

A Study on Relationship of Selected Physical Fitness Variables with Shooting Accuracy of Basketball Players in Ethiopia Search in Hawassa and Arbaminch.

Wubshet Workneh

*Department of Sport Science, Arbaminch University
Corresponding Author: Wubshet Workneh*

Abstract: The purpose of the study was to find out the relationship of selected physical fitness variables with basketball shooting accuracy of male basketball players in south nation, nationalities and peoples of Ethiopia. To achieve the purpose of the study, 40 male Basketball players were selected as subjects who were participated in university and project and club basketball tournament. The age of the subjects were ranged between 18 to 25 years. The shooting accuracy of basketball players were selected as dependent variables. The independent variables selected for this study were leg strength, shoulder strength, agility, balance, speed, cardiovascular endurance and power. Data were collected from the seven independent variables in relation to shooting accuracy of basketball players. To determine the relationship between dependent variable and independent variables Pearson's product movement correlation was used. The level of significant was set at 0.05. There were statistically strong positive and negative significant relationship between leg strength, shoulder strength, agility, balance, speed, cardiovascular endurance and power with basketball shooting accuracy.

Key words: physical fitness, basketball performance, shooting accuracy

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I. INTRODUCTION

Sport activity requires various types of physical abilities. It is important to perform unusual and extra ordinary movement and to do so at a very high standard of efficiency. It is also termed as performance fitness (Chittibabu,(2014). Physical fitness is an essential first and foremost criterion in every game. Without having physical fitness no one can elicit his amble performance level (Bag et al. 2015).

General and specific physical fitness abilities are the major factors which play an important role to improve the performance level in various games and sports. In advanced countries people are more particular about their physical fitness. Physical abilities are not only helping us in the selection of deserving young sportsmen and sportswomen but also helps in the evaluation of training. The various components of physical fitness ability such as speed, strength, flexibility, endurance, agility and coordination are the main factors influencing performance of an athlete in all types of physical activities. A sportsman having better physical abilities will always perform better in any type of game or sport.

Motor ability, sprinting, jumping, flexibility and throwing velocity represent physical activities that are considered as important aspects of the game and contribute to the high performance of the team. Successful performance requires explosive power of the legs and arms, sprint velocity and kinesthetic feeling in ball control (Sibila, 1997).

Physical fitness is the capacity to perform activity. The greater the physical fitness, the better physical endurance and precision of movement will be which are essential for our daily work of life. The greater the physical fitness, the longer can a person keep and the more efficient will be in performance and his capacity for recovery from fatigue (Muthuraman, 2010). Physical fitness measurements which play an active role to improve the performance of an individual in different games and sports, particularly speed, strength, endurance, reaction time, balance, agility and coordination etc(Maillot & Hartley, 2012). The benefits of physical fitness are numerous. The person who is physically fit will have greater amount of strength energy and stamina an improved sense of well being better protection from injury because strong well developed muscle safe guard the bone, internal organs and joints and keep moving parts limber and improve cardio respiratory function. For a good performance in any sport or athletic event, the high standard of fitness is the basic requirement. More participation in sports activity is not enough to improve fitness. The fitness must be gained through conditioning programme (Muthuraman, 2010).

One of the main skills that determine successful playing of basketball is shooting accuracy (Erculj & Supej, 2006). Some previous studies have shown the importance of free throws, field goals and three-point shot accuracy in distinguishing winning and losing basketball teams (Pojskic, et al. 2009). In order to achieve a high shooting percentage and victory, every team has to have players who can accurately shoot in all periods of the game and under different physiological or psychological pressures. Consequently, it can be said that shooting accuracy is one of the most important skills in basketball (Pojskic, Separović, & Uzicanin, 2011).

II. METHODS, PROCEDURES AND MATERIALS

The study design and period

A quantitative cross sectional research design was employed. The study was carried out from January 2018 to April 2018.

The study subjects and variables of the study

The study was conducted in south nation nationalities and peoples of Ethiopia reference in Hwassa and Arbaminch. In Ethiopian there are different basketball competitions held every year those are prepared by universities, national and regional basketball federations. This paper focused on university, project and club players, because this rank is the bridge from the lower level to the highest league. The Target population of the study was Male basketball players aged above 18, who play in Hawassa University, Hawasaa city, Arbaminch University and arbaminch city those are registered in the respected universities, projects and clubs. The sample subject was male basketball players 18 to 25 years participated in university game and Ethiopian basketball competition and a total of 40 male basketball players selected as a study subject by using purposive sampling method with proportional allocation. Variables of the study one dependent variable basketball shooting accuracy and seven Independent variables such as Leg Strength, Shoulder Strength, balance, agility, Speed, cardiovascular endurance and power. The subject were tested the physical fitness variables of hand strength assessed by dynamometry, leg strength assessed by broad jump, balance by stroke balance, agility assessed by shuttle run, speed 50 meter run, cardiovascular endurance by 12 minute run and power assessed by vertical jump test. Whereas, the shooting accuracy (dependent variables) of the players assessed through the AAHPERD basketball skill test (1984).

Statistical technique for analysis of data

The study consists of one dependent variable, namely shooting accuracy of basketball players, and seven independent variables. Descriptive statistics were used to summarize the physical fitness performance of the players. The collected data was analyzed by using Pearson product moment correlation to find out the relationship between physical fitness variable with shooting accuracy of the players. Statistical Package for Social Science (SPSS) version 20.0 for was carried out. The level of significant variables having p-value of ≤ 0.05 was considered as significant.

III. RESULTS

Table 1: Descriptive statistics on selected physical fitness variables and shooting accuracy of the subject

	N	Minimum	Maximum	Mean	Std. Deviation
Leg strength	40	215.00	248.00	233.7250	7.65603
Shoulder strength	40	43.00	62.00	51.9000	3.85507
Balance	40	46.00	55.00	50.1	10.537
Agility	40	8.90	11.30	9.8175	.60166
Speed	40	5.50	7.90	6.6450	.52572
Cardiovascular endurance	40	2540.00	2736.00	2635.3750	43.45448
Power	40	43.00	63.00	52.1750	4.31389
Speed spot shooting	40	29.00	46.00	37.2000	4.12124

From these study subjects a range of relevant physical factors were measured. In this regard the mean and standard deviation of the leg length of the study subject was 233.7250.m and ± 7.65603 respectively. When we see the shoulder strength the mean and standard deviation values were 51.9 k.g and ± 3.85507 . The other physical variable which was under consideration by this particular study was Balance in which the mean balance and standard deviation of the study groups were 50.1second and ± 10.537 . The physical variable which was under concerns in this specific study was agility which refers to the ability to maintain or control body position while quickly changing direction during a series of movements. In this regard the mean agility and SD of this variable

was 9.8175second and $\pm .60166$. The mean and standard deviation of the speed of the players 6.6450 and standard deviation of $\pm .52572$.

Further, more physical variable for this study was cardiovascular endurance in which 2635.3750.m and ± 43.45448 was the cardiovascular and standard deviation of the players respectively. The last physical variable which is under study in this particular paper was power. It's mean and standard derivation 52.175 and ± 4.31389 The dependent variables (shooting accuracy of) the players mean and standard were 37.200 and ± 4.12124 (Table: 1).

Relationship of selected physical fitness variables with basketball shooting accuracy

Table 2: Pearson's coefficient of correlation of selected physical fitness variables and shooting accuracy Basketball players (n=40), Ethiopia, 2018.

	Leg strength	Shoulder strength	Balance	Agility	Speed	Cardiovascular endurance	Power	Shooting accuracy
Leg strength	1	0.878**	0.840**	-0.965**	-0.988**	0.985**	0.871**	0.846**
Shoulder strength	X	1	0.788**	-0.858**	-0.883**	0.907**	0.818**	0.915**
Balance	X	X	1	-0.857**	-0.843**	0.852**	0.876**	0.763**
Agility	X	X	X	1	0.956**	-0.958**	0.870**	-0.837**
Speed	X	X	X	X	1	-0.994**	0.888**	-0.860**
Cardiovascular endurance	X	X	X	X	X	1	0.891**	0.880**
Power	X	X	X	X	X	X	1	0.759**
Shooting accuracy	X	X	X	X	X	X	X	1

** . Correlation is significant at the 0.01 level (2-tailed).

The above table shows that there were statistically significant correlations among selected physical fitness variables with basketball shooting accuracy. There was a positive correlation between the leg strength and shooting accuracy($r = 0.846, p = < 0.001$). Statistically significant strong positive correlation was obtained between accuracy shoot (dependent variables) and shoulder strength($r = 0.915, p = < 0.001$). Balance with accuracy shoot (0.763 at), agility with accuracy shooting were statistically significant negative correlation (-0.837), speed also statistical strong negative correlation with accuracy shoot (-0.860), a strong positive correlation among cardiovascular with accuracy shoot (0.880), and power with accuracy pass(0.759) at significant level of 0.001. All selected physical fitness variables were highly significantly correlated with basketball shooting accuracy positively and negatively. From this agility, and speed were strong negatively correlated and the other variables were strongly positively significant correlated with basketball shooting accuracy at the significant level of 0.001.

IV. DISCUSSION ON THE RESULT

The findings of the present study show strong negative and positive correlations between the independent variables and basketball shooting accuracy. Therefore, the present study findings demonstrated that physical variables (leg strength, shoulder strength, balance, agility, speed cardiovascular endurance, and power). The observed correlations were strong uphill and downhill linear relationship. The strong uphill linear correlations were observed in leg strength, shoulder strength, balance, cardiovascular endurance and power. Whereas a strong downhill correlation were observed in agility and speed with basketball shooting accuracy.

The results of the study are in line with previous studies conducted by (Been Lal. 1990, Broer, 1988). A study conducted by Beena, speed and speed endurance show negative correlation, which indicate that lesser the time taken better will be the performance (Been Lal. 1990). The result of the study also in line with Broer, who states that accuracy in basketball shooting is determined by individual endurance level (Beena Lal. 1990). The present study furthermore, supported by previous studies conducted by (Hoare, 2000). A study conducted in Australia on elite junior basketball involving predicting success with junior players from physical profiles revealed that the 'best' players could be distinguished from the rest players on speed and agility (Hoare, 2000).

V. CONCLUSION

Based on the result and discussion the following conclusion has been drawn:

Physical fitness is a very important factor which influences the speed shooting accuracy of basketball players. The findings of the present study show a strong negative and positive correlations between the selected independent variables and the dependent variables (basketball shooting accuracy). The basketball player shooting accuracy were positive linear relation with hand grip strength, leg strength, endurance, power and balance where as agility and speed were negative influence on basketball shooting accuracy.

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