

COMPARISON OF SOME KINEMATIC VARIABLES OF LAYUP BASKETBALL OF OLDER AND YOUNG PLAYERS

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Abstract

Basketball is a game that requires being fast in both attack and defense with a precision in tactical and technical preparation. The layup technique can effect on the score dramatically and provide teams winning of the game. However, strength, speed and accuracy are the basic requirements interact with technical for an effective layup, and the kinematic analysis is a type of biomechanics analysis that care of descript the movement. Therefore, the objective of this study was to investigation biomechanical parameters of layup which can effect on the score and to find out the difference between the layup techniques of players experienced and younger group player of the same university team. A descriptive research design used in the current study .The population of this study was undergraduate male basketball players of the University of Mosul -Iraq, for the academic year 2012-2013, each sample included (6) male basketball players; young players=(176.7 cm tall), (18,3 years age) older player =(179.6 cm tall), (23,3 years age). The procedure of this research started with warm up for 15 minutes followed by passing, shooting, and the players performed the layup technique by repeated 3 times and the best performance of layup was selected to analyze. Data were analyzed using SPSS version 19.0, Mean variables compared by T-test at 0.05. Programs of Maxtra and Dartfish used for analysis. This study conclude that -The length and speed of first and second step for older players higher for the older player than the youth, The older players were better in all tested variables (horizontal and vertical distance, Hips Displacement for jumping, Height of palm, distance of take-off from basketball).

1. INTRODUCTION

Basketball is a game that requires being fast in both attack and defense with a precision in tactical and technical preparation.

Recently in many countries in the world basketball is the second most popular game with its vision attracting techniques.

One of the most important skill in basketball is layup, it is one of the five shoting in basketball have two steps and hop (Al teckrete, 1988, p382). The layup technique can effect on the score dramatically and provide teams winning of the game. The kinematic is a science that interest in study the outside discretion for the time and place of movements without the powers (Luay. Ghanim, 1987, p47). However, strength, speed and accuracy are the basic requirements interact with technical for an effective layup, and the kinematic analysis is a type of biomechanics analysis that care of descript the movement and it's have three kinds of analysis :quantitative, specific, and educational(Resan,K. and Nejah.M ,2002,p133). Therefore, the objective of this study was to investigation biomechanical parameters of layup which can effect on the score and to find out the difference between the layup techniques of players experienced and younger group player of the same university team.

The Research problem was determination of the effect of layup techniques on the score of the basketball games of university players in Mosul, this require proper training methods in which players can practice the best techniques based on the outcomes of analyses.

2. MATERIAL AND METHODS

A descriptive research design used in the current study were. The population of this study was undergraduate male basketball players of the University of Mosul -Iraq, for the academic year 2012-2013, each sample included (6) male basketball players; young players=(176.7 cm tall), (18,3 years age) older player =(179.6 cm tall), (23,3 years age).the material were:(questionnaire form, Camera, 7 basketball, bench top scale, length scale).The procedure of this research held in physical education college of Mosul university, started with warm up for 15 minutes followed by passing, shooting, the players performed the layup technique by repeated 3 times, A camera was recording vertically on the path the players and the best performance of layup was selected to analyze. The kinematic variables of the research were: First step length, second step length, Speed of second step, Knee angle, Height of palm, Distance of take-off from basket, Horizontal distance, Vertical

Al distance, the distance of hip flight, First step time, and Second step time. Programs of Maxtra and Dartfish used for analysis. Figure -1- show:-The lay-up scoring of the older (23) years old (Fig-1-A)and young (19)years old (Fig-1-B)describing the path of the ball, the palm and the horizontal and vertical distance of center of gravity and the differences between these variables. Data were analyzed using SPSS version 19.0, Mean variables compared by T-test at 0.05.

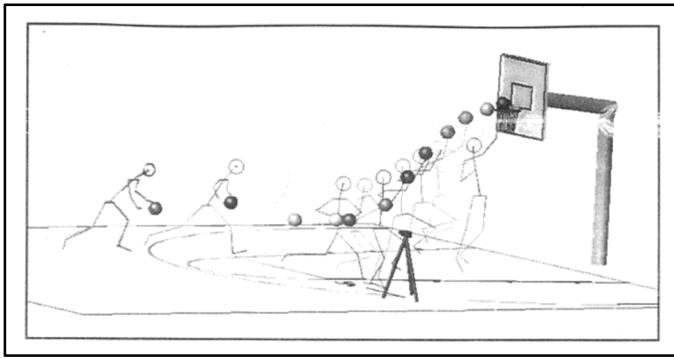


Figure -1- lay- up scoring and camera position of senior player

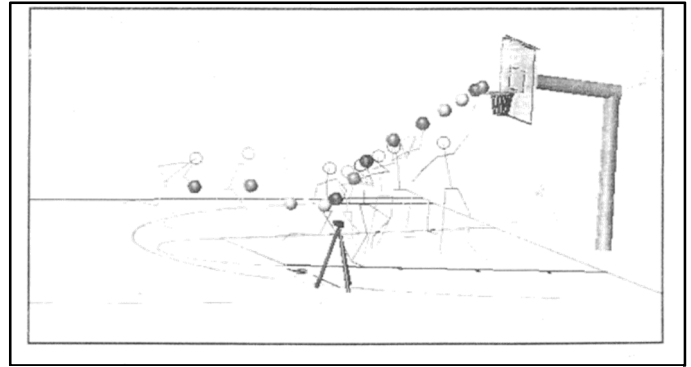


Figure -1- lay- up scoring and camera position of junior player

3. RESULTS

Table 1: statistically parameters for both class describing the differences of the first and second step pf lay-up scoring

	SENIOR		JUNIOR		T
	M	SD	M	SD	
First step length	130.1	1.4	96.39	2.57	23.08
Second step length	112	1.15	86.89	4.33	10.17
Speed of firs step	3.43	0.01	3.13	0.09	2.78
Speed of second step	7.69	0.25	5.96	0.21	10.57

The length of first and second step of senior group were 130.1, 112 cm respectively, compared to 96.4 cm in the first step and 86.9 cm in the second step of junior group .

The speed in the first and second steps of the senior group were 3.4m/s and 7.7m/s whereas the junior group have slower score of 3.1 and 6 m/s.

Table 2 statistical for both class describing the differences of the knee angle and the height and the distance of take –off from basket

	SENIOR		JUNIOR		T
	M	SD	M	SD	
Knee angle	122	1.46	124	0.7	2.57
Height of palm	183.6	1.3	182.4	1.07	1.59
Distance of take-off from basket ball	118.2	1.34	109.30	1.1	11.55

The knee angle of senior group and junior group were 122, 124 degree respectively, the height of palm of senior and junior group were 183.6, 182.4cm respectively, Distance of take-off from basketball of senior and younger group were 118.2, 109.30cm respectively.

The horizontal and vertical distance of senior group were 58.48, 25cm respectively, compared to 49.02 for horizontal and 14.4 cm for the vertical of junior group?

The hips displacement for jumping of senior and senior group were 58.77,50.88cm, while time of first and step of senior group were 0.52,0.20sec. Respectively, compared to 0.40, 0.20 sec. of junior group respectively.

4. DISCUSSION

The differences in speed and length depends on the coordination of strength, power and explosiveness for the older group as Mehdi said "when the player extend the joints of the body when he break out get more distance and more movement area(Mehdi,N. and others,1988,p24).

The average of knee angle value of older group was less than youth group while the height of palm and the distance between take-off and basket were more than for youth group.

Older group had more speed and length of the steps than the youth group especially of the lower body so that they made more jump and more high, but because the less experience for young players, their knee angle was less.

Horizontal and vertical distance for older group had higher than young .Hips Displacement for jumping for older was higher than young. Time of first step for older was higher than young.

Time for second step was same for Bothe of them because the strength of older group was higher so that they can jump better .Thus, there were significant differences in the examined variables studied between the older and the youth groups, these differences may attributed to experience gained from the exercises as well as using their center of mass by break out throw

opposite, in this aspect Al Rasheed(1987) reported that "the objective of the player is jump vertically not horizontally in the final steps so that he must to change his horizontal power to vertical power"(AlRasheed thaher, 1987, p146).

5. CONCLUSION

The length and speed of first and second step for older players higher for the older player than the youth.

The older players were better in all tested variables (horizontal and vertical distance, Hips Displacement for jumping, Height of palm, distance of take-off from basketball)

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