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A study on relationship between physical fitness variables with basketball passing accuracy among in Amhara region basketball player

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Abstract
The primary aim of the present study was to determine the relationship between physical fitness variables with passing accuracy of basketball players in Amhara region, Ethiopia. To achieve the purpose of the study eight physical fitness variables were included as a predictor variables and passing accuracy as dependent variable. The passing accuracy was assessed by the AAHERD basketball skill test (1984). 200 male basketball players with age range of 18 28 years taken as a subject. The physical fitness variables for this study were Hand strength, leg strength, endurance, flexibility, agility, balance, power and speed and the specific basketball passing accuracy test. The basketball passing accuracy was assessed by the AAHPED basketball skill test (1984). The collected data was analyzed by using Pearson product moment correlation. Statistical Package for Social Science (SPSS) version 20.0 for was carried out for all statistical computation. The level of significant variables having p-value of ≤ 0.05 was considered as significant. The result of the study shows that all variables have highly significantly correlated with basketball accuracy pass positively and negatively.

Keywords: physical fitness, endurance, accuracy pass

1. Introduction
Basketball is a team game. By definition, that means all players are involved with the process of playing the game and should function as one. One of the primary skills created to accomplish this is passing.
Basketball players should possess the basic qualities of physical fitness like speed, speed endurance, agility, explosive power, flexibility, coordination. Only with the basic qualities they can improve their performance level during the game. With this quality and the player's anthropometric variables like height, arm length, leg length also play a vital role in deciding the efficiency of the Basketball player (Karthi, S. R, 2009)[3]. Basketball performance manly depends up on physical variables of speed, strength, agility, flexibility, power, endurance, balance, coordination and body composition (Debnath, P, 2001) [1]. Highly skillful techniques in basketball are dribbling, passing, laying up shooting, shooting at basket, rebounding including faking etc. But these skill need to be enriched with physical and physiological determinants like anthropological measurements, body composition, strength, endurance & power of leg muscles, aerobic capacity, flexibility and agility. All of these technical skills and fitness parameters are interdependent onto each other (Kamble, Daulatabad, & Baji, P. S, 2012) [2].
Basketball a game involving motor skills. These skills vary in kind from, being able to run quickly with precision and good timing. Basketaba players have skills of catching and dribbling, or, shooting, or, passing what appears to be quite a large Basketball. It also assumes that the players understand and incorporate a set of rules and are prepared not only to be played by them, but to co-operate with others (including their teammates) in order to achieve the aims associated with the game (Ramesh, T, 2015)[4]. Multiple skills are essential to play the game effectively. Apart from the physical and physiological criterion measures skills play an increasingly vital role in the quest for victory of any game. There are number of skills involved in the game of basketball like passing, dribbling, shooting, rebounding, half court press defense, full court press defense, zone defense, screening, weaving, drive-in etc,
Passing and Catching are a very important part of a Basketball game. A successful team makes strong and accurate passes, and always catches the ball. In the game of basketball all the movements are involved like passing, throwing, changing the direction quickly, and sudden stop, jumping for rebound, feinting, maneuvering the opponent while going for offensive move and guarding the opponents in the defensive (Ramesh, T,2015)[4].
Moreover, Passing is one of the most important basic skills that all players should have. If a player cannot pass the ball effectively, then he will not be successful on the court. Passing is also important because there no faster way to move the ball around the court. With clear, crisp and quick passes one can beat the defense on the court. Passing is one important skill, which will certainly speed up the game. To make effective passes one need a good peripheral vision and without making good passes a team can never be successful (Somasundaramoorthy, S, 2010)[6].

2. Methods and Materials
2.1 The study design and period
Explanatory study design was used for the study to find out

the relationship between physical fitness and passing accuracy of the players. The study was carried out from 2016 to 2017.

2.2 The study subjects and variables of the study

The study subject was two hundred Male basketball players among these 160 were regional players and the remaining players were university players. Both players were participated in regional zonal, university tournament in 2016/17. All the subjects' age raged 18 to 28 years.

The subject were tested the physical fitness variables of hand Grip strength by dynamometry, leg strength by broad jump, endurance by 12 minute run, flexibility assessed by sit and rich test, agility by shuttle run, balance by stork balance, power by vertical jump. Whereas the passing accuracy of the players assessed through the administration of AAHPERD basketball skill test (1984). 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 accuracy pass of the players. Statistical Package for Social Science (SPSS) version 20.0 for was carried out for all statistical computation.. The level of significant variables having p-value of ≤ 0.05 was considered as significant.

3. Result

3.1 Computation of descriptive statistic

Table 1: Descriptive statistics on selected physical fitness variables of the subject.

Variables of the study		Mean	Standard deviation
Physical fitness variables	Hand strength	50.11	7.29
	Leg strength	230.41	11.76
	Endurance	2622.93	66.06
	Flexibility	10.09	2.63
	Agility	10.25	1.16
	Balance	43.80	9.28
	speed	6.89	0.86
	Power	51.17	7.98

It can be seen from Table 1, the mean and standard deviation values of subjects in selected Physical fitness variables of hand grip strength, leg strength, endurance, flexibility, agility, balance, speed and power.. The mean value of hand strength 50.11 kg with standard deviation of ±7.29, leg strength 230.41.41 cm with standard deviation of ±11.76, endurance 2622.93 meter with standard deviation of ±66.06, flexibility 10.09 with standard deviation of ±2.63, agility 10.25 second with standard deviation of ±1.16, balance 43.80 seconds with standard deviation of ±9.28, speed 6.89 second with standard deviation of ±0.86 and power 51.17 cm with standard deviation of ±7.98.

3.2 Relationship of physical fitness variable with basketball accuracy passes.

Table 2: Pearson product moment correlation within the selected physical fitness variables

Variables of the study		Coefficient of correlation
Physical fitness variables	Hand strength	.882
	Leg strength	.913
	Endurance	.854
	Flexibility	-.703
	Agility	-.893
	Balance	.861
	speed	-.917
	Power	.892

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

Table 2, shows that physical fitness variables were statistically significant correlation with basketball accuracy pass. The relation between selected variables with basketball accuracy pass as follows: There was a statistically significant positive correlation between the hand strength and accuracy pass, r =.882, leg strength and accuracy pass r =.913, endurance with accuracy pass r=.854, flexibility with accuracy pass r= -.703, agility with accuracy pass r= -.893, balance with accuracy pass r =.861, speed with accuracy pass r= -.917, power with accuracy pass r=.892. There for all variables were highly significantly correlated with basketball accuracy pass positively and negatively. From this flexibility, agility, speed was negatively and significantly correlated and the other variables were positively and significantly correlated at the significant level of 0.001.

4. Discussion

Basketball game has five playing positions. Passing is one of the kill which apply between the five teams to rich the ball to the opponent ring quickly and basketball players have physically fit and well balanced physiques.

The finding of the present study indicates that a significant relationship between physical fitness variables and basketball passing accuracy i.e. hand strength with passing accuracy, leg strength with passing accuracy, endurance with basketball accuracy pass, agility with basketball accuracy pass, balance with basketball accuracy pass, fallibility with basketball accuracy pass, power with basketball accuracy pass, and speed with passing accuracy and have been a significant relationship obtained from the analysis data. The results of the study were supported by Singh, A. B. (2012) [5]. who conducted a research on the relationship between playing ability and selected motor fitness variables of tribal women basketball player. The result his study showed that passing ability had a negative correlation with speed & agility and a positive correlation with explosive power, cardio respiratory endurance, and flexibility. And have significant correlation

with the variables. (Sudha, P, 2015) [7]. In his study conclude that speed, explosive power, grip strength are playing an important role for basketball performance.

5. Conclusion

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

Physical fitness is a very important factor which influences the passing accuracy of basketball. The findings of the present study show negative and positive correlations between independent variables and basketball passing accuracy. The passing ability of basketball player enhanced by hand grip strength, leg strength, endurance, power and balance which have high positive association where as agility, speed and flexibility were negative influence on basketball accuracy pass which have negatively significant relationship.

6. References

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