Identification of Factors Correlated to Kabaddi Playing Ability from Selected Varibales

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Abstract

The purpose of the study was to identify the factors correlated to Kabaddi playing ability from selected variables. 100 male college Kabaddi players were selected from Selvam College of Physical Education and St.John's College of Physical Education during the year 2007 to 2011 at random. The age of the subjects ranged from 18 to 25years. The independent variables such as height, weight, arm length, leg length, chest circumference, speed, agility, explosive power and flexibility and the dependent variable Kabaddi playing ability were selected for this study. The data on selected independent variables and playing ability (expert rating) were collected by using standardized test items from the selected subjects. The collected data were analysed by using Pearson and Multiple regression to find out the relationship and to predict selected variables which contributes Kabaddi playing ability. It was concluded that, there was a significant relationship between playing ability and the combined effect of selected anthropometric variables.

Key Words: Kabaddi Playing ability

Introduction

Kabaddi is aptly known as the "GAME OF THE MASSES "due to its popularity, simple, easy to comprehend rules, and public appeal. The game calls for no sophisticated equipment what so ever, which makes it a very popular sport in the developing countries. Though it is basically an out door sport played on clay court, of late the game is being played on synthetic surface indoors with great success. The duration of the game is 45 minutes for men & junior boys with a 5minute break in between for the teams to change sides. In the case of women/girls & sub junior boys, the duration is 35 minutes with a 5ininute break in between.

Physical fitness is a universally accepted and realized terminology. Physical fitness is a capacity to meet the present and potential physical challenges of life with success. The present concept of physical fitness is not only freedom from disease, but also to gain

enough strength, agility, flexibility, endurance and skills to meet the demands of daily life and to build sufficient reserve energy to withstand stress and strain.

Anthropometry follows a rigorous set of guidelines that include standardization of the measurement techniques, uniform landmarks, and establishing conditions of the measurements. Various references have been developed that can be used as base lines for expressing absolute and relative deviation from the average. Techniques of data analysis include the expression of individual values in the form of Z scores.

Gabbett TJ.made a study on a comparision of physiological and anthropometric characterstics among playing position in sub-elite league players.This study compared the physiological and anthropometric characteristics of specific playing positions and positional playing groups in sub-elite rugby league players. Altogether, 415 sub-elite rugby league players underwent measurements of standard anthropometry (body mass, height, sum of four skinfolds), muscular power (vertical jump), speed (10-m, 20-m, and 40-m sprint), agility ("L" run), and estimated maximal aerobic power (multi-stage fitness test). Props were significantly heavier and had a greater skinfold thickness than all other playing positions. Centres, fullbacks, and hookers were faster than props over 40 m. When the data were analysed according to positional commonality, props were taller, heavier, had a greater skinfold thickness, were less agile, and were slower over 10 m than all other positional groups. The hookers/ halves and outside backs positional groups were significantly faster over 40 m than the backrowers and props positional groups. In addition, the hookers/halves and outside backs positional groups had significantly greater estimated maximal aerobic power than the props positional group. The results of this study demonstrate that few physiological and anthropometric differences exist among individual playing positions in sub-elite rugby league players, although props are taller, heavier, have greater skinfold thickness, slower 10-m and 40-m speed, less agility, and lower estimated maximal aerobic power than other positional groups. These findings provide normative data for sub-elite rugby league players competing in specific individual positions and positional playing groups

Loovis EM, Butterfield SA, conducted a study on Relationship of hand length to catching performance by children kindergarten to grade 2.This study examined the relationship between hand length and catching performance by 257 children (142 boys, 115 girls) in Grades K-2. Children's catching performance was determined by the number of successful catches (0-5) when a small ball was tossed underhand from 10 ft. Specifically, the children were tested on the qualitative aspects of catching, i.e., form, and catching accuracy, i.e., successful catching. Hand length was measured by standard anthropometric technique. A multiple regression analysis showed age,

sex, and hand length contributed significantly (p = .001) to catching accuracy and catching form. Implications for instruction and further research

The Purpose of the Study

The purpose of the study was to identify the factors correlated to Kabaddi playing ability from selected variables.

Methodology

To achieve the purpose of the study, 100 male college Kabaddi players were selected from Selvam College of Physical Education and St.John's College of Physical Education during the year 2007 to 2011 at random. The age of the subjects ranged from 18 to 25years. The independent variables such as height, weight, arm length, leg length, chest circumference, speed, agility, explosive power and flexibility and the dependent variable Kabaddi playing ability were selected for this study. The data on anthropometric variables were measured by using measuring tape and weighing machine and the speed was assessed by 50 m run, agility was assessed by shuttle run, explosive power was tested by standing broad jump, flexibility was measured by sit and reach test and playing ability was assessed by expert rating on 10 point scale.

Analysis of Data

The collected data were analysed by using Pearson and Multiple regression to find out the relationship and to predict selected variables which contributes Kabaddi playing ability and the results were presented in table I.

Table-I

Pearson Product Moment Correlation between the Selected Variables and Playing Ability

Dependent variable	Independent variables	Pearson r_{12} value
1. Playing Ability	2. Weight	0.21*
	3. Height	0.31*
	4. Leg length	0.25*
	5. Arm length	0.24*
	6. Chest circumference	0.33*
	7. Speed	0.45*
	8. Agility	0.64*
	9. Explosive power	0.41*
	10. Flexibility	0.45*

**Significant at 0.05 level with df 198 is 0.120.*

It is evident from the table I that there was significant relationship between playing ability and height, weight, arm length, leg length, chest circumference, speed, agility, explosive power and flexibility of Kabaddi players in each variables separately.

Multiple regression equation was computed only if the multiple correlation is sufficiently high to warrant prediction from it. Then, the correlation identifies the independent variables to be included and their order in the regression equation. Multiple correlation was computed by forward selection method on data obtained for the Kabaddi players and the results were presented in table II.

Table-II

Multiple Correlation Co-efficient for the Predictors of Playing Ability

S. No	Variables (forward selection)	R	R square	Adjusted r square	R square change
1	Speed	0.75	0.856	0.851	0.75
2	Speed & Agility	0.84	0.915	0.909	0.09
3	Speed, Agility & Weight	0.89	0.939	0.931	0.05
4	Speed, Agility, Height & Flexibility	0.93	0.954	0.946	0.04

From the table II, it was found that the multiple correlation co-efficient for predictors such as speed, Agility, weight and flexibility is 0.93 which produce highest multiple correlation with playing ability. R square values showed that the percentage of contribution of predictors to the playing ability (dependent variable) in the following order.

About 75% of the variation in the playing ability was explained by the regression model with one predictor speed. About 84% of the variation in the playing ability was explained by the regression model with two predictors, speed and Agility. An additional 9% of the variance in the playing ability is contributed by Agility. About 89% of the variation in the playing ability was explained by the regression model with three predictors, speed, Agility and weight. An additional 5% of the variance in the playing ability is contributed by weight. About 93% of the variation in the playing ability was explained by the regression model with

four predictors, speed, Agility, weight and flexibility. An additional 4% of the variance in the playing ability is contributed by flexibility.

Multiple regression equation was computed and the results were presented in table III.

Table-III

Regression Coefficients for the Predicted Variables with Playing Ability

Sl. No	Variables	B	Beta weights
1	(Constant) Speed	3.42 0.15	 0.623
2	(Constant) Speed Agility	58.51 0.073 -2.66	 0.522 -0.524
3	(Constant) Speed Agility Weight	62.16 0.08 -1.91 -1.92	 0.365 -0.367 -0.302
4	(Constant) Speed Agility Weight Flexibility	44.01 0.04 -1.02 -2.22 0.43	 0.25 -0.19 -0.35 0.29

From the table V, the following regression equations were derived for kabaddi with dependent variables.

1. Regression Equation in obtained scores form = X_C

$$X_C = 0.04\ X_1 + (-1.02)\ X_2 + (-2.22)\ X_3 + 0.43\ X_4 + 44.01$$

Where, Xc = Playing Ability, X_1 = Speed, X_2 = Agility, X_3 = Weight and X_4 = Flexibility

2. Regression Equation in standard scores form = Z_C

$$Z_C = 0.25\ Z_1 + (-0.19)\ Z_2 + (-0.35)\ Z_3 + 0.29\ Z_4$$

Where, Zc = Playing Ability, Z_1 = Speed, Z_2 = Agility, Z_3 = Weight and Z_4 = Flexibility

Conclusions

The regression equation for the prediction of Kabaddi playing ability includes speed, Agility, weight and flexibility. As the multiple correlations on playing ability with the combined effect of these independent variables is highly significant, it is apparent that the obtained regression equation has a high predictive validity. Thus, this equation may be successfully utilized in selecting intercollegiate Kabaddi players.

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