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Profile of motor component explosive strength of women basketball players at different levels

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Abstract

The present study explored the women's basketball player's motor performance on the basis of selected Explosive strength components. One hundred fifty women Basketball players from the various districts of Madhya Pradesh on the basis of their participation at different levels of competition (District, State & National) participated in the study. Fifty players from each group were taken. The age of players ranged from 17-25 years. The purposive sampling procedure was used for the sample selection. Players' Explosive strength was recorded by the Sargent (vertical) jump as a distance score. Results revealed that the players of different levels indicated a difference in explosive strength by the Sargent (vertical) jump. The results are discussed accordingly.

Keywords: Women basketball players, explosive strength, motor components

Introduction

Basketball involves many different and intense physical demands. A component that evaluates the physical qualities of speed, strength, power, and agility will determine whether a basketball player is physically fit and able to perform at a high level (Rathore 2009) [12]. Women's basketball requires a lot of strong jumps, so they might benefit from specialized training and targeted power and strength exercises. Weightlifting motions, plyometrics, and medicine ball exercises can help improve power in the lower limbs. These exercises train the shoulders, torso, and legs to move rapidly. As a result, the workout by the players should also incorporate exercises that strengthen the oblique muscles on the sides of the belly. (www.basketballplayers.com Basketball is a game of numerous expert moves, including dribbling, passing, laying up, shooting toward the hoop, rebounding, and faking, among others. However, these abilities should be strengthened with physical and physiological factors like anthropometric measurements, body composition, etc. Several anaerobic motor components are necessary for optimal performance in basketball. For the length of the competition, these elements-speed, agility, and vertical leap height-must be repeated with little performance degradation. Physical fitness is required to succeed in international events and achieve excellent athletic performance (Krause, 1998) [5].

In India, basketball is played in high schools, colleges, and universities, with the younger generation actively participating right now like never before. Men and women both participate in the sport irrespective of their age and ability. There are many professional state teams for basketball in India. Even government institutions have their professional basketball teams consisting of men and women who work and play for them. The sport of basketball was first played in India in 1930. The first-ever Indian National Championship for men was conducted in New Delhi in 1934. The Basketball Federation of India (BFI) is the governing body of the sport in the country, formed in 1950. The first men's professional basketball league in India is known as the United Basketball Alliance (UBA) Pro Basketball League. Currently, this basketball league is not in operation in the country. (What Is the Future of Basketball in India? The Sports School Blog) Explosive strength refers to the ability to generate the maximum power in the shortest time, which results from the combination of speed and power; thus, the formula for calculating explosive strength is as follows: explosive strength (P) = power (F) × velocity (V) (.explosive strength in BASKETBALL-Search (bing.com). If players want to have a massive vertical, they need to build a strong, explosive lower body, a powerful upper body, and a solid jumping technique.

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Players can develop all three by Improving their lower-body strength through lower-body, multi-joint exercises, and learning how to use that strength through plyometrics, Medicine Ball Throws, and Olympic lifts. (Explosive strength verticle jump-Search (bing.com))

Objective

The present piece of research aims to investigate the difference in the level of women’s basketball motor performance on the basis of selected Motor component Explosive Strength between players of different levels (District, State, and National).

Method

- **Sample:** A total of 150 women basketball players playing at District, State, and National levels were selected to participate in this study. Fifty players from each group were selected by using a purposive sampling method. The age range of the players was between 17 to 25 years.
- **Design:** Simple one-way between-group design was employed in this study. Players of different levels (District, State, and National) participated in the research.
- **Equipment Used:** Marked wall, Chalk for marking, and scoresheet.
- **Procedure:** The players have narrated the purpose of the study. They were communicated with and encouraged to reach distance as much as possible. After that players were given the chance to perform the athlete reaches up with the hand closest to the wall standing side to the wall. The feet stay flat on the ground and the point of the fingertips was recorded. This is referred to as the standing reach height. The athlete then goes away from the wall and jumps vertically as high as she can using both arms

and legs to support in projecting the body upwards and attempting to contact the wall at the highest point of the leap. The gap in distance between the standing reach height and the leap height is the score. The best of two attempts was considered as the score. After the completion of the performance, players were thanked for their cooperation and support.

Results

Statistical Analysis: Descriptive information, (mean, trendy deviation, minimum and maximum) evaluation of variance ANOVA with LSD submit post hoc test, to comparisons (mean deference and crucial suggest deference) and impartial t-check have been applied. The information studying tools spss- 21 software turned into used. Significance was set at 0.05.

Findings: The distance in cm/m was considered as the score for further analysis. Means and standard deviations of the scores indicating distance covered for vertical jumps were obtained by using descriptive statistics. Results are shown in Table-1. To examine the inter group difference among the players’ scores one-way analysis of variance (ANOVA) was performed and Inter summary of ANOVA is shown in Table-2.

Table 1: Means and Standard Deviation Score of Motor Components Explosive Strength Vertical Jump Between Women Basketball Players of Different Levels: District, State, and National

Level of Players	Mean	Std. Deviation
District	19.72	6.32
State	21.64	4.10
National	27.52	3.23

Table 2: Summary of One-Way Analysis of Variance (ANOVA) for Distance reached (Vertical Jump - Scores in cm.) by the Players of Different Levels: District, State, & National

Variables	Groups	Sum of Squares	Df	Mean Square	F
Explosive Strength Vertical Jump	Between Groups	1651.68	2	825.84	36.85*
	Within Groups	3294.08	147	22.409	
	Total	4945.76	149		

Significant set at .01 level.

The result reveals that differences in motor components explosive strength vertical jump performed by the women basketball players (different levels- District, State, and National) were significant, $F(2,147) = 36.85, p > .01$. Mean scores appeared in table1, and also support that the

performance of National level players ($M = 27.52$) was highest as compared to State ($M = 21.64$) and the district ($M = 19.72$) level players. Similarly, the performance of State level players was significantly better ($M = 21.64$) as compared to District level ($M = 19.72$) players. Results are displayed in Fig.1.



Fig 1: Explosive Strength Vertical Jump of the players of different levels: District, State, and National

Levels of Players

Mean scores (in cm.) indicating Explosive Strength Vertical Jump of the players of different levels: District, State, and National.

Post hoc comparison was also performed to examine the difference between District, State, and National level players, and the result is shown in Table-3.

Table 3: Multiple Comparisons (LSD with Post Hoc Test) of motor components explosive strength vertical jump between women basketball players of different levels: district, state and, national.

S. N. Groups	Group mean			MD -----	CD 1.87
	District	State	National		
1	19.72	21.64	-----	1.92*	
2	19.72	-----	27.52	7.80*	
3	-----	21.64	27.52	5.88*	

Results indicate multiple comparisons were performed by using a post hoc test. motor components Explosive strength vertical jump between women basketball players that mean difference value of District level (19.72), and State level (21.64) both groups were found significant whereas that the greater than the calculated "F" value was observed significant and mean difference (2.08*) is greater than the CD Value (1.877). There used to be a significant difference between District level (19.72) and National level (27.52) Mean difference MD (7.80*) fee is less than the CD (1.87) and between State level (21.64) and National level (27.52) Mean difference vale (5.88*) is so there was significant difference the CD value (1.87) is used to be critical analyses it was once observed that Calculated "F" cost is more then and LSD test show combination groups of District, state and National level of women basketball players to be determined significant.

Discussion

The findings of the study indicate that women basketball players participating at different levels took different distances in centimeters to complete the Explosive Strength (Vertical Jump). The result supports that better performance was displayed by National level players as compared to the State level and District level players. Similarly, The State level players also showed better performance than District level players. Possibly the pattern of results supports that the practice and experience of the players contributed to better performance. In the present study, it was noted that gradually players move upward from District to State and National levels. Players in their journey get opportunities to acquire training and coaching systematically. It seems reasonably assumed that when players began their journey of training they develop interest, competence, and intrinsic motivation regarding their performance in Basketball games. Probably the Pattern of results shows the same trend. It has been observed that players reach the National level after extensive hard work and training, because of that in this study their performance was observed significantly higher as compared to State and District level players. The present findings suggest that regular practice, training, and encouragement should be continued for players to sharpen their sports performance. The Present findings are useful for coaches and trainers to plan their strategies for preparing players of different levels.

Conclusions

The significance Mean score of women's basketball motor performance on the basis of selected Motor component

Explosive strength at different levels (District, state, and National).

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