

Prediction of Cricketers Speed on Basis of Physical and Anthropometric Variables

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Abstract

Purpose of present study was to predict cricketers speed with help of selected physical and anthropometric variables. To keeping this purpose in mind long range of variables from different categories was selected i.e. Physical and anthropometric, while the variables were leg strength, back strength, abdominal strength, flexibility, height, weight, leg length, arm length, calf girth, thigh girth. Subjects for this study were selected by stratified random sampling method from different colleges of Tripura University. Data for this study was collected during sports camp by application of suitable criterion measures. Product moment correlation and multiple correlation was used to find out the correlation between dependent and independent variables, linear regression was used to develop the prediction equation at 0.05 level of significance. According to findings leg strength, back strength, flexibility and height is found correlated with speed and equation has been develop on basis of these variables is significant for prediction. Some of anthropometric variables like leg length, calf girth is not found correlated with speed.

Key Words: Regression and Speed.

Introduction: From the earliest times speed has been a natural part of man's dominance over others and survival, whether he was catching animals for food or escaping from predators. However, he also began to run for pleasure and then competitively, leading to a desire to improve on his speed or ability to run farther. Running is the most natural of athletics movements. Children run, as part of their play and practically every game requires reserves of stamina and the ability to run fast. Cricket is a kind of game where players have to sprint number of time throughout the match either it is batsman, bowler or a fielder. Each player have to sprint to fulfill the desired task. Every training and conditioning program contains an element of running, and tests of fitness or physical ability always include running for speed.

Today, in the modern competitive age every cricket player is in a race to excel over others and competition has become a fundamental mode of human expression as it is one of the very important functions by which National and International reorganization and prestige is gained. From its very simple form, cricket has emerged into highly organized activity of sports domain and it has become a complex social and cultural phenomenon. The modern world appears to be much more concerned with the world of sports. The hold of sports has grown very strong on the mind of individuals in the society at large. Players and spectators are very clear about the value and significance of sports.

In this respect lots of research is going to enhance the level of performance. In this respect it has been well observed, the training and coaching will be effective if it will applied on a well deserving or suitable player. For this regard it is important that on have scientific and well developed criteria to choose the best one. Present study has been taken in this regard. It has been tried to develop a suitable criteria for selection and nurture the real talent.

Selection of Subjects: Present study was undertaken on forty cricketers of different affiliated colleges of Tripura University. All the subjects of this study were selected randomly for selection

of subjects stratified random sampling method was applied because subjects were from different colleges and to make equal representation from each affiliated college.

Selection of Variables and Criterion Measures:

Table - I

Variables	Nature	Tools/Questionnaire	Measuring Unit
Speed	Dependent	50-yard dash	Sec
Leg Strength	Independent	Leg Dynamometer	Kg.
Back Strength	Independent	Back Dynamometer	Kg.
Abdominal Strength	Independent	Sit-ups	Count
Flexibility	Independent	Sit and reach test	Cm.
Height	Independent	Stadiometer	Mts.
Weight	Independent	Weighing Machine	Kg.
Leg Length	Independent	Measuring Tape	Cm.
Arm Length	Independent	Measuring Tape	Cm.
Calf Girth	Independent	Measuring Tape	Cm.
Thigh Girth	Independent	Measuring Tape	Cm.

Data Collection and Statistical Technique: Data was taken during inter college tournament of Tripura University by application of suitable criterion measures. Pearson product moment correlation and multiple correlation was used to find out the relationship between dependent and independent variables, and liner regression was used to develop equation for prediction of cricketers speed. For present study level of significance was chosen as 0.05.

Table – II: Descriptive Statistics of Subjects in Relation to Selected Independent and Dependent Variables

Variables	Mean	Median	Mode	SD	Min.	Max.	Skew.	Kurt.
Speed	7.528	7.500	7.90	.379	7.00	8.50	.540	-.236
Leg Strength	144.00	145.00	140.00	21.599	85.00	185.00	-.807	.843
Back Strength	147.10	153.00	170.00	22.705	100.0	185.00	-.552	-.546
Abdominal Strength	39.84	40.00	40.00	3.803	28.00	46.00	-.998	.833
Flexibility	58.00	58.00	62.00	7.162	45.00	76.00	-.050	.138
Height	164.56	164.50	165.00	5.522	155.00	179.00	.531	.034
Weight	55.66	55.00	55.00	2.395	50.00	60.00	-.044	-.248
Leg Length	96.30	97.00	98.00	2.957	91.00	102.00	-.237	-.972
Arm Length	72.38	72.00	71.00	2.671	69.00	78.00	.423	-.861
Calf Girth	31.02	31.00	31.00	2.254	24.00	36.00	-.438	.567
Thigh Girth	46.98	46.00	46.00	4.340	39.00	55.00	.279	-.743

Table-II clearly revealed that data of all the variables is normally distributed. Values of skewness and kurtosis of variables is within the acceptable range along with Standard deviation value of all variables.

Table – III: Correlation Table for Dependent Variables and Independent Variables

Predictor Variables	Criterion Variables	Correlation	Sig.
Leg Strength	Speed	-.558	.000
Back Strength		-.639	.000

Abdominal Strength		-.208	.148
Flexibility		-.421	.002
Height		-.404	.047
Weight		-.262	.260
Leg Length		-.055	.705
Arm Length		-.005	.974
Calf Girth		-.180	.212
Thigh Girth		.061	.673

As table III depict that correlation value of independent variables with speed ability of cricketers and as table is revealed that only leg strength, back strength, flexibility and height is found correlated with speed of cricketers. Where rest of variables i.e. abdominal strength, weight, leg length, arm length, calf girth and thigh girth is found insignificantly correlated with speed of cricketers at 0.05 level of significance.

Table – IV: Model summary and Coefficient Table

Model Variables	R	Adjusted R Square	Unstandardized Coefficients	Beta	T	F
Leg Strength	.805	.579	-.010	-.549	-3.744*	9.426*
Back Strength			-.006	-.338	-2.611*	
Flexibility			-.048	-.303	-2.441*	
Height			.015	.224	1.759	

Speed= 7.652- Leg Strength (.01) - Back Strength (.006) – Flexibility (.048) + Height (.015)

Table-IV revealed that Leg length, back length, flexibility and height has significant effect on speed of cricketers, where multiple correlation of these predictor variables with speed is .805, while these variables are responsible for 57.9% variance in speed according to finding of this study. Table also revealed about individual effect of each variable on speed. According to table leg strength is causing highest variance in standard deviation of speed while height is causing lowest and it is also clear from table where ‘t’ value of height is found insignificant. Table is also showing the ‘f’ value of model, which is also significant at 0.05 level which means equation develop for prediction of speed is significant.

Conclusion: Present study was conducted in thrust to find suitable predictors for cricketers of Tripura University and it can be used as a tool for suitable selection of cricketers and also can be used to adjust or develop the training plan accordingly. In this process it is find that leg strength, back strength, flexibility and height are significantly contributing to speed.

Discussion of Findings: As findings of the study revealed that leg and back strength is significantly correlated with speed of cricketers. Findings are well supported by **Haga (2008)** conducted a study to find out the relationship between physical fitness and motor competence in children, in findings of this study he revealed strong and significant correlation between motor competence and physical fitness within the sample. Haga also concluded that motor fitness components i.e. leg strength, flexibility have sufficient effect on speed. **Young and et al (2005)** has also concluded in there study of relationship between strength qualities and sprinting performance is strength qualities were related to sprinting performance and these relationships differed for starting and maximum speed sprinting. While study was conducted on twenty junior

track and field athletes. **Mishra (2003)** findings is supporting to finding of this study i.e. flexibility is also significant for speed. Mishra's finding revealed that relationship between speed and selected physical i.e. arm strength and flexibility was highly correlated, while 67% variance in speed is caused by concern variables.

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