

* Significant at .05 level
$F_{0.05}(2, 17) = 3.59$

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'(14.624) was found significant at 0.05 level of significance.

MULTIPLE REGRESSION ANALYSIS

The multiple regression equation for predicting the hockey performance on the basis of relative contribution of five anthropometric variables resulted in the following-
Equation:

Y= -3.638 +.099(Height)-.087(Weight)

DISCUSSION

The purpose of the study was to prediction of hockey playing ability on the basis of anthropometric variables.

As far as anthropometric variables are concerned, the result of the present study clearly indicates that Height, Weight and Arm Length were found significant in relation to the performance hockey players. we may say that the above discussed anthropometric variable have relation to their performance on the other hand a significant relationship was not found in Leg Length and Thigh Girth to the performance hockey players. The result of the present study is also supported by the earlier studies conducted by (Sidhu J.S, 2013 and Karkare A., 2011).

In relation to multiple correlations, a significant multiple correlation coefficients were found between anthropometric variables and male hockey performance.

CONCLUSION

In hockey playing ability Height, Weight and Arm length were found significant with anthropometric variables. Multiple correlation coefficients are 0.795.

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