

THE RELATIONSHIP OF THE VERTICAL STRENGTH OF THE STAGE OF ELEVATION OF THE SCORING BY JUMPING WITH THE LEVEL OF ACHIEVEMENT OF THE BASKETBALL PLAYERS

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ABSTRACT

The first chapter dealt with the basketball game because of its great importance, as it is played by all the age stages, which depend on multiple mechanical foundations and kinematic and kinetic variables. And an impact on the level of achievement, as its sections are interconnected through its performance with high strength and speed within a very short period of time, and in the second chapter, the researcher used the descriptive approach in the manner of survey studies to suit the nature of the research. The total population sample consisted of (10) players. A player from Al-Zawraa Basketball Club for the season (2018-2019), the researcher used digital photography to achieve the scientific and technical observation, using a digital imaging camera type (yashica) at a speed of (400 images / s) number (2), the first is placed on the right side and the second is from The left side, at a distance of (5 meters) from the scoring area, with a height of (130 cm) to identify the biomechanical variables related to the skill of scoring by jumping with basketball, and a force measuring platform was used. It has the ability to measure the force. As for the third chapter, the results were reached through the existence of a negative significant correlation between the lowest reaction force in the action stage and the achievement, as the calculated (r) value reached (-0.92), and the researcher attributes that the lowest reaction force in the action stage is in part of the action stage as a whole. What is correct is that the lowest reaction force in the action phase leads to a decrease in the force recorded in the propulsion phase because the significant decrease in force means the length of the absorption time, which leads to a loss in the force transferred from the impulse phase to the action phase, which negatively affects the achievement. This is confirmed by the area under the curve, which expresses the recorded force. As for the fourth chapter, the conclusions were reached that the strength of the players did not move regularly, but rather the movement took place according to the effect of body weight and body movement during the ascent stage. It was recommended to emphasize the final output of the maximum force (touching the platform). And reduce the action stage as much as possible to benefit from it during the push stage in order for the player to obtain a good speed and angle of ascent to achieve the maximum achievement.

Keywords: vertical strength, ascent stage, scoring by jumping, achievement

1-1 Introduction and the importance of the research:

The game of basketball is of great importance, as it is played by all ages, which depend on multiple mechanical bases and kinematic and kinetic variables. As its sections are interconnected through its performance with high strength and speed during a very short period of time to achieve the best, if it is necessary to diagnose the faults and find out the causes of these errors using modern scientific equipment, including the force measurement platform that

provides us with valuable information about the force and the elements related to it directly through the movement of the foot Strong and fast on the platform from the moment of touching it until the moment of leaving it synchronized with the digital imaging of the stage Obtaining the relationship between the apparent biomechanical variables of movement and the driving force of the player's mass within a short period of time. The perpendicularity recorded on the curve is a function of force and time that appears in the force measurement platform through the transmission of electrical signals to the computer, which appear in the form of wavy waves of force.

1-2 Research problem:

The research problem lies in the extent of the effect of the amount of vertical force to reach the maximum possible achievement, and the extent of the contribution of this force starting from the moment the player's foot was placed during the stages of performing the skill of scoring by jumping with basketball to achieve the best achievement in the skill of scoring by jumping

1-3 Research Objectives:

1. Identifying the vertical force in the stages (touching the platform - action - pushing) and its relationship to the level of achievement of the skill of scoring by jumping with basketball
2. Identify the vertical force to reach the highest achievement in the skill of scoring by jumping with basketball
3. Recognizing the shape of the power and time function for the stage of upgrading the skill of scoring by jumping with basketball

1-4 Imposing the search:

1. There is a statistically significant relationship between the vertical force in the phases (touching the platform - action - pushing) and some biomechanical variables for the basketball jumping skill.

1-5 areas of research:

1-5- The human field: Al-Zawraa club basketball players

1-5-2 For the temporal field: for the period from (15/11/2018 to 9/7/2019)

1-5-3 The spatial field: the indoor hall of Al-Zawraa Basketball Club

1-6 Terms used in the search:

1. The stage of touching the platform: It is the stage that starts from the moment the player's foot touches the platform of measuring strength in preparation for the next stage, which is the act of ascending.
2. The action stage: It is the stage that starts from the moment of reaching the maximum strength during ascent until the strength decreases to the lowest level.
3. The propulsion stage: It is the stage that starts from the moment the force reaches the lowest level until the moment the ascending foot leaves the platform for measuring the ground reaction force (the ascent).

2-1 Research Methodology and Procedures:

Scientific research is an organized method for collecting reliable information, taking notes, and objective analysis of that information by following specific scientific methods and approaches with the intent of ascertaining their validity, modifying them, or adding new ones to them, and then reaching some laws and theories and predicting the occurrence of such phenomena and controlling their causes. The researcher used the method. Descriptive survey style, navigation, nature of research. (179.2012.3)

2-2 Research Sample:

The original research community consisted of (10) players. The exploratory experiment was conducted on (3) players, and the main experiment was on (5) players. (2) players were excluded because of Al-Zawraa Basketball Club for the season (2018-2019), meaning the research sample consists of (5)) players.

Table (1) among the specifications of the research sample

s	variants Players' names	Bloc (kg)	the age (year)	length (centimeters)
1	Mohamed Qased	76	24	182
2	Mahmoud Majeed	81	27	184
3	Marwan Hussein	82	28	188
4	Mustafa Jalal	84	29	182
5	Mostafa Ahmed Abdel Amir	81	28	187
	M	80.8	27.2	184.6
	S	10.102	2.164	10.234
	coefficient of difference	12.76	7.23	5.65

2-3 Data collection methods:

2-3-1 Measurement of length: (centimeter):

Measuring the height of the research sample using an electronic device (matric) to measure height and weight.

2-3-2 Measuring the weight (body mass) (kg): The person responsible for measuring the laboratory weighs with the same device above, through an electronic screen to fix the weight.

2-4 Tests used in the research:

2-4-1 Jump Shooting Test: (158.2015.4)

The aim of the test: This test aims to measure the free throw skill.

Equipment and tools:

- Basketball goal
- Basketball

How to perform the test:

Each tester has twenty attempts to be performed from behind the free throw line, and the tester must perform the free throws using any of the shooting methods, provided that the throws are

performed in the form of four groups, each group has five throws, and after completion, the next tester starts and so on until the turn comes once another to perform the second set of throws and so on until the twenty throws are completed.

Test conditions:

- The laboratory has the right to make some corrections before starting the test as an experiment.
- Each laboratory has the right to perform twenty throws.
- The shooting must be done from behind the free throw line.

Register

- One point is counted for each successful hit, regardless of how it entered the basket.
- If the ball does not enter the basket, zero is counted for that.
- The maximum score is twenty degrees for each successful throw, only one point.

2-5 Cameras:

The researcher used digital photography to achieve the scientific and technical observation, using a digital imaging camera type (yashica) at a speed of (400 images / sec), number (2), the first is placed on the right side and the second is on the left side, at a distance of (5 meters) from the targeting area, at a height of (130 cm). To identify the biomechanical variables related to the skill of scoring by jumping with basketball.

2-6 Programs used in kinetic analysis: (115.2003.2)

- (Kenova) program
- Max Track program
- Force Measuring Platform (Face Rate tom) with all its accessories: (169.2002.1)

The force measuring platform consists of dimensions of (120 cm) in length, (120 cm) And with a thickness of (25 cm) high, it measures more than (5000 Newtons), and it is wired and wirelessly connected to the computer.in the laptop.

2-7 Tools used:

1. Scale drawing (1) meter
2. Attempt registration forms
3. Red and green adhesive tape (2)
4. Basketball court
5. (10) basketballs
6. Cameras shooting at a speed of (400 images / sec) type (yashica), number (2).
7. (1) Dell computer
8. Electronic scale for measuring body weight (mass) type (matric)

2-8 Exploratory Experience:

The survey was conducted on players from outside the research sample on Tuesday corresponding to (20/11/2018) in the closed hall of Al-Zawra Club, through which:

1. Adjusting and defining the parameters of the imaging process.
2. Determine the dimensions of the shooting camera in terms of its distance from the players, the height of the lens from the ground, as well as the shooting angle.
3. Locate the calibration model (scale drawing).
4. Then install the first camera on a vertical tripod on the field of photography from the left side of each player, and it is 5 meters away from the scoring area. The same applies to the second camera from the right side, a distance of (5 meters), and the height of the middle of the camera lens from the ground is (130) centimeters.

2-9 The main experience:

The main experiment was conducted on (11/29/2018) at ten o'clock in the morning in the closed hall of Al-Zawraa Basketball Club on the research sample of (5) players.

(10) attempts were given to each player during the main experiment, provided that there was a sufficient rest period during the performance of the attempts to ensure the performance of the attempts at the same level.

2-10 Research Variables:

Variables of the force-time function curve for the ascent stage

touch the platform	maximum strength
	average strength
action	lowest power
	average strength
propulsion	maximum strength
	average strength
ascent	Average power up
Final	overall average strength

2-11 Statistical Methods:

The researcher used the statistical program (SPSS) to extract the results of the search variables

1. Arithmetic mean
2. . standard deviation
3. Coefficient of variation
4. The simple correlation coefficient (Pearson).

- Presentation and discussion of research results:

3-1 Presentation of the results of the biomechanical variables of the upgrading stage and their association with achievement

Table (2) Statistical parameters of the stage of upgrading and their association with achievement

Phases	biomechanical variables	variables		achievement		R	SIG
		m	s	m	s		
touch the platform	maximum strength (Newton)	6524.42	589.12	6.3301	0.3102	0.72	0.15
	average strength (Newton)	3002.47	564.23			0.78	0.13
action	lowest power (Newton)	1937.33	612.41			0.92-	0.04
	average strength (Newton)	3657.13	702.11			0.38-	0.47
propulsion	maximum strength (Newton)	4226.78	612.12			0.79-	0.34
	average strength (Newton)	2367.17	578.01			0.67-	0.21
ascent	Average power up (Newton)	1769.15	397.32			0.61-	0.19
Final	overall average strength (Newton)	3129.77	478.41			0.58-	0.29

Through table (1), it is clear that there is no significant correlation for the variables of the table except for the variable of the lowest reaction force for the action stage, if the value of (r) calculated for the non-significant variables, which ranges between (0.634-0.678) at a degree of freedom (4) and a level of significance (0.05) This is confirmed by the significance of the variables (sig), as it ranged between (0.123 - 0.339), and they are greater than (0.05).

The existence of a negative significant correlation in the lowest action strength variable if the calculated (r) value was (-0.92) at a degree of freedom (4) and a level of significance $\alpha(0.05)$, and this is confirmed by the significance degree (sig) if it was $_0.049$ which is smaller than (0.05). (136.2009.5)

Through table (1) it is clear that there is a significant negative correlation between the lowest reaction force in the action stage and achievement, as the calculated (r) value reached (-0.92). The researcher attributes that the lowest reaction force in the action stage is in part of the action stage as a whole, as it was The action phase is short, which leads to the maximum force recorded in the propulsion phase, which leads to an increase in the area of completion and vice versa (189.2018.6), that is, the lowest reaction force in the action phase leads to a decrease in the force recorded in the propulsion phase, because the significant decrease in force means a long time Absorption, which leads to a loss in the force transferred from the propulsion stage to the action stage, which negatively affects the performance. This is confirmed by the area under the curve, which expresses the recorded force. (201.2017.7)

4- Conclusions and recommendations

4-1 Conclusions:

1. The strength of the players did not move in a regular manner, but rather moved according to the effect of body weight and body movement during the ascent phase.
2. Adding a new stage to the players' strength path (the strength function curve - time), which is the ascent stage, as the players' strength path was divided into four stages (touching the platform - action - propulsion - ascent)
3. There is a negative significant correlation between the lowest reaction force in the action and achievement phase.

4-1 Recommendations:

1. Specialists in the field of training must emphasize the correct skillful performance of the ascent stage and monitor body movements during the skillful performance of basketball players in the jumping skill.
2. Emphasis on the final output of the maximum force (touching the platform) and reduce the action phase as much as possible to benefit from it during the propulsion phase in order for the player to obtain a good speed and angle of ascent to achieve maximum achievement.
3. Conducting similar research on other variables for samples from higher levels to obtain a high level so that the results are more general and comprehensive.

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