

Position-wise Analysis on Performance among Indian Youth Elite Basketball Players

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Abstract

Background: The purpose of the study to assess Performance among Indian Youth Elite Basketball Players.

Methods: The modern game of basketball is played at very faster speed that consists of activities of short duration but high intensity during the course of the game. Indian youth elite basketball players were identified as the total population as by means of participation in the 27th Indian National Youth Basketball Championship, organized by Basketball Federation of India, hosted by Care School of Engineering, Tiruchirappalli, Tamilnadu from 1st to 8th June, 2010. For selecting samples from the population, totally thirty five matches (level – I) in the tournament were used to assess the player's performance and they were ranked according to their efficiency rating made by the *FIBA Live Stats* software. The live court performances of the players were rated as both positively and negatively by the sum of their positive aspects as well as their errors committed during the play. In this study, ninety nine players with reference to their performance rated by FIBA Live Stat software were selected as subjects. Thus players positively rated were selected as the subjects for this study by adopting objective oriented purposive sampling technique. Further these ninety nine youth Basketball players were identified as elite subjects, grouped on the top thirty three rankings from each position - Guard (**GD = 33**), Forward (**FD = 33**) and Center (**CR = 33**) assessed by the *FIBA Live Stats* Software. The Statistical techniques included descriptive statistics and Analysis of Variance (ANOVA) were applied.

Results: The result revealed that the center players having greater contributions followed by forwards and then the guards on the basis of their respective performance.

Key Words: Basketball, Guard, Forward and Center.

INTRODUCTION

Basketball is a team based sport that has evolved greatly since its inception over couple of centuries ago. The modern game of basketball is played at very faster speed that consists of activities of short duration but high intensity during the course of the game. The changing nature of the game both on offensive and defensive system of play and advent of professionalism has led to greater demands on the players. In basketball, in which two teams play against one another, following official rules and regulations, a team which scores more points wins a game. Of course, winning and losing in a game depends on the influence of various factors, which lead to an expected result to take place or not. To identify the factors influencing the performance of basketball is always a difficult task, particularly in cases when the opponents are equally good or bad. The study of the game by observing the behavior of the teams and players is not a recent phenomenon, characterized by a process that has evolved over time and that has accompanied the enormous growth of sports performance for the past 50 years (Garganta, 2009). Traditionally, methods of analysis have used the frequency of occurrence of events (e.g., number of passes made in a certain area of the field or how many times a team committed an error) as an indicator

of performance. This analysis based on the analysis of the frequency of certain performance parameters provided and continues to provide important information for coaches and athletes, enabling advances in training processes (Anguera, 2009). However, the game of basketball is characterized by great complexity of constraints that make it difficult to objectify its observation and analysis. Key issues in this regard include the presence of regularities that are not detectable through inference visual or traditional methods of data analysis, the lack of standard instruments for observation and priority need to develop powerful, computerized systems coding, all of whom must be part of an approach that is suitable for natural and normal contexts.

On-court basketball performance assessment of players (live match) at natural and normal contexts can be assessed by video analysis, notational analysis and scouting. Basketball can be used to show many types of mathematical procedures that include identifying geometric shapes, choosing the right display of data and to interpret that data, the ability to predict outcomes, the ability to construct tally charts, scatter plots, and bar graphs, and finally the ability to change fractions to percents – all that draw in terms of statistics used to evaluate overall player performance and potential performance. The FIBA is an association of national organizations which governs international competition in basketball, developed a software namely “*FIBA Live Stats*”, which is used to assess the performance of the basketball players during the competitions in terms of on-court performance related factors namely: field goal - two point, three point and free throw basket made and missed, fouls made and received, offensive and defensive rebounds made, blocks made and received, assist, steal, turn over and performance efficiency. The performance of each player was assessed by the sum of the positive and negative aspects of movements executed during the course of the game. The record of the basketball score, rebound, assist, steal, the foul, and the turnover can be applied. Specifically speaking the role played by the player in relation to the position in which he played is different from others. The purpose of the paper is to analysis the performance of the players in relation to their playing positions.

METHODOLOGY

Indian youth elite basketball players were identified as the total population as by means of participation in the 27th Indian National Youth Basketball Championship, organized by Basketball Federation of India, hosted by Care School of Engineering, Tiruchirappalli, Tamilnadu from 1st to 8th June, 2010. For selecting samples from the population, totally thirty five matches (level – I) in the tournament were used to assess the player’s performance and they were ranked according to their efficiency rating made by the *FIBA Live Stats* software. The live court performances of the players were rated as both positively and negatively by the sum of their positive aspects as well as their errors committed during the play. In this study, ninety nine players with reference to their performance rated by FIBA Live Stat software were selected as subjects. Thus players positively rated were selected as the subjects for this study by adopting objective oriented purposive sampling technique. Further these ninety nine youth Basketball players were identified as elite subjects, grouped on the top thirty three rankings from each position - Guard (**GD = 33**), Forward (**FD = 33**) and Center (**CR = 33**) assessed by the *FIBA Live Stats* Software. The Statistical techniques included descriptive statistics and Analysis of Variance (ANOVA) were applied. Statistical Package for Social Sciences (SPSS-17) 17th version was used for data analysis. For all cases the level of significance was set at 0.05 level.

RESULTS AND DISCUSSION

Table – I: Descriptive Statistics of Guard, forward and Center Positional Players on Performance of Indian Youth Elite Basketball Players (N = 33)

Groups	Range	Minimum	Maximum	Mean	Std. Deviation (±)
Guard	54.00	16.00	70.00	42.06	15.23
Forward	43.00	29.00	72.00	49.48	11.33
Center	30.00	44.00	74.00	58.45	8.503

From the table – I, it has been found that the center players (58.45) having greater contributions followed by forwards (49.48) and then the guards (42.06) on the basis of their respective performance. To find out their role played by each positions, these descriptive statistics confirmed that each positions have different roles in the game of basketball. Statistically analysis of variance is applied to find out the significant difference exists among the playing positions on performance, if any, post hoc test is applied to identify which pair of means is greater among the playing positions.

Table – II: Analysis of Variance among Guard, Forward and Center Positional Players on Performance of Indian Youth Elite Basketball Players

Source of Variance	Sum of Squares	df	Mean Square	F
Between Groups	4447.697	2	2223.848	15.416*
Within Groups	13848.303	96	144.253	

* $p < 0.05$ table F, df (2, 96) (0.05) = 3.07

In table – II, the results of one-way analysis of variance on performance among the three groups namely guards, forwards and centers were presented. From the table it can be seen that the calculated F value of 15.416 among the three groups was greater than the table value of 3.07, indicating that it was significant ($p < 0.05$) for the degrees of freedom (2, 96) at 0.05 level of confidence. Since the F value was significant, the Scheffe’s Post-hoc test was further computed to find out which pair of group is high among the others and the results are presented in the table – III.

Table – III: Scheffe’s Post-hoc Test for Mean differences between the Guard, Forward and Center players on Performance

Guard	Forward	Center	Mean Difference	CI
42.06	49.48		7.42*	7.29
	49.48	58.45	8.97*	
42.06		58.45	16.39*	

* $p < 0.05$, Confidence interval value (0.05) = 7.29

In table – III, the Scheffe's Post-hoc test results are presented. From the table it can be seen that the mean difference between guard players and forward players & forward players and center players, were 7.42 and 8.97 ($p < 0.05$) respectively, greater than the confidential interval value (7.29) which was significant at 0.05 level of confidence. The mean difference between the guard players and center players was 16.39, greater than the confidential interval value (7.29) which was significant at 0.05 level of confidence. From that it can be clearly noticed that there was a significant mean difference between the guards and the center players (16.39), having the maximum values followed by center and forward players (8.97) and then the guards and forward players (7.42) on performance of position-wise basketball players.

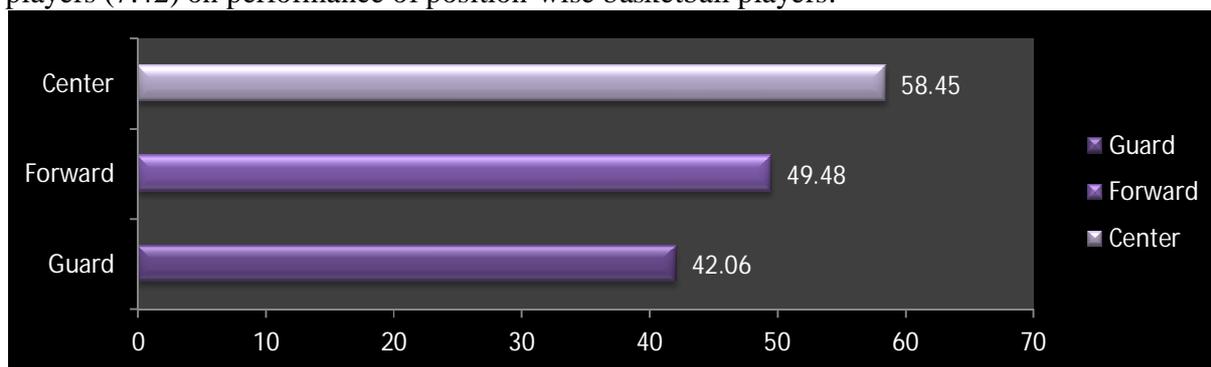


Fig – 1: Mean Values of Guard, Forward and Center Players on Performance

CONCLUSIONS

The role played by the playing positions in the competitive environment is significantly different among one another and significant contribution towards performance has been made among the center and forward players than the other pairs of playing positions. The result also revealed that the center players having greater contributions followed by forwards and then the guards on the basis of their respective performance rated by FIBA Live Stat Software. The result of this study also in accordance with the Apostolidis, et al., 2004; Bishop & Wright, 2006 and Lorenzo, et al., 2010.

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