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The Study of the relationship of some Bio Kinematic indicators with testing the accuracy of the level of skill performance of the high spiking of volleyball players

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Abstract

The aim of the research is to identify the value of some biochemical indicators with the accuracy of testing the level of skill performance of high crushing hitting among volleyball players and the relationship between them , and the research problem was embodied in the absence of a study of the relationship of some biochemical indicators with the accuracy of testing the level of skill performance of high spiking in order to reach the accuracy of performance Technical serving sporting achievement and is working to develop it because it is linked to the conditions the biomechanics correct associated with your performance, and adopted the researchers descriptive approach, the research sample included 12 players , underwent a test level of skill performance hit the overwhelming high among volleyball players MRK g 4 , was filming the adoption of a camera Type (CASIO At a high speed (120 p / s), the values of the search variables were extracted through imaging and using the kinematic analysis program ((Kinovea8.25The data results were presented, analyzed and discussed and the correlation value was extracted for the variables that are more consistent with the kinetic energy index of the trunk and the height, and the most important findings of the research were (that increasing the efficiency of the kinetic energy of body parts, whether linear or rotational, has a positive effect on the speed of the body's launch. And then achieving a better achievement distance through the law of preserving the amount of movement and having a high impact on the technical performance of the research sample), and the researcher recommended (the importance has evolved capacity Players On investment Properties Bio Mechanical To body in a the shape the performance Artwork Correct, and use kinematic analysis periodically during the identification of the mechanical changes that occur upon the rise of the players).

Keywords: Bio Kinematic indicators, skill, performance, high spiking, volleyball.

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Introduction

Research Problem **:** The quality of technical performance is one of the pillars that lead to mathematical achievement, which is related to the correct biomechanical conditions accompanying the performance, and from this principle the researcher found that the study of the correlations between the kinematic quantities in the stage of attribution and the two stages of advancement and flight of body parts is important in the skillful performance of volleyball, which determines The level of accuracy of skill performance and its effectiveness in achieving the desired goal of the skill, which is to obtain the point properly, and in order to know the precise details of the motor performance, the research problem was identified in answering the following questions:

- *What are the values of some biochemical indicators of spiking high among volleyball players?*
- *What are the accuracy values of the skill level of spiking high among volleyball players?*
- *What is the relationship between some biochemical indicators with the accuracy of the skill level of spiking high among volleyball players?*

Aim of the research is to identify the values of the biochemical indicators of the high spiking of volleyball players and to identify the accuracy test values of the skill level of spiking high among volleyball players and to identify the relationship between some biochemical indicators with the accuracy of the skill level of spiking high among volleyball players. The effectiveness of some biochemical indicators with the accuracy of the skill level of high spiking performance among volleyball players.

Research hypotheses: There is a correlation between some biochemical indicators with the accuracy of the skill level of spiking high among volleyball players.

Research fields: the human field: Elite Volleyball League players; the time field: From 20/10/2018 to 04/18/2019, the local field: College of Physical Education and Sports Sciences.

Literature review

The volleyball a sports skills that rely on technical performance in order to achieve the feat, which requires knowledge of accurate traffic details and causes as well as improved performance motor and bypass errors, and make a serious contribution to some of the problems solution facing the player and coach in both phases of learning and training, and is an analysis. (**Tuckman, 1979**) The kinematic is the key to accessing these details and getting to know the main variables that contribute to the performance, and the most important of these are some biochemical indicators (distance and time of a step before ascending, height of KG, moment of standing, distance m, k, c in flight, flight time to the moment of hitting the ball. The performance time from the first touch to hit the ball), which gives the body the best angle and speed of departure that helps it in the flight stage to reach the vertical height suitable to achieve good crushing hitting, and to study these aspects and their kinematic requirements, the correlational relations between these variables must be studied to know the basic aspects that Related to the level of accuracy of skill performance, hence the importance of research in identifying the relationship of some biochemical indicators with the accuracy of testing the level of skill performance of high spiking at no Play volleyball . (**Wadih, 1999**)

Methodology

Method: The two researchers used the descriptive approach in the method of relational relationships for its relevance to the nature of the problem and including the achievement of the research objectives and hypotheses.

The research sample: The research community was determined by the players of the Iraqi Elite League in volleyball for the season (2018-2019) , and the research sample was randomly selected, whose number is (12) players from specialists in high crushing , and Table No. (1It shows the distribution of the research and sample collectors, and Table (2) shows the specifications of the research sample.

Table No. (1) Shows the distribution of the members of the research community and Abna

T	The name of the club	High speed batting players	Number of exploratory experience personnel	number of people in the main experimen
1.	5	5	4	4
2.	5	5	2	2
3.	4	4	3	3
4.	4	4	2	2
5.	4	4	-	-
6.	4	4	1	1
7.	4	4	-	-
8.	3	3	-	-
Total		33	33	33
			16	
The percentage of the sample's representation of the research community			**48%**	

Table (2) shows sample characteristics

T	Total length (m)	Arm length (m)	Trunk length (m)	Leg length (m)	Mass (kg)
1.	**1.92**	**0.80**	0.59	1.04	94
2.	**1.91**	**0.80**	0.60	1.02	85
3.	**1.94**	**0.78**	0.62	1.07	85
4.	**1.98**	**0.86**	0.64	1.09	72
5.	**1.90**	**0.83**	0.64	1.02	83
6.	**1.85**	**0.74**	0.55	1.05	70
7.	**1.92**	**0.81**	0.61	1.04	87
8.	**1.92**	**0.80**	0.60	1.05	90
9.	**1.90**	**0.79**	0.59	1.03	83
10.	**1.89**	**0.79**	0.59	1.01	81
11.	**1.90**	**0.80**	0.60	1.01	85
12.	**1.93**	**0.81**	0.61	**1.04**	82

The sample specification data were statistically processed, and the moderation distribution of the torsion coefficient values was adopted , for the purpose of homogeneity of the sample , and the coefficient of variation in order to identify the intruder factor, "whenever its results were 30% or less, there were indicators of sample homogeneity" (**Wadih, 1999**)

Table No. (3) Shows the homogeneity of the sample

T	Variables	measuring unit	Arithmetic mean	Mediator	standard deviation	Coefficient of torsion	Coefficient of variation
1	**The total length of the body**	**M**	1.91	1.92	0.031	0.169	**1.628**
2	**Arm length**	**M**	0.80	0.80	0.027	-0.416	**3.329**
3	**Trunk length**	**M**	0.60	0.60	0.022	-0.738	**3.671**

4	**The length of the man**	**M**	1.04	1.04	0.022	0.495	**2.127**
5	**Mass**	**Kg**	83.08	84.00	6.694	-0.690	**8.058**

Means of collecting information: Arab and foreign sources, The global information network (internet), Observation and analysis (software, and applications used in the computer).

The devices: scales to measure weight (German - made) Foot scanner device (Foot Scan) Metric, Radar device (Sports Radar) (American - made) to calculate the speed of the ball. (2) Video cameras with speed. 120Image / s), type (Casio) with the holder. Laptop (1) type (Dell), Mobile storage units (RAM) Capacity (8) GB Number (1).

Tools: iron tape measure (3) meters, and a tape measure (1) meter long, Metal scale drawing with a length of (1) meter, Kinematic analysis software (KINOVEA 0.8, 25).

Determination of biochemical variables of the Skill Spiking:

- *The distance of the last step (meters):* the length of the step, which is the step that the player travels during its performance from the moment of the push to the moment of support .
- *Final step time (seconds* **:(**It is the time measured from the moment of leaving the ground during the thrust phase to the moment the player's feet touch the ground (stance) near the net
- *Height (m, k, c) The moment of standing (cm):* It is measured from the center of mass of the player's body at the hip to the ground, the moment of complete support with the two legs, which precedes the moment of thrust.
- *The distance traveled by KMG when flying (cm* :(It is the distance that a player travels kg during its performance from the moment of the push to the moment of hitting the ball.
- *Flight time to the moment of hitting the ball (seconds):* It is measured from the moment of advancing towards the net to position (4) to the moment of hitting the ball.
- *Height (m, k, c) Ball moment (meter):* It is measured through the descending column from the hip point to the ground.

Experience Exploratory: Arose The two researchers by conducting Experience Exploratory On the playground of the Ministry of Sports and Youth, on Saturday 09/02/2019, and on a sample of it (4 Players, in order to achieve recognition of each of the following: Know the locations, distances, and altitudes at which the camera must be placed. Understanding the location of the foot scanner (*Foot Scan*). Learn about the time each player takes for the test application.

Validity of the test: The test was presented to a group of specialists in the field of tests, biomechanics and volleyball for the purpose of obtaining their opinions on the extent to which this test matches the purpose for which it was established. The researchers found that the percentage of agreement of experts and specialists was high, which confirms the validity of this test, as the value of validity reached (0.789). This is a high validity coefficient.

Stability test: have the researchers deliberately to use the method of testing and re - testing ", which summed up the application of the test itself on one set of players from outside the sample twice in two days" (**Tuckman, 1979**) With a timeframe of (7) days, as the tests were applied on (10 and 11/8/2015) corresponding to (Monday and Tuesday), and the same tests were re-applied for the second time on (18 and 19/8/2015) corresponding (Tuesday and Wednesday), and after they were completed Treating the results statistically by means of the simple correlation coefficient law (Pearson). The reliability value was (0.778). This value shows that the test has a high degree of stability.

Objectivity of the tests: The two researchers recorded the results of the judges for the test and then calculated the simple correlation coefficient (Pearson), (0.879) a high correlation, which confirms the objectivity of the test.

Main Experiment (take the test): The experiment was conducted on Thursday, 3/7/2019 at 3:30 pm, on the stadium of the College of Physical Education and Sports Sciences, on an adult sample of (12) players, and it included all of the following: *Determine anthropometric indicators*: Anthropometric variables were collected for each of the following: (height, arm length, body length, leg length, weight).

Filming procedures :The camera was set up at a distance of (3 m) on the line parallel to the line of attack, as well as another camera away from the grid (3 m) on the right or left side, slightly tilted and perpendicular to the path of the radial crushing movement to control the position of the player during the performance and at height (1,35m) focus lens level Surface The land.

Radar device procedures :The researchers used the radar device to calculate the ball's velocity, and start its work by pressing the start button to calculate the speed to the moment the ball hits the ground.

Conducting a technical performance test for the accuracy of the skill level of high spiking zone

The purpose of the test: the accuracy of the skill level of spiking high for the area.

Tools used: a volleyball court, balls, tapes to determine the precision areas of a triangle whose size is (40) cm for each division, i.e. the length of the side is (120) cm, a measuring device for the ball speed.

Performance description: The tested player performs the skill of spiking facing high from the specified area and to the opposite court at high speed and to the specified accuracy areas, and the attempt in which the ball does not fall within the accuracy areas is not recorded.

Calculating the degree (degrees / second): by using the law of velocity = m / n), where the speed extracted from the radar after converting km / h to m / s, and the distance was determined from the grid to the beginning of the line of the accuracy area and since x = M / n, then n = m / s and by extracting time we extract the product of accuracy / time (**Ahmed, 2012**)

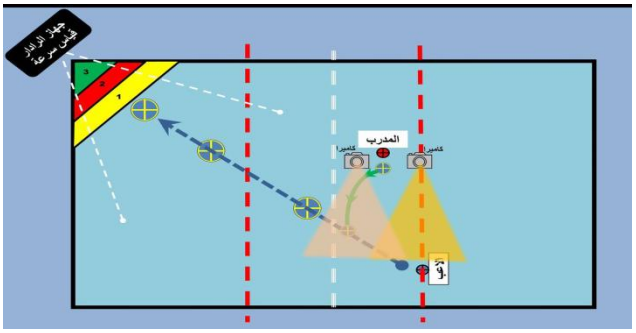

Figure No. (1) Illustrates the technical performance test method for the accuracy of the skill level of spiking high in volleyball

Mechanical analysis of the research variables: For the purpose of extracting the values of the research variables, the program (KINOVEA 0.8,25)

Results

1. **Display the results of the arithmetic mean and the standard deviations**

Table No. (4) Shows the descriptive statistics of the search variables, which are as follows:

	Mean	Median	Std. Deviation	Std. Error of Mean	Skewness
Step distance before uplift	1.573	1.544	0.119	0.034	0.239
Step time before up scaling	0.264	0.265	0.019	0.006	-0.197
Height The moment of authority	0.891	0.900	0.045	0.013	-0.494
The height of mkg in AIRAN	0.909	0.887	0.075	0.022	1.003
Flight time for the moment you hit the ball	0.364	0.368	0.018	0.005	-0.136
The height of the kg when the ball is struck	1.833	1.840	0.042	0.012	-0.524
Test the accuracy level of skillful spiking performance	5.437	5.653	0.739	0.213	-0.004

Table (5) shows the interrelationships between the research variables

Evidence of correlations		The variables					
		Step distance	Step time	Height	distance	Flight time	Height
Test the accuracy level of skillful spiking performance	**Correlation value**	**0.052**	**. 621 *0**	**0.118**	**-0.593**	**-0.078**	**0.279**
	sig	**0.873**	**0.031**	**0.715**	**0.042**	**0.810**	**0.380**

. ** Significant when error ratio (0.01) , * significant when error rate ≤ (0.05)

Conclusions

1. The value of the correlation reached the step distance before upgrading by testing the level of accuracy of the skill performance of the high crushing hit center (4) (0.052) , while the value of Sig (0.872) below significance level)0.05), A relationship is not significant , and explains the authors of this variable is not significant to the permanent adjustment of the players in the dates CZ where the correction is linked to the factor of time relationship opposite me of the distance to the production speed, especially overwhelming beating , which requires high - centered true.
2. The correlation value was the step time before upgrading by testing the level of accuracy of the skill performance of the high spiking hitting center (4) (0.621), while the value of Sig (0.031) below significance level) 0.01It is a moral relationship, as the researchers see that the morale of the association refers to the time of good movement expectation of the players for the tool that is represented by (the ball) in terms of the speed of its launch, especially from that close overlap of mental processes resulting from the good composition and the kinesthetic perception of the player's location with the parts of the body and the tool, which is related With the variable above oh .
3. The value of the correlation reached the height of the kilogram, a moment that was based on testing the level of accuracy of the skill performance of the high crushing hit, center (4) (0.118) , While it was valuable Sig (0.715) below significance level)0.05It is a non- significant relationship . The researchers

see that despite the lack of significance of the variable at the moment of rest, the importance of the extreme in order to start producing movement, given that the trunk is the largest mass that starts the movement, they attribute this to the constant expectation of the exciting surrounding environment represented by the ball and the opponent while performing the test on Change during the match with an open environment with multiple stimuli.

4. The value of the correlation reached a distance m, k, c in flight by testing the level of accuracy of the skill performance of the high crushing strike center (4) (- 0.593), while the value of Sig (0.042) below significance level)0.05It is a moral relationship , where the researchers refer this significance of the variable to the pre-visual extent of the player during the upgrading to get rid of the stimuli represented by the block wall and the grid and to ensure the production of the point and its accuracy.
5. The value of the flight time correlation to the moment of hitting the ball by testing the skill level of high spiking skill level was center (4) (0.828), While it was valuable Sig (0.001), A relationship with spirits, where the researchers believe that this lack of moral variables because of not the intention mechanism for players in a mental level and decision - making processes at the time manna Wasp because of the multiplicity of external stimuli.
6. The value of the correlation of the height of kg g at the moment of the beating by testing the level of accuracy of the skill performance of the high crushing hit was center (4) (-0.078), while the value of Sig (0.810) below the significance level)0.05It is a non-significant relationship . The two researchers explain the lack of significance of this variable the preconceived deterministic result resulting from the instantaneous force represented by the force and velocity represented by time in rapid movement at the expense of distance, and this gives legitimacy to the significance of the variable, the step time before the uplift and the distance m, k, c in the way that the correlation has accuracy in Aiming.

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