EVALUATION OF THE FUNCTION VARIABLES (FORCE - TIME) AND ITS RELATIONSHIP TO THE VARIABLES OF THE BALL'S FLIGHT FOR SHOOTING THE CALCULATED THREE POINTS IN BASKETBALL

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Abstract

The biometric science is of great importance in studying sports movements and skills, as the interconnection of this science with the basketball game is of importance in investing and directing the technical performance of the skill of aiming to jump by three points from the right -wing angle Center in the correct way and evaluate in an objective manner.

The importance of research in studying the relationship between the variables of the (force - time) and the variables of the ball flying in the correction calculated with three points, because of this skill is of great importance in resolving the result of the match.

Keywords: function variables (force - time); variables of the ball's flight. ; Basketball**.**

Research goals were:

- Learn about the values of functions (force - time) and ball flying variables to shoot three points from the right angle center and find the relationship between them.

And the **conclusion was:**

1- The presence of a statistically related relationship between the maximum variable registered force with the ball flying angle variable, the speed of the ball flying, and the maximum height of the ball in its flight .

2- The payment variable achieved a statistically associated relationship with the ball flying angle variable and the maximum height of the ball in its flight.

3- The necessity of adopting biometric analysis in the analysis and division of sports movements and skills.

1 - Definition of Research:
1-1   Introduction Research and importance:

The rapid development that the sports movement is going through is only the result of scientific progress in various other sciences and dependent on various scientific studies and research. One of these sciences has the prominent and influencing role in this progress and the advancement of mathematical reality is biometric science, which is an application Physical laws and principles and their investment in improving mathematical movements while taking into account the biological conditions (mechanical - anatomical - physiological) to reach the best performance in addition to that it is one of the sciences that provide physical education with logical and objective interpretations.

And the game of basketball was a significant share of the use of biometric flag to develop players and upgrade their levels, especially since the basketball game skills are characterized by high kinetic speed, which must be judged through the motor analysis of its skills and avoiding their evaluation through the abstract eye, observation and experience Field.

Therefore, the biological analysis of motor skills in basketball is no matter how fragmented the skill to be analyzed and in particular the skill of aiming to jump with three points of basketball and study it in order to identify the variables of the (force - time) and launch the kinetic performance according to this analysis because of its objectivity In the evaluation, it is based on objective methods in measuring the variables of influencing force, time and distance, which allow the correct contribution to improving the skill of aiming to jump with three points.

And from the foregoing lies the importance of research in the evaluation of the variables of the (force- time) and its relationship to the balls of the ball flying to aim at three points, basketball from the angle Center, because of this skill of great importance in resolving the result of the match, which is the primary goal in the basketball game and to invest in it The best way to win the match, so the research problem is to reach the nature of the relationship between the variables of the (force - time) and the variables of the ball flying to the skill of aiming to jump with three points in order to provide adequate and sufficient information about it and it is possible to benefit from it.

1-2   Research objectives:

1- Learn about the variables of the (force- time) and the variables of the ball aircraft to aim at three points, basketball from the right angle center.

2- Identify the relationship between the variables of the (force- time) and its relationship to the balls of the ball flying to aim at three points, basketball from the right angle center.

1-3 Research hypotheses:

1-The existence of a statistically significant correlation between the variables of the function (force- time) and the variables of the ball aircraft to aim at three points with basketball from the right angle center.

1-4 Research fields:

1-4-1Human field: Baghdad Oil Club player's basketball.

1-4-2 Time field: 1/7/2022 - 1/10/2022.

1-4-3 The spatial domain: Al -Shaab International Stadium Hall in Basketball - Baghdad Governorate.

2-Research Approach and field procedures

 The researchers used the descriptive approach in the survey method to achieve the research goals, as (Muhammad Sarhan: 2019) sees that the descriptive survey approach is one of the most important curricula, because of its ability to collect a lot of information and data on the phenomenon under study and its ability to explain and clarify theories.

2--2 Research Community and Sample:

 The research community was identified in the intentional way, and they are the clubs of the golden square of the Iraqi Premier League basketball. Stature, body mass and arm length using the difference factor

Table (1) Shows the research homogeneity

Research variables	Arithmetic mean	standard deviation	Difference Factor
length of the body	183.53	7.06	3.84
Arm length	83.5	1.96	2.34
body mass	78.40	5.34	6.811

2-3 Information collection means:
**2-3-1 data collection means**
1- Sources and references
2- Scientific observation

2-3-2 Devices and tools used:
1- Sony HDR XR520 E with 100 photos/s speed.
2- The force measurement platform.
3- Basketballs.
4- Measurement tape.
5- Medical balance.

2-4 field research procedures:
2-4-1 Skill Determination
The researchers determined the skill of the correction calculated with three points from the center of the Angle as the laboratory player stands at the right - wing center to perform five attempts of correction with the presence of the strength measurement platform for the performance of the correction.
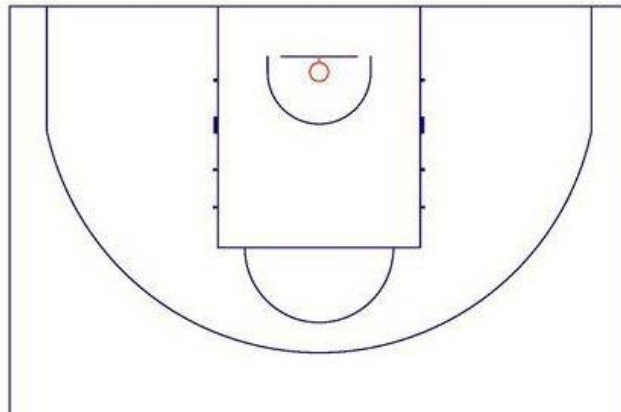
Figure (1) Shows the strength measurement platform site

2-4-2 exploratory experience:
    The researchers conducted the exploratory experience in the Olympic Games Hall of the representative of the Iraqi National Olympic Committee in Basra and the Al -Mina Sports Club players on Thursday 25/8/2022, and the aim of conducting the exploratory experience was to ensure the validity and safety of the devices used with the distribution of the duties of the work team the assistant.

2-5 Study variables:

2-5-1 significant variables (force-time)   (Ghazwan Abdul Latif Hassan: 2020)

1- The maximum registered force: It is the largest registered value of the force on the curve of the (force- time) sign, as the beginning of this stage represents the start of payment, that is, after the maximum bending of the joint of the man's front.

2- The slightest registered power: It is the smallest registered value of the force on the curve of the (force- time) measuring through the strength measuring platform, and this stage begins from the moment of bending the joint of the man's front in the preparatory position to the maximum fold of the knee joint.

3- The maximum registered time: It is the time period that the force takes from the start of the payment and even the largest registered value of the force on the curve of the (force- time) measured through the strength measurement platform.

4- The lowest time registered force: It is the period that takes the lowest force, which starts from the moment of bending the joint of the front of the man in the preparatory position, and until the maximum fold of the knee joint is reached.

5- Pull: It is the area that is under the curve, which is the rate of force in time.

2-5-2 Ball flight variables (Wisam Falah Attia: 2005)

1- The speed of the ball flying: It is the result of dividing the instant distance that the ball travels at the time of its start at the time of this distance.

2- The angle of the ball flying: It is the corner between the horizontal lines passing through the ball center the moment it started with the football center transfer line for five consecutive pictures.

3- The maximum height of the ball in the arc of its flight: It is the distance between the center of the ball at its maximum height during its flight path towards the basketball ring and the surface of the field.

2-6 Main Experiment: The researchers conducted the main experiment on Tuesday 30/8/2022 in the People's International Hall of the Iraqi Central Basketball Federation, as the research sample represented by Baghdad Sports Oil Players was filmed.

2-7 Statistical means:

The researcher used the SPSS system in the statistical processing of data results and extracting the following:

-Arithmetic mean.

-standard deviation.

- Difference factor.

-Simple correlation coefficient.

3 - Presenting, Analyzing and Discussing Results:

Table (2) The calculations and normative deviations of the variables (force - time) for the correction of the calculated three points from the basketball center from the right angle center

No	variables	Arithmetic mean	standard deviation
1	maximum registered force	980.50	60.20
2	lowest registered force	360.81	25.09
3	maximum time registered force	1.77	0.15
4	lowest time registered force	1.39	0.08
5	pull	286.30	17.42

Table (3) The calculations and normative deviations of the ball flying variables indicate the three points of the basketball from the right angle center

No	variables	Arithmetic mean	standard deviation
1	angle of the ball flying	52.20	1.95
2	Ball flying speed	7.20	0.25
3	maximum height of the ball in its flight arc	5.10	0.12

Table (4) Shows the relationship between the variables of the function (force - time) and the variables of the ball aircraft to shoot three basketball from the right angle center

No	variables	maximum registered force	lowest registered force	maximum time registered force	lowest registered power	pull
1	angle of the ball flying	0.78	0.55	0.60	0.59	0.75
2	Ball flying speed	0.69	0.58	0.65	0.55	0.63
3	maximum height of the ball in its flight arc	0.73	0.87	0.54	0.63	0.88

• The value of the tabular correlation (0.666) at the degree of freedom (7) and the indication level (0.05)

By noticing Table (4) it is clear that there is a direct correlation relationship between the maximum variable registered force with the ball of the ball flying angle, the speed of the ball flying, and the maximum height of the ball in its flight. The minimum variable recorded a registered force with a direct correlation relationship with the maximum height of the ball in the arc of its flight.

The pull variable achieved a statistically significant correlation with the ball flying angle variable and the maximum height of the ball in its flight.

To obtain a suitable muscle strength, the bend in the knee joint must be appropriate so that it is not large and deep in order not to affect the payment process and increase the period of time, as the player in the successful attempt try to increase the starting point of the ball from the permissible increase in the height of jumping and Which contributes greatly to increasing the angle of the start of the ball and increasing the air arc in a way that provides a relatively high flight path that allows a good entry angle. (Shaker Mahmoud: 2013).

The force used by the player, which is transmitted from the hand to the ball, must be directly proportional to the distance between the archer and the basket The success of the shooting here is affected by several factors: (the speed of the ball start - the starting angle of the ball - and the high point of the ball's start) (Risan Khreibet & nijah Mahdi : 1992).

And the value of the pull is normal, because the force is one of its basic components and one of the parties to that equation, and the pull is affected by the increase in the increase and decrease in that force, and this is what (Adel Abdul Basir & Ehab Adel: 2007) indicated that the pull is equal to the result of the force on Time.

4 - Conclusion

1- The presence of a statistically related relationship between the maximum variable registered force with the ball flying angle variable, the speed of the ball flying, and the maximum height of the ball in its flight .

2- The pull variable achieved a statistically associated relationship with the ball flying angle variable and the maximum height of the ball in its flight.

3- The necessity of adopting biometric analysis in the analysis and division of sports movements and skills.

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