



## APPRAISAL OF SELECTED PHYSICAL FITNESS VARIABLES AS PREREQUISITES FOR BASKETBALL PERFORMANCE

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### ABSTRACT

The need of this study was to investigate and appraise the selected physical fitness variables as pre-requisites to Basketball performance. To achieve the objectives of the study fifty Basketball men players from Universities in Tamil Nadu were selected as subjects and the data were collected. The criterion score was the playing ability which was assessed through subjective rating by three Basketball coaches. The statistical design of Pearson's product moment correlation was used to find out the relation between each of the independent variables of physical fitness variables individually with playing ability. Multiple correlations were used to find out the combined effect of physical fitness variables with playing ability. The result of the study showed that the selected physical fitness variables speed and endurance were significant relationship with Basketball playing ability.

**KEYWORDS:** Basketball, Physical Fitness, Men players.

### INTRODUCTION

Physical fitness components especially speed, endurance, agility and reaction time have definite decisive advantages in Basketball. The coaches cannot expect the optimum result in sports even if the facilities are equipped with modern scientific innovations if they do not select the players with correct size and structure. Physical fitness components are directly related to the Sports performance. In this study the said components are chosen due to its importance in the performance. There is a close relationship between fitness and sports performance. Nowadays physical fitness components are given much more in the selection and training of players in different sports and games. Measurement and assessment of performance are necessary to determine how well the formulated objectives have been met, how efficient the process has been and how good the product is. The results indicate the direction and the rate of change in performance. "In Athletics and Physical education, as in education and life, the teacher and coach are constantly evaluating and measuring". (Meissner & Meyers 1940) The most valid form of evaluation is the use of well-established criteria as a basis for comparisons.

Collings & Hooges, (1973) says that though Basketball is rich in the quantity of developed skills tests, but the quality of developed skills tests, but the quality of many tests is unsubstantiated by scientific evidence. However, coaches use them as an aid in team selection, as these are designed to measure Basketball potential. The very purpose of each team as defined in the rules of the game of Basketball is to score more points than the opponent. The scoring opportunities can be developed only when the players are able to perform fundamental

skills effectively to get the ball into a highest shooting percentage position or area. Players through skillful rebounding, passing, receiving, cutting, feinting, pivoting, dribbling and setting screens, advance the basketball to the scoring area. (Barnes, 1972).

In 1835 when a mathematician in Brussels, Baron Quetelet, applied purely mathematical methods to discover the physical constants of the human body and proved that the binomial law (law of chance) applies to human proportions. This finding was confirmed about 50 years later by Sir Francis Galton, who systematically analyzed measurement of certain physical constants of English men and women. In 1854, a German named Carus proposed an anatomical basis to determine body proportions. Shortly after this, Zeissing in Belgium and Cromwell in England studied the growth of school children. (Clarke & Clarke, 1978).

### METHODOLOGY

The Basketball playing ability was determined by subjective rating matrixes, such as the Individual Skills Evaluation Matrix (ISEM) and Individual's Contribution to Team Combination Evaluation Matrix (ICTCEM) were prepared, evaluated and utilized for the measure of criterion variables. The subjective rating were done by the three experts cum coaches in the field of Basketball was considered as criterion variable for this study.

A repeated measure research design was used with Basketball playing ability as the criterion variable and physical fitness as the predictor variables. In this study, the Basketball playing ability was predicted from 50 University level Basketball men players with the help of selected predictor variables such as speed, agility,

endurance, reaction time. The Basketball playing ability was determined by subjective rating by three experts and was used as the criterion variable. The backward selection in multiple regression method was used to determine the prediction equation (Thomas and Nelson, 1990).

#### ANALYSIS AND INTERPRETATION OF THE DATA

The Basketball playing ability of the University level Basketball men players were predicted from selected Physical fitness, as pre requisite for Basketball performance, that is, the players playing ability. The selected criterion variables, Basketball playing ability were predicted from predictor variables, speed, agility,

endurance, reaction time. The backward selection in multiple regression method was used to determine the prediction equation (Thomas and Nelson, 1996). In all the cases, 0.05 level of confidence was fixed to test the significance, which was considered as appropriate. In this study, if the obtained 'r' and F value were greater than the table value, the null hypotheses were rejected to the effect that there existed significant relationship between dependent and independent variables and if the obtained values were lesser than the required values at 0.05 level, then the null hypotheses were accepted to the effect that there existed no significant relationship among the means variables under study. The descriptive statistics on selected physical fitness variables of subjects are presented in Table I.

**TABLE I**  
**DESCRIPTIVE STATISTICS ON SELECTED PHYSICAL FITNESS VARIABLES OF THE SUBJECTS**

S.No	Variables	Mean (M)	Standard Deviation (SD)	Range
1	Speed (in seconds)	7.24	0.54	6.11 to 8.36
2	Agility ( in seconds)	12.11	0.73	10.40 to 14.00
3	Endurance (in meters)	3241.40	187.62	2710 to 37.10
4	Reaction Time (in seconds)	0.443	0.103	0.288 to 0.680

Table I shows the mean values, standard deviation and the range for selected physical fitness of the subjects. The mean value of the speed of the subjects was 7.24 with standard deviation of  $\pm 0.54$ , the agility

was 12.11 with standard deviation of  $\pm 0.73$ , endurance was 3214.40 with standard deviation of  $\pm 187.62$  and reaction time was 0.443 with standard deviation of  $\pm 0.103$ .

**TABLE II**  
**PEARSON CORRELATION COEFFICIENT BETWEEN CRITERION AND PREDICTOR VARIABLES**

	PLAYING ABILITY	SPEED	AGILITY	ENDURANCE	REACTION TIME
PLAYING ABILITY	1.00	-0.35	-0.18	0.21	-0.05
SPEED	-0.35	1.00	0.17	-0.32	-0.12
AGILITY	-0.18	0.17	1.00	-0.13	-0.03
ENDURANCE	0.21	-0.32	-0.13	1.00	0.06
REACTION TIME	-0.05	-0.12	-0.03	0.06	1.00

In Table II the Pearson correlation of the criterion variable (Basketball playing ability) with the predictor variables are presented in the following order namely speed, agility, endurance and reaction time. The results proved that selected physical fitness variables speed and endurance were significantly correlated with Basketball playing ability as the obtained 'r' values -0.35 and 0.21 respectively were greater than the required table 'r' value of 0.195 to be significant at 0.05 level. And there was no significant relationship between Basketball playing ability with agility and reaction time.

#### DISCUSSION ON RELATIONSHIP BETWEEN PHYSICAL FITNESS AND PLAYING ABILITY

As the purpose of the study was stated earlier, to find out the relation between each of the selected independent variables of physical fitness variables individually with playing ability of Basketball players. Obtained results of the study reveals that there is a significant relationship exist between basketball playing ability and physical fitness components of speed and endurance. However, no significant difference was found from the Basketball players between basketball playing ability and physical fitness components of agility and reaction time. Similar types of results were reported by Cherappurath N. (2015), Pawan (2005). The results of the study are in agreement

with the finding of Singh *et al.* (2013).

## **CONCLUSIONS**

The result of the study showed that the selected physical fitness variables of speed and endurance were significant relationship with Basketball playing ability.

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