

THE LINEAR MOMENTUM OF THE STEPS OF APPROACHING AND RELATIONSHIP WITH THE ACCURACY AND SPEED OF THE BALL TO THE SKILL OF SMASH HIGH SPIKE IN VOLLEYBALL

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Abstract

The skill of overwhelming beating is one of the basic technical skills in the volleyball game, which occupies the highest degree of importance for the rest To high levels in the performance of the players and provide the effort made during the preparation, where the descriptive approach to the imams used the nature of the research problem as it works to describe the performance variables without going through their experimentation, the researcher chose the main research sample in the intentional way and they are the players of the Basra University team in the volleyball for the academic year 2020 - 2021. And by (12) players and the most important conclusions were:

- 1- There is a statistically indicative relationship between the linear momentum of the steps to approach the overwhelming land beating and the accuracy of performance of this type of beating.
- 2- There is a statistically indicative relationship between the linear momentum of the steps to approach the overwhelming landscape and the speed of hitting the ball in the lands print of the Smash diametrical spike

And recommendations:

- 1- The researcher recommends the necessity of following the motor analysis of the performance of the players in order to reach the minutes of the movement and its details to know the outcome of the performance.
- 2- The necessity of using field monitoring devices to access more accurate information about the outcome of players in order to solve the existing and discovered problems



Keywords: linear momentum; accuracy and speed; Smash High spike.

1 -1 Introduction and Importance of Research

It has been evident recently the interest in laboratory scientific research in sports, through attention to the use of laboratory devices and analytical tools for measurement, which have been increasing in appearing and competition between the best ones, and this is what we see clear in most teams and sports teams through the use of the latest technologies and scientific technology Educational in order to reach the best motor performance result during sports performance and to compete for the best sports achievements.

And that the volleyball game is one of the games that consist of multiple, compound and somewhat difficult skills in some of its skills, especially the overwhelming skill A stage that contains mechanical variables that differ from the previous and subsequent stage, which gives it the characteristic of difficulty in terms of reaching the mechanism in the skill performance and motor compatibility between the parts of the body and the surrounding stimuli.

1-2 Research Problem

The skill of overwhelming beating is one of the most sophisticated and difficult skills in the educational process in addition to being the most beautiful because of its value in highlighting the players who are perfect for that skill, and through the researcher's follow -up to the Basra University team in volleyball, he noticed a difference in the level of overwhelming beating performance as well as a difference in the performance method between The players, starting with the weighing pump, the advancement and jumping to hitting the ball and landing, and this was confirmed by personal interviews * which emphasized the existence of this difference, and from here the problem of the research came to get to know some stages of the difference, especially the first stage of performance (approaching steps) and studying it in terms of the linear momentum that The player owns it while the movement to determine its direct impact on the rest of the steps and the accuracy of the performance as a whole

1 -3 Research Objective

1- Learn about the lineage of the linear momentum of the steps to approach the research sample.



- 2- Learn about the accuracy of the performance of the overwhelming (Smash diametrical spike and straight) beating.
- 3- Learn about the speed of the ball starting to the skill of high beating.
- 4- Learn about the relationship between linear momentum, accuracy and speed of the ball for the skill of overwhelming (Smash diametrical spike) beating.

1-4 hypotheses Research

- 1- There are moral differences in the lineage of the linear momentum of the steps to approach the research sample.
- 2 There are moral differences in the accuracy of the highly overwhelming (Smash diametrical spike and rectal) beating.
- 3- There are moral differences in the speed of the start of the ball for the skill of high (Qatari and rectal) beating.
- 4- There is a moral relationship between linear momentum, accuracy and speed of the ball for the skill of overwhelming (Smash diametrical spike and rectal) beating.

1-5 Research Areas

- 1-5-1 Human field: Basra University team players in volleyball for the year 2020/2021 .
- 1-5-2 Time domain: represented by the time period from 20 / 12 / 2020 TO 1 / 4 /2021.
- 1-5-3 The spatial domain: The Faculty of Physical Education Hall and Sports Science/ Basra University.

2- Research Methodology

The researcher used the experimental approach with the design of equivalent and experimental control groups to address the research problem and achieve its objectives.

2 -1 Society and sample of Research

The researcher chose the main research sample in the intentional way and they are players of Basra University team in volleyball for the 2020-2021 academic year. By (12) players, the Liberal and those who are prepared from the research sample were excluded, the age of the sample members ranged between (19-22) years.

2-1-1 The Homogeneity Sample

In order to avoid effects that may affect the accuracy of the results to reach one and equal level of the sample, the statistical treatments were carried out using the factor of the difference that showed the homogeneity of the sample members before proceeding to apply the main experience, and as it is clear in Table (1) that shows the genetics between the members of the researcher sample, As the more the coffee coefficient approaches (1 %), the homogeneity is high, and if it exceeds (30 %), it means that the sample is heterogeneous

Table (1) The homogeneity of depressions and experiments in research variables

variables	Age	Length	Wight	skill of Smash diametrical spike	skill of Smash direct spike
M	20.15	184.14	67.55	10.22	9.65
S	0.55	1.82	2.59	1.74	1.61
factor of difference	2.72	0.98	3.83	17.02	16.68

2 - 3 Means and Tools Used in the Research

2 - 3 - 1 Means of Collecting Information

Arab and foreign sources and references

- A questionnaire for evaluating the accuracy of the technical performance of the skill of overwhelming beating of the Qatari and straight tests of the research sample.

International Information Network (Internet).

2 - 3 - 2 Auxiliary Tools used in the Research

- * Japanese (CASIO) photography machine (240) pictures per second.
- * Weight measuring device.
- * Metal measurement tape.
- * Adhesive tape with a width (5) cm and office tools.
- * Volleyball stadium.
- * Electronic timing watch.
- * volleyball balls (12).
- * Kenova (Kenova) is on a computer to measure kinetic momentum (1).
- * Ball Speed Measurement (Speed Radio) Number (1).

2 - 4 Tests used in Research

2 - 4 - 1 Technical performance accuracy test for the skill of overwhelming beating:

Smash diametrical spike and rectal multiplication (average) (average) test (Shihab Ghaleb: 2014).

- Test of the accuracy of the land somatic and rectum from the center (4).
- The purpose of the test: measuring the accuracy of the land somatic and rectum.

Tools: a volleyball field - two arranged in the stadium.

Performance: beating from the center (4). The high player uses the test from the (4) center, preparation by the trainer from the center (3) and the laboratory must perform (5) overwhelming strikes towards the Qatari direction towards the rank in the center (5), and (5) overwhelming strikes towards the straight direction towards the ranking. It is located in the center (1).

Registration

A- It gives (4) points for each overwhelming kick, in which the ball falls on the ranking area.

B- It gives (3) points for each overwhelming kick in which the ball falls on the planned area.

C- It gives (2) points for each overwhelming kneading, in which the ball falls in area (A) or (B).

Great degree = 20 degrees per direction

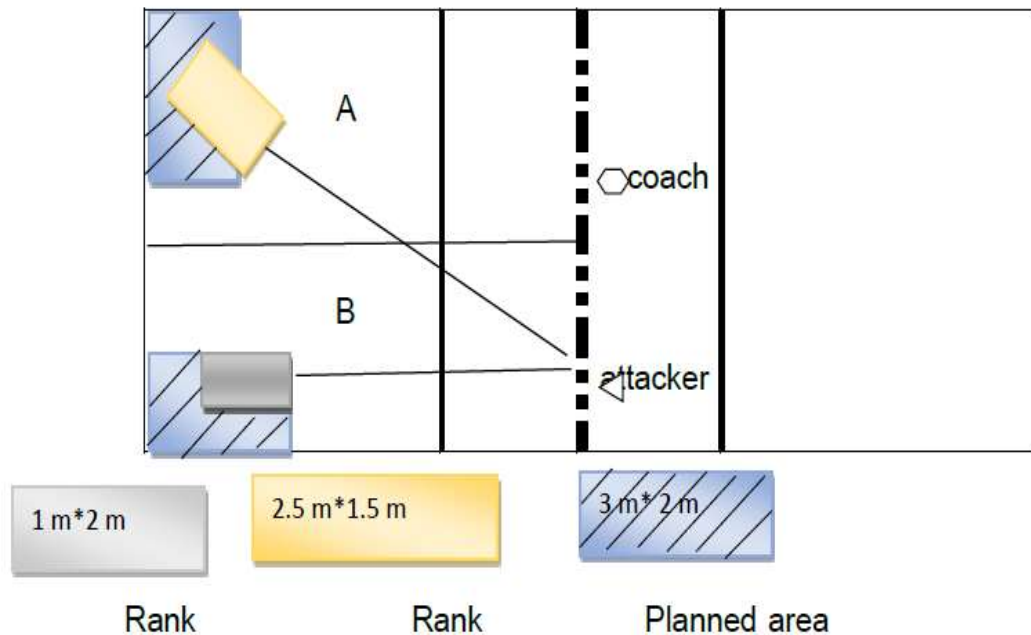


Figure (1) shows the accuracy of the performance of the Smash diametrical spik and Rectum



2-5 Research Variables

1- The linear momentum of the approaching steps: It is the result of the horizontal distance from the hip point at the beginning of the last step to the hip point the moment the rise is divided by the time taken and multiplied in the mass,

The momentum = $(k \times x)$ (Ahmad Sabaa: 2012).

2- The speed of hitting the ball: The speed of the ball is measured at the moment of the overwhelming multiplication by the radar device, where the researcher used the SPORTS RADAR (US-made) to calculate the speed of the ball. The result of the speed calculating on a screen is a confrontation for the person who holds the device, and his work begins by pressing the operation button to calculate the speed when the hand grip until the moment the ball touches the ground, leaving the pressing button to run the speed, and the shape (2) shows the device used.



Figure (2)

Radar device to calculate the speed of the ball

2-6 Exploration Test

The exploratory experience was conducted on Tuesday on 2/2/2021 at the stadium of the internal hall of the Faculty of Physical Education and Sports Sciences - Basra University on a sample consisting of (5) players from the players of the Faculty of Community Education and Sports Sciences, Basra University, who were excluded from the main experience. Where the performance was depicted to measure the kinetic momentum of the approaching steps, as well as measuring the speed of the start of the ball through the Speed radar for the survey sample, and then applying the overwhelming (Qatari and straight) beating tests. The aim of conducting the exploratory experience was the following:

1. Ensure the validity of the devices and tools used and the optimal use method.

2. Ensure that the players' ability to implement the required tests within the topic of the research.
3. Ensure the method and measure the tests.
4. Knowing the assistant work staff for the application to avoid errors while implementing the main experience

2 - 7 main Research Procedures

The researcher began the main research procedures on the players' sample inside the sports hall of the College of Physical Education and Sports Sciences on Monday 8/2/2021 at ten in the morning, where the researcher tested the research sample by photographing the performance of the skill of overwhelming (Qatari and straight), as well as measuring the speed of the start of the ball through Speed radar, which was used by the standing of a member of the assistant work cadre in the opposite side of the place of hitting the ball, where the lens of the device must be directed opposite with the start of the ball at the moment Higher (Qatari and straight) for players of the research sample through the analysis of the video and extracting the linear momentum of the approaching steps for each player, and after extracting the results from the above tests, the results were tackled statistically through the statistical means to know the relationship between the kinetic momentum of the approaching steps and the speed of the ball's start with the overwhelming beating of members of the sample search.

2-8 Statistical Means

The data was statistically treated by using the statistical bag program (SPSS VER 20) by using the following applications:

1. Mass.
2. Standard deviation.
- 3- Link

The researcher also used the following treatments:

1. The percentage (Ikhlas Muhammad & Mustafa Hussein: 2002).
2. The difference factor. (Ali Salloum: 2004)

3- View, Analysis and Discussion of the Results

3-1 Display, analysis and discussion of the results of the linear momentum, the accuracy of performance of the skill of the overwhelming and rectal hitting and the speed of the start of the ball at the moment of the beating:

Table (2)

shows the values of the mathematical medium, the standard deviation of linear momentum, the speed of, and the accuracy hit of the Smash diametrical spike and straight performance of the research sample

No	Research variables	M	S
1	The linear momentum of the (Smash diametrical spike) approach steps. M/s	211.873	20.831
2	The linear momentum of approaching (straight) steps. M/ s	220.301	21.082
3	The speed of the start of the (Smash diametrical spike ball m/ s	21.874	2.374
4	The speed of the start of the ball (straight) m/ s	20.432	3.091
5	The accuracy of the performance of the Smash diametrical spike landfill. Degree	14.333	1.557
6	The accuracy of the performance of the Smash diametrical spike beating. Degree	13.250	1.055

Table (2) shows us the values of the mathematical medium and the standard deviation of the linear momentum of the steps of approaching (Smash diametrical spike), which came at a value of (211.873) m/ s and a standard deviation (20.831), where the last step is the basis for completing the work and performance to secure a quick and high start through the next momentum in it The player. While the values of the mathematical medium and the standard deviation of the linear momentum of the approaching (rectal) steps came at a value of (220.301) m/ s and the deviation (21.082), and by noticing the values of the two momentum of the land sprint and the straightening, we find that the rectal multiplication players obtained the values of higher momentum and attributed the researcher that To the direct launch and in honesty faster among the rectal players than the Smash diametrical spike beating players, which players often work to tend to the body during the rise and even before the rise and thus a linear speed that results in a slowdown momentum. While the values of the speed of the start of the start of the ball (the Qatari) came in the middle of my account (21.874) m/ s and a standard deviation (2.374), while the values of the variable of the speed of the start of the ball (the straight) came in the middle of my account (20.432) and with a standard deviation (3.091), and often it is The hitting of the diagonal and the speed of the ball is very high as a result of high beat force. While the accuracy of the performance of the land of the Smash diametrical spike lands came in the midst of my account (14.333) and with a standard deviation (1.557), while the accuracy of the performance of the overwhelming beating performance was achieved in my account (13.250) degrees and a standard deviation (1.055), and this indicates the difficulty of the straight beating from the Smash diametrical spike in all cases.

3-2 Display, analysis and discussion of the results of the link between the variable of linear momentum, the accuracy of the performance of the skill of the Smash diametrical spike and rectum, and the speed of the start of the ball at the moment of the beating:

Table (3) It shows the relationship between the linear momentum of the steps to approach, the accuracy of the performance of the skill of the Smash diametrical spike and the rectum and the speed of the multiplication of the research sample.

Research variables	Performance accuracy	Ball starting speed
	Correction coefficient	Correction coefficient
The linear momentum of Smash (diametrical) approach steps	**0.844	**0.711
The linear momentum of approaching (straight) steps	**0.745	0.483

*Table (R) value under the degree of freedom (10) and a significant level (0.05) = 0.567

It appears from the table (3) the value of the link between the variables of momentum and the level of performance of the overwhelming and righteous overwhelming beat Getting good performance, because the speed of adequate approach will give us enough momentum to upgrade the player if we know that the player's momentum is the result of the result of hitting the player's mass at a speed and thus securing a motor momentum that leads to a high elevation in order to implement the required motor duty with high accuracy. Through the same table, the value of the link between the linear momentum variable of the (Smash diametrical spike) approach steps and the speed of the start of the ball was shared by the value of the calculated (R) value (0.711) is greater than the value of (t) of (R) and this indicates the possession of the Smash diametrical spike beating players within the Basra University team. In order to provide them with a movement speed that takes advantage of the ball of the ball during the performance. As for the result of the association of the linear momentum of the approaching (straight) approaches and level with the accuracy of the performance, it was moral, and that the calculated (R) (0.745) is greater than the (t) value of (t) and therefore the link is moral between the two variables due to the need of the straight player to a high movement momentum to advance and overcome The blocking wall, which is stronger than the blocking wall in the Qatari beating, as it does not need to change the body's position in the air, therefore the loss of the result of the change, and therefore the higher the linear momentum, the more exact performance. As for the validity of the linear momentum of the



approaching steps (the straight) and the speed of the start of the ball came, it is not moral, and that the calculated (t) is smaller than the (t) tabular value (0.483), and this indicates that there is no indication between the linear momentum of the straight beating and the speed of hitting the ball as a result of the player's upgrading In a straight manner and wait for the ball in the air until it arrives in front of the player's shoulder, which needs the period of his time, the opposite of what is happening with the Qatari beating, where the ball is hit from a distance from the hand of the beating, and therefore the striker has an unique underlying force as a result of his instant stop waiting for the ball to reach the closest distance From his multiplication, and therefore the speed values came not high among the high straight multiplication players compared to the values of the linear.

4- Conclusions and Recommendations

4-1 Conclusions

Through the results of the researcher, the following conclusions have been reached:

- 1- There is a statistically indicative relationship between the linear momentum of the steps to approach the Smash diametrical spike land beating and the accuracy of performance of this type of beating.
- 2- There is a statistically indicative relationship between the linear momentum of the steps to approach the overwhelming landscape and the speed of hitting the ball in the land sprint of the Smash diametrical spike overwhelming.
- 3- There is a statistically indicative relationship between the linear momentum of the steps to approach the overwhelming beating and the accuracy of the performance of this type of multiplication.
- 4- There is no statistical indication between the linear momentum of the steps to approach the Smash diametrical spike beating and the speed of hitting the ball in the overwhelming beating.

4-2 Recommendations

- 1- The researcher recommends the necessity of following the motor analysis of the performance of the players in order to reach the minutes of the movement and its details to know the outcome of the performance.
- 2- The necessity of using the field monitoring devices to access more accurate information about the outcome of the players' performance in order to solve the existing and discovered problems.



3- The necessity of paying attention to the steps of starting steps for the skill of Smash diametrical spike beating, as it is the basis in the process of correct offensive construction.

4- Searching for the variables of the motor momentum of the steps to approach the rest of the skills, whether in volleyball or the rest of the games that need to be launched, such as scoring in handball in order to stand on the results of the kinetic momentum of the approaching steps.

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