ACCURATELY PREDICTING THE PERFORMANCE OF THE BLOCKING SKILL FROM THE CENTERS (2,4) IN TERMS OF SOME KINETIC INDICATORS OF VOLLEYBALL PLAYERS

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Abstract

The purpose of this paper is to iidentifying the accuracy of the blocking skill from the centers (4, 2) of the volleyball players , identifying the characteristics of the kinetic indicators of volleyball players , identifying the correlation between the accuracy of performing the blocking skill from the centers (4, 2) in volleyball and some kinetic indicators, and finding an equation to accurately predict the performance of the blocking skill from centers (4, 2) in volleyball in terms of some kinetic indicators. The researchers used the descriptive approach using the method of correlational relations due to its suitability to the nature of the problem at hand, including the achievement of the research objectives. The research sample was determined by the intentional method, which represents the volleyball players of the University of Baghdad / College of Physical Education and Sports Sciences for the academic year (2022-2023), who are (8) players who perform the blocking skill. For the purpose of finding out the homogeneity of the research sample in some of the variables related to the research. One of the most important results reached by the researcher is that: There is a clear weakness in the accuracy of the performance of the blocking skill from central (4, 2) of the research sample, there is weakness and no significant correlation between the accuracy of the blocking skill from the centers (4, 2) and the indicators of Streamline and kinetic rhythm ,and there is weakness and no significant correlation between the accuracy of the blocking skill from the centers (4, 2) and the indicators of Streamline and kinetic rhythm. One of the most important recommendations recommended by the researchers is that: need for coaches of Iraqi university teams in the game of volleyball to provide their players with information and knowledge related to the biomechanical aspect of the kinetic performance of all technical skills in the game of volleyball.

Keywords: Prediction. Kinetic indicators. Blocking. Volleyball.

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Introduction

The great scientific progress that the world has witnessed in various fields has paved the way for wide progress and upgrading based on theoretical foundations, ideas, research and modern scientific applications in all fields, especially the sports field, as the process of reaching higher levels and achieving athletic achievement depends on several elements that must be organized in a manner thoughtful scientific.

Prediction is one of the necessities of achievement, and the idea of prediction and its impact on high athletic achievement is one of the modern means that express a set of factors and qualifications that are linked to each other to ensure that scientific mathematical research is conducted in order to predict the mathematical future of youth. If the process of selecting players in the early stages enables us to identify their preparations and abilities, predict what these preparations and capabilities will lead to in the athletic future of the youth and the extent of the results that can be achieved with prediction.

Therefore, it requires all those in charge of the training process to use all the training scientific innovations as well as to harness all the different sciences such as training physiology, anatomy, biomechanics, training theories and sports psychology, as well as knowing the important requirements and capabilities that must be available in an equal amount in every game or sport activity in a way that makes Sports training is proceeding at a scientific pace with a meaningful impact for all members of the training process.

Accordingly, each sporting activity has several requirements that contribute to its achievement in order to integrate performance and rise to higher levels, including physical, Kinetic, functional, mental, educational and psychological requirements, which play an important role in practicing and mastering all sports activities. The size of the role that these capabilities play varies according to the type and nature of the activity.

Kinetic indicators, including (Kinetic transmission, Kinetic rhythm, Kinetic Streamline) are among the important requirements in the technical performance of all sports, especially the game of volleyball, as these aspects are related to the human movement system and the mechanical laws of movement, as taking the correct Kinetic angles and paths for all parts and joints The body gives the player a correct preparatory position to apply the mechanical conditions related to Streamline and kinetic transmission.

Referring to this (Ke Zal Kaka Hama Saeed. 2008) "The performance of basic skills in volleyball is closely related to the fluidity of the movement performed by the player, which means performing the movement without interruption in its parts, and then the skill can be performed quickly, which contributes to the integration of movement transmission between the joints of the body at a high speed That is, not losing the speed of performance between them, and this means benefiting from the momentum achieved in each part and its transmission through the joints within the kinetic path to achieve the correct mechanical goal of skillful performance, and the integration of fluidity between the joints means the emergence of ideal performance according to the mechanical and kinetic foundations of performance ".

"The blocking skill is one of the skills that increases the excitement, suspense, and enthusiasm of the audience and players, in addition to giving a competitive character to the players among themselves" (Jawad, athaab. 2021).

As the introduction of sudden or surprising stimuli and situations in the blocking skill helps, the player visualize the location and accuracy of performing this skill with a high response speed, continuous observation and constant vigilance. (Fadel. Mansoor 2020).

The importance of these requirements emerges, especially when performing offensive skills, especially the blocking skill, due to the high capabilities required by this skill, in addition to the aspects of movement, rhythm, and movement Streamline, because it is considered one of the important skills in volleyball and the strong offensive weapon in terms of its impact on the course of the match, and it is a way to score points and acquisition of the transmitter.

The skill of the blocking depends in particular on the players of the front line and the middle (middle blocker), and the most important thing that they must be characterized by is strength and speed in movement (Abedulameer, 2016). In view of the importance of these aspects that were presented, as the relationship between them has a very important impact to reach the skillful performance to the optimal level in the game of volleyball, as well as the results extracted from the prediction of these variables are of great importance in the process of linking these variables with the accuracy of the skill of blocking the ball. The Plane. The lack of focus on jumping exercises from stability during the blocking exercises helps to create gaps for the team in the advanced blocking centers (Kadhim and Abdul-Alsamie, 2008)

Research Problem

The game of volleyball is one of the games that has increased in popularity all over the world, and which is receiving wide attention and a very important study in order to improve it, as this game is characterized by many sudden and quick situations during play situations, whether in attack or defense, as it is a group activity characterized by dynamism and continuous interaction It is also characterized by the multiplicity of its basic skills if these skills, especially the blocking skill, are affected by kinetic indicators, which are among the basic requirements and contribute to influencing the accuracy of skillful performance and achieving high achievement. Despite the importance of

these requirements, there is weakness in relying on them compared to other variables. On which the prediction of the future of the athlete in the field of volleyball is based. In addition, and after the researchers were briefed on most of the studies and research in this field, we did not find any study that dealt with these variables with the possibility of linking them in a predictive study through which it is possible to predict the level of performance of the athlete in the future for this skill. It facilitates the training process according to the player's important requirements that support skillful performance in the future.

Based on these facts, the researchers decided to choose this topic in the hope of knowing the role of these variables in predicting the accuracy of the blocking skill for the purpose of upgrading the level of the game according to the correct scientific criteria.

Research objective

- Identifying the accuracy of the blocking skill from the centers (4, 2) of the volleyball players.
- Identifying the characteristics of the kinetic indicators of volleyball players.
- Identifying the correlation between the accuracy of performing the blocking skill from the centers (4, 2) in volleyball and some kinetic indicators.
- Finding an equation to accurately predict the performance of the blocking skill from centers (4, 2) in volleyball in terms of some kinetic indicators.

Research hypotheses

- There is a correlation between the accuracy of the blocking skill from the centers (4, 2) in volleyball and some kinetic indicators.
- There is a discrepancy in the formula for accurately predicting blocking skill from (4, 2) volleyball centers in the light of some kinetic indicators.

Research fields:

- Human field: The players of the University of Baghdad volleyball team for the academic season 2022-2023.
- Time field: (2/12/2022) to (15/4/2023)
- Spatial field: Hall of the College of Physical Education and Sports Sciences / University of Baghdad.

Research Methodology and Field Procedures

Research methodology

The researchers used the descriptive approach using the method of correlational relations due to its suitability to the nature of the problem at hand, including the achievement of the research objectives.

Community and sample research

The research sample was determined by the intentional method, which represents the volleyball players of the University of Baghdad / College of Physical Education and Sports Sciences for the academic year (2022-2023), who are (8) players who perform the blocking skill for the purpose of finding out the homogeneity of the research sample in some of the variables related to the research, the Skewness coefficient was extracted for the variables below and as shown in table 1 (Table 1).

Devices, Tools and Means of Collecting Information

Devices used in the research

The following devices were used:

- Japanese-made (Casio Exilim Ex-FHZO) video camera, with a speed of (210) images per second, with a tripod.
- (1) Japanese-made (Sony) video camera, with a speed of (25) images per second, with a tripod.
- A medical scale for measuring weight, of Chinese origin.
- Computer (laptop) type (Dell, Inspiron, 1440).

Tools used in the research:

- A legal volleyball court with its accessories and (5) balls.
- Colored wooden signs in the form of numbers in the English language for the purpose of defining accuracy areas with colored adhesive.
- A wooden desk to place the equipment on it, with (1) mattress.
- One (1) Korean-made Kenko electronic calculator.
- A metal tape to measure the length (5 m), the unit of measurement is centimeters.
- Phosphorescent signs placed on the joints of the players.
- Colored wooden rulers width (5 cm) and length (1.50 cm) (1.80 cm) (1.20 cm) to mark areas of accuracy.

Means of collecting information:

- Arabic and foreign scientific sources.
- Observation and experimentation.
- Tests and measurement.
- Auxiliary staff (*).
- Research sample data registration form.
- Blocking skill accuracy registration form from central (4, 2).
- A program for analyzing movements and extracting results (Kenova) that works on a computer (laptop).

Tests used in the research

Blocking test central from (2,4):

- Objective of the test: To measure a player's ability to repeat the blocking skill at the same rate from one location on the net.
- Tools: The researcher needs a volleyball court, a regular net, a volleyball ball, a chair, a stopwatch, and a whistle.
- Performance method: The chair is placed behind the net in the middle of it at a distance of 50 cm. The coach stands on the chair and holds the ball above the net at a height of 20 cm with both hands. The tested player stands within the 3-meter area, and upon hearing the whistle, the player advances and jumps to perform the blocking skill, so that the ball touches the top of the net with both hands from the top of the ball, then lands on the ground, and repeats the performance for as many times as possible for a period of (10) seconds. The tester records the number of correct attempts he applies over the net with both hands, and the rest of the attempts are ignored. (Hassanein and Moneim. 1997).

Kinetic indicators:

Biomechanical variables were identified, through which rhythm and kinetic Streamline can be measured, which include:

- Streamline: The Streamline and transport were extracted through the law of diminishing energy according to the following equation: (0.5 kW x 2)2 - (0.5 kW x 2)1.
- Kinetic Rhythm: The kinetic rhythm was extracted through the time of the two parts of the movement, i.e. the time of the second part of the movement over the time of the first part of the movement.

Kionvea motion analysis software:

The kinetic analysis program (Kionvea) was used in order to extract and analyze the distance and time variables for the skill of blocking the barrier, and the program (Kinovea) replaces many of the steps that were used in research at the country level, as the film is taken as it is and is entered into the program as a raw film. Extracting the variables directly, and the steps of the program begin with (12) tools that we can use in the kinetic analysis of any part of the body, so it is possible to select any one of these tools to determine the variable that we want to measure and according to its type.

Table 1: Shows the arithmetic means, standard deviations, and skewness coefficient for the variables of the research sample.

Statistical Parameters	Measuring unit	Mean	Median	Std. Deviations	Skewness
length	Cm	176	177	12	0.435
Mass	Kg	73	72	7	0.215
training age	Year	4	3	1	0.537

Exploratory experience:

The exploratory experiment is one of the important means during the implementation of research projects in various disciplines. The exploratory experiment was conducted on Thursday 15/12/2022 in the indoor volleyball hall in the College of Physical Education and Sports Sciences - University of Baghdad on a sample of the University of Baghdad volleyball team players for Identifying the difficulties and obstacles facing the researchers in performing the main experiment, as well as identifying the efficiency of the auxiliary work team, as well as identifying the validity of the tools and devices used in the research.

Main experience:

The main experiment was conducted on Tuesday 10/1/2023 in the indoor volleyball hall, and each laboratory was given (5) attempts in testing the blocking skill, and the best successful attempt was chosen for analysis and extraction of biomechanical variables, and video imaging procedures were done using two video cameras Of the type (Casio Exilim Ex-FHZO), as the frequency speed is (210 images / sec), and the video camera has been installed on a large tripod, and one of the two cameras has been placed next to the laboratory, at a distance of (3.60 m) and a height of (1.20 m) from the ground. As for the second camera, it was placed to the left of the laboratory and on the runway in the inner hall for the purpose of covering the total test field. A drawing scale was used, as the length of the scale was in fact (1.50 cm).

Statistical methods: The search data was processed through the Statistical Package for the Social Sciences (SPSS).

Results and Discussion

Presentation of the results of tests of the accuracy of the skill of the blocking from two centers (4, 2) and aspects of Streamline and kinetic rhythm, analysis and discussion.

This axis includes a presentation and analysis of the results of the accuracy of the skill of the blocking from two centers (4,2) with the kinetic manifestations, which include Streamline and kinetic rhythm through the presentation of the arithmetic mean and standard deviations, as shown in table 2 (Table 2).

Presentation and analyzing the results of the simple correlation coefficient between the accuracy of the blocking skill from two centers (4, 2) and the indicators of Streamline and kinetic rhythm.

In order to identify the correlation between the accuracy of the blocking skill from two centers (4, 2) and the indicators of Streamline and kinetic rhythm, the simple correlation coefficient (Pearson) was used, and table 3 shows that (Table 3).

Presentation and analyzing the results of the multiple correlation coefficient and the quality of the linear model's reconciliation between the accuracy of the deflector skill from two centers (4, 2) and the indicators of Streamline and kinetic rhythm (Table 4).

Presentation and analyzing the results of affecting the kinetic indicators with the accuracy of hitting the blocking skill from center (4, 2) (Table 5).

Discuss the Results

The results in tables 2-5 showed that there is a non-significant correlation between the accuracy of the skill of the blocking from the centers (4, 2) with the indicators of Streamline and kinetic transport, as the research sample, which was represented by the players of the University of Baghdad volleyball team, did not get At a good level in the accuracy of the blocking skill skill from two centers (4, 2), as this can be seen through the value of the arithmetic mean for this skill in Tables 2, which amounted to (2.73) and (2.200).

It is a ratio that confirms the lack of interest in the biomechanical aspects when performing technical skills, especially the blocking skill, which is considered the most difficult of the offensive technical skills in this game, as it requires the highest levels of accuracy, compatibility, strength and speed in performance, as well as the biomechanical aspect in terms of achieving correct movement paths consistent with exemplary performance. Which is characterized by smoothness, beauty, control and accuracy in performance, as these qualities are achieved when the angular velocities of all joints of the body are appropriate and consistent in their values during the technical performance of the skill, as well as the appearance of kinetic transmission as this skill needs this appearance in terms of the transmission of force from one joint to another joint And with a regular increase in order to accomplish the ideal kinetic duty." In volleyball, the athlete must perform the offensive and defensive movements that require compatibility and sharpness in performance, by involving the required muscle groups in performing those movements with the maximum contraction of all the muscles involved in the movement so as not to cause weakness, disorder, and inconsistency. Skill performance effectiveness (Kamal El Din Abdel Hamid and others. 1999). The blocking skill requires players to

Table 2: Shows the arithmetic means and standard deviations for testing the accuracy of the blocking skill from the two centers (4, 2) and the indicators of Streamline and kinetic rhythm.

Variables	Blocking from (2)		Blocking from (4)	
	Mean	Std. Deviations	Mean	Std. Deviations
performance accuracy	2.74	0.8	2.01	0.63
Kinetic Streamline	217	55	289	84
Kinetic rhythm	0.753	0.126	0.679	0.051

Table 3: Shows the simple correlation coefficient between the accuracy of the skill of the barrier from Cherry (4, 2) and the aspects of Streamline and kinetic rhythm.

Variables	performance accuracy	correlation coefficient	Level sig	Type sig
Kinetic Streamline	Blocking from (2)	-0.217	0.21	Non sig
	Blocking from (4)	0.167	0.563	Non sig
Kinetic Streamline	Blocking from (2)	-0.344	0.09	Non sig
	Blocking from (4)	0.08	0.622	Non sig

Table 4: Shows the multiple correlation coefficient between the accuracy of the blocking skill from the centers (4, 2) and the kinetic Streamline indicators.

Variables	Multiple correlation coefficient	Effect	Value F	Level sig
Blocking from (4)	0.975	0.896	3.644	0.082
Blocking from (2)	0.926	0.854	3.013	0.136

Table 5: Shows the coefficient of the effect of the variables in question accurately shows the performance of the blocking skill (4, 2), its standard error, the value of (t), and the level of error.

Statistical processors / Variables		effect (slop)	standard error	Value T	Level sig
fixed limit	Blocking from (2)	2.36	0.706	3.384	0.01
	Blocking from (4)	0.013	0.104	0.123	0.904
Streamline	Blocking from (2)	0.005	0.0004	0.873	0.427
	Blocking from (4)	-0.00001	0.0005	0.336	0.751
rhythm	Blocking from (2)	0.016	0.0004	1.13	0.303
	Blocking from (4)	-0.00014	0.0003	1.302	0.247

have mental and kinetic abilities in order to enable them to perform the skill successfully. It requires attention, focus and knowledge of the correct direction of the ball to successfully block the (Zwaen, Mohamed, 2021). The researchers believe that the reasons for this significant weakness in performance are not providing the player with information and knowledge related to the biomechanical aspect of skillful performance, by explaining the exercises and focusing their attention on the appearance of movement Streamline, which is represented by the decrease in the differences in the angular velocity index of the shoulder, trunk and knee joints, as the decrease in this The differences indicate that there are no major pauses during the performance and thus ensures a kinetic transmission without momentary pauses in these joints, as the taking the right angles in the torso and shoulder joints gives the player a preparatory position to apply the mechanical conditions related to the Streamline and kinetic transmission associated with the variables in question (Al-Fadhli, 2007).

Conclusions and Recommendations

Conclusions

According to the results reached, the researchers concluded:

- There is a clear weakness in the accuracy of the performance of the blocking skill from central (4, 2) of the research sample.
- There is weakness and no significant correlation between the accuracy of the blocking skill from the centers (4, 2) and the indicators of Streamline and kinetic rhythm.
- There is weakness and no significant correlation between the accuracy of the blocking skill from the centers (4, 2) and the indicators of Streamline and kinetic rhythm.
- It is not possible to derive a predictive equation for the accuracy of the performance of the blocking skill from two centers (4, 2) in terms of Streamline and kinetic rhythm indicators, because the simple and multiple correlation coefficient shows the accuracy of the blocking skill from two centers (4, 2), which recorded non-significant results.

Recommendations

Based on the findings and conclusions of the research, the researchers recommend the following:

- Need for coaches of Iraqi university teams in the game of volleyball to provide their players with information and knowledge related to the biomechanical aspect of the kinetic performance of all technical skills in the game of volleyball.
- Need for coaches of Iraqi university teams in volleyball to benefit from the results of the current research in measuring the fluidity and movement of the players, in order to identify the importance of these two variables in developing skillful performance.
- Paying attention to developing training curricula in the game of volleyball, based on the principles and biomechanical foundations of kinetic performance.
- Importance of conducting periodic skill tests for volleyball players in the Iraqi university teams in order to identify the level of skillful performance.
- Possibility of conducting a similar study on the same current research variables and on other technical skills.

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