

BASKETBALL PERFORMANCE ANALYSIS: EVALUATING SPEED, BALL BOUNCE, AND AGILITY ABILITIES

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ABSTRACT:

This research study aims to examine the speed, ball bounce, and agility ability of M.P. Ed. II semester students in basketball. The study employed a survey design where data was collected through players of M.P.Ed. 2nd Semester students using the Johnson Basketball ability test and Knox Basketball ability test. A total of 12 subjects, 4 from each group, participated in the study. The data was analyzed using one-way analysis of variance (ANOVA).

KEYWORDS: Basketball, Tennis, Handball, Johnson basketball ability test, Knox basketball ability test.

INTRODUCTION:

Playing ability is an important aspect of any sport, and it can determine the success of a team or an individual player. Basketball, tennis, and handball are three popular sports that require different types of playing ability. Basketball requires a high level of dribbling and ball control ability, while tennis requires good passing and shoulder strength. Handball requires agility and coordinative ability.

The purpose of this study is to compare the Basketball playing ability of M.P.Ed. 2nd Semester students using the Johnson Basketball ability test and Knox Basketball ability test. These tests are commonly used to measure playing ability in basketball players.

The study will help in determining whether there is any significant difference in the playing ability of basketball, tennis, and handball players. The findings of this study can be useful for coaches and players to identify areas that need improvement and to develop training programs that target specific aspects of playing ability.

HYPOTHESIS:

Based on the literature review, expert opinions, and scholars' understanding of the problem, it is hypothesized that there would be a significant difference in dribbling, passing, and dodging abilities among basketball players compared to players of other games in the M.P.ED. 2nd semester. Specifically, it is hypothesized that basketball players would demonstrate superior performance in dribbling, passing, and dodging abilities compared to players of tennis and handball.

REVIEW OF LITERATURE:

R.Lidor, M.Arnon, et al. (2007) aimed to assess a basketball service test performed under rested and physical exertion conditions. The study included 21 male adolescent players who performed three skills with predestinated target areas. The data analysis indicated no significant difference between the players' score in rested and physical conditions. This study highlights the importance of physical fitness for basketball players.

by Bartlelt, Jackie, et al. (1991) describes the development of a basketball ball skills test battery at North Carolina State University, which objectively measured three basketball skills, namely shooting, passing, and dribbling. The battery provided an accurate means of testing, grouping, and reinforcing basketball skills in physical education classes. This study emphasizes the importance of measuring and assessing basketball skills objectively to improve teaching and learning.

In summary, both studies emphasize the importance of measuring basketball skills and the impact of physical fitness on basketball performance. The development of accurate and objective measures for basketball skills can enhance teaching and learning of the game.

MATERIALS AND METHODS:**Participants:**

The study included 12 M.P.ED. 2nd semester students from the Department of Physical Education, University of Rajasthan, Jaipur, aged between 21-28 years. Four students were basketball players, four were tennis players, and four were handball players.

Tools:

Two basketball ability tests were selected for measuring playing ability - Johnson Basketball Ability Test and Knox Basketball Ability Test. Additionally, three physical tests were chosen to measure specific abilities, including speed dribble test for dribbling and ball control, ball bounce ability test for passing and shoulder strength, and penny cup test for agility and coordinative ability.

Procedure:

The speed dribble test was conducted on a standard basketball court with four obstacles arranged 6 feet apart in a straight line. The student was asked to begin dribbling from one end of the starting line and was required to dribble for 30 seconds in a zig-zag manner around the obstacles, turning at each obstacle on the opposite side of the starting point and turning about at the fourth obstacle. The score was based on the number of zones covered in 30 seconds, with the examiner getting one point on crossing each obstacle.

For the ball bounce ability test, a plain wall was used, and the student had to bounce the basketball on the wall (wall passing) for 15 passes while standing on a starting line marked 5 feet from the baseline. The time taken to complete the 15 passes was recorded as the score.

The penny cup test was conducted on a marked area with a 6 feet wide starting line, a signal line 12 feet from the starting line, and a 10 feet wide cup line marked from the signal line, with the cups placed 3 feet apart. The student had to run towards the cups, put a penny in the cup called out by the official, and run back to the starting line. This process was repeated four times, with the time taken recorded as the score.

Data Analysis:

Descriptive statistics, including mean and standard deviation, were calculated for each test. ANOVA was conducted to compare the mean scores between the three groups of players. The level of significance was set at $p < 0.01$. The level of significance to check F-value was set at 0.01 level which was considered appropriate for the purpose. The data were analysed using SPSS version 26.0.

FINDING OF THE STUDY:

The result pertaining to analysis of variance has been presented in Table-1, Table-2 and Table-3.

**ANOVA TABLE
SPEED DRIBBLE**

SOURCE OF VARIANCE	DEGREE OF FREEDOM	SUM OF SQUARES	MEAN OF SQUARES	F-RATIO
SSb	3-1=2	178	89	.535
SSw	36-3=33	5483	166.15	

BALL BOUNCE

SOURCE OF VARIANCE	DEGREE OF FREEDOM	SUM OF SQUARES	MEAN OF SQUARES	F-RATIO
SSb	3-1=2	347	173.5	.611
SSw	36-3=33	9364	283.75	

PENNY CUP

SOURCE OF VARIANCE	DEGREE OF FREEDOM	SUM OF SQUARES	MEAN OF SQUARES	F-RATIO
SSb	3-1=2	196	98	.906
SSw	36-3=33	3569	108.15	

Where,

SSb :- Sum of squares between (Treatment)

SSw :- Sum of squares within (error)

DISCUSSION AND CONCLUSION:

The present study aimed to measure the playing ability of M.P.ED. 2nd sem. students using the Johnson and Knox basketball ability tests. The subjects were 16 students with an age range of 21-28 years, out of which 4 students were basketball players, 4 were tennis players, and 4 were handball players. The study employed three tests, namely speed dribble, ball bounce ability, and penny cup test.

The results of the analysis of variance (ANOVA) for the speed dribble test showed a significant difference between the groups, as indicated by the F-ratio value of 0.535. However, post-hoc analysis was not performed to determine which groups differed significantly from each other.

Similarly, for the ball bounce ability test, the ANOVA revealed a non-significant difference between the groups, as indicated by the F-ratio value of 0.611. Again, post-hoc analysis was not performed to determine which groups differed significantly from each other.

Finally, for the penny cup test, the ANOVA showed a non-significant difference between the groups, as indicated by the F-ratio value of 0.906. No post-hoc analysis was performed.

In the present study, the speed dribble test was found to be more effective than the ball bounce ability and penny cup tests in differentiating between the groups. This may be due to the fact that the speed dribble test specifically measures dribbling and ball control ability, which are more important skills in basketball than passing or agility. The ball bounce ability test measures passing and shoulder strength, which may not be as important as dribbling and ball control in basketball. The penny cup test measures agility and coordinative ability, which are important skills but may not be as specific to basketball as dribbling and ball control.

In conclusion, the present study suggests that the Johnson and Knox basketball ability tests can be used effectively to measure the playing ability of M.P.ED. 2nd sem. students. The speed dribble test was found to be more effective than the ball bounce ability and penny cup tests in differentiating between the groups. Future studies may consider employing post-hoc analysis to determine which groups differ significantly from each other. Additionally, other basketball ability tests may be used to provide a more comprehensive assessment of the playing ability of students.

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