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## Modifying and setting standard levels to test the accuracy of the diagonal and straight smash skill according to the body position of Premier League volleyball players

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### Abstract:

The research aims Modifying the accuracy test for the diagonal and straight high smash skill from center (4) according to the body position of the Premier League volleyball players and extracting the grades and standard levels. To achieve the two objectives of the research: the descriptive approach with the survey method was adopted, because it agrees in solving the research problem. As for the research sample, it consisted Of the players in the Premier League for volleyball clubs for the 2023-2024 season, the researcher chose central players (4)(2) because their skill abilities are compatible with the skill of hitting the diagonal and straight smashes, and they numbered (90) players (6 players from each team), and then the researcher divided the selected sample. To a reconnaissance consisting of (6) players, and to modify the test, (84) players were selected, as well as to find the scientific foundations, grades, and standard levels. After that, he determined the high crushing test from the center (4) of the straight and the natural, and made adjustments related to the body position, as well as calculating the score, and then they conducted The two exploratory and main experiments, and then extracting the appropriate statistics and obtaining results through which the researcher drew several conclusions, including: The final modified form of the high crushing test was reached from position (4) according to the body position of the men's volleyball Premier League players. The largest percentage of results appear within the good level, which indicates that the level of modification exists well in the sample.

**Keywords:** accuracy, crushing strike, body position

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## introduction

There are many requirements for a player's success in performance, including physical, motor, skill, tactical, and psychological. In order to recognize the importance of each individual requirement, we must engage in several experiments, and one of these experiments is modifying the tests to be compatible with the developments that occur in games on an ongoing basis. Testing and measurement represent important means. In determining the level of performance, as it is an evaluation tool through which the individual's degree of progress can be determined in the field of the game he is playing, as well as issuing a judgment on the effectiveness of the training curriculum“ ,modifying tests is one of the important scientific methods through which positive results can be reached in determining the best accuracy“ ”.Skill performance ” )Muhammad, 2023, p. 540). Perhaps the game of volleyball needs a change at the level of training programs by creating or modifying tests that take into account the skill aspect under various influences and different playing movements, and because assessing the body's position is very important for the striking player because it gives him the There are many options for passing the blocking walls, (Sakran & Shehab, 2023) so there must be a performance that is appropriate to the body position and the extent of the player's ability to change the direction of the ball to the opposing team's court, other than the body position (Adnan et al., 2024)

The skill of smashing volleyball is one of the most important skills that the team relies on to score points. Perhaps the developments that other skills have reached may reduce the effect of one skill over the other. Therefore, as the researcher is a specialist in the field of volleyball, we must pay attention to all skills, especially smashing. Blocking walls have developed a lot, especially in recent times. Therefore, the changes that the striking player adopts, especially in the position of the body, are essential for performing the skill, as they are a surprise to the blocking wall. Therefore,(HalahAtiyah et al., 2024) whenever the body position changes, the player must realize that the straight and diagonal direction of the ball depends on this change, meaning that the player if If the direction of his body is towards the opposite court,(Salman et al., 2022) this is considered a straight hit. If he hits the ball with the same body position in the straight direction of the court, it is considered a diagonal hit according to the position of his body. Thus, from the above, the researcher sees the importance of modifying the test in order to give objective results to the coach so that he can address the weak points and strengthen Strength: Among the previous studies that dealt with the process of modifying and determining standard levels for tests, especially in volleyball, (HalahAtiyah et al., 2024) there are many of them: Study (Mohammed, 2022) This research aims to build and standardize a test for the skill of serving from above in volleyball for third-year students in the College of Physical Education and Sports Sciences at the University of... Baghdad and determining the grades and standard levels. The grades and standard levels were extracted on the main experiment sample of 73 students, after extracting their grades of discriminatory power and skewness coefficient according to test standardization procedures. After that, the researchers were able to reach the following conclusions: Establish and determine the standard levels. (Mohsen et al., 2024) The recommendations were to adopt the test prepared to evaluate the accuracy of the female students 'transmission skill to identify the level of accuracy and conduct other tests on the technical level of skills that were not included in

the study, with an emphasis on creating a state of competition among the students in a way that ensures Developing their level of accuracy and conducting periodic tests to determine the level to develop students 'accuracy and know the impact of the approved plan. The study (Mohamed Kh., 2019) aimed to: determine the simple, general structure of the physical measurements of advanced volleyball players for the 2018-2019 seasons and define a set of brief measures representing the extracted factors, to be indicators of the physical measurements of advanced volleyball players. Learn about the contribution of these measurements to endurance. Skillful performance of volleyball players according to their specialty .(Ahmed Amer Abdul Hussein, 2020)Among the conclusions reached by the researcher :There is a difference in the contribution of physical measurements extracted from factor analysis to the skill performance of advanced players, each according to his specialty. It is necessary to use the measurements extracted in this study in choosing specializations for volleyball players. Taking into account the factors extracted from the physical measurements of advanced players in building training programs .As for a study (Kadhim, 2023)It aims to determine grades and standard levels for some mental skills by researchers, which is considered of great importance, especially if it matches the targeted research sample, as conclusions were obtained, the most important of which are: The standard levels of mental skills reached the results of the sample studied within the level limited to (very good, good, average, and acceptable). And weak).(Salih, I. H., Yaseen, A. M., Naseer, K. J., Attieh, A., & Kadhim, 2024) The number of players at the (average) level was greater than the number of players at the other levels according to the results of the research scale. Then the researchers recommended: working on using training programs accompanied by psychological programs that would develop the psychological, physical, skillful and tactical aspects side by side. It is necessary to conduct other studies on similar samples using axes of mental skills different from the axes of this research. As for the study (Ali et al., 2023)(Fadil, 2022), it aimed to design and apply a test to measure the accuracy of receiving a volleyball using a forearm pass for female students. Study participants for the 2018/2019 academic year. The number of female students who were recruited reached 73. Based on the results of this study, the researcher concluded that the accuracy of receiving in volleyball and the use of the forearm pass for the female students who were analyzed was below average, as most of them showed below average performance. The researcher recommends adopting the test prepared in this study. (Easa et al., 2022)The aim of this study is to evaluate the students 'level of accuracy, in order to determine the degree to which they enjoy development. The researcher also recommends paying attention to developing accuracy among students by giving them more time to train on accuracy during volleyball lessons.

From the above review of previous studies, the researcher finds the importance of the process of modifying and determining standard levels that would determine the levels of players and determine their skill level with the development of testing and performance of the diagonal and straight smash skill for advanced players.

**The research aims:** Modifying the accuracy test of the high diagonal and straight smash skill from position (4) according to the body position of the Premier League volleyball players and extracting the scores and standard levels.

### Method and tools:

The method is “the sound scientific path that the researcher adopts to reach his desired goal that he determined at the beginning of his research”. Amer, 2012, p. 12 (And within that The descriptive survey method was adopted, because it agrees in solving the research problem, while the research sample consisted of Players in the Premier League for volleyball clubs for the 2023-2024 season, numbering (180) players (15) teams (South Gas, Al-Bahri, Al-Masafi, Peshmerga, Al-Samoud, Haditha, Erbil, Al-Habbaniya, Al-Daghara, Al-Ahwar, Al-Sina’a, Nineveh, Al-Muqdadiya, Abu Risha, Al-Numaniyah) The researcher chose central players (4)(2) because their skill abilities are compatible with the skill of hitting the Qatari and straight smashes, and they numbered (90) players (6 players from each team), and then the researcher divided the selected sample into a poll consisting of (6) Players. To modify the test, (84) players were selected, as well as to find scientific foundations, grades, and standard levels. Table (1) shows the division of the sample.

**Table (1) Details of sample distribution**

T	Club name	the number	Sample exploratory experiment	Modification sample	Excluded players
1	Peshmerga	12		6	6
2	Modern	12		6	6
3	Southern gas	12		6	6
4	Marine	12		6	6
5	Industry	12	6		6
6	Habbaniyah	12		6	6
7	Resilience	12		6	6
8	Nineveh	12		6	6
9	Abu Risha	12		6	6
10	Erbil	12		6	6
11	Al-Muqdadiya	12		6	6
12	Numaniyah	12		6	6
13	Marshes	12		6	6
14	Refineries	12		6	6
15	Daghara	12		6	6
the total		180	6	84	90
Percentage		%100	%3.33	%46.66	%50

**Define the search variable:**

The tests for the high smashing skill from Center (4) and their various scientific sources take the direction of the court by determining the smashing and straight hitting, and through the researcher's experience as a player, coach, and volleyball specialist, as well as the opinions of experts and specialists in the field of testing, measurement, and volleyball. **attached (1)** (He found that there is a difference in the position of the body when hitting a smash, so he decided to conduct an experiment on the players' abilities to direct the ball to the opposite court based on the position of the body during the smash. Here are my agencies:

.1If the player's body direction is in the diagonal direction of the court, as in the previous tests, i.e. towards center (5) and he hits the ball in this direction, then this smash is considered straight based on the direction of the body. However, if he hits the prepared ball in the opposite direction of the body position, i.e. in center (1) It is a diagonal smash.

.2If the player's body direction is in the straight direction of the court, as in previous tests, i.e. in a central direction (1), and he hits the ball in this direction, this smash is considered a straight hit based on the direction of the body. However, if he hits the prepared ball in the opposite direction of the body's position, i.e. in the center (5), it is considered a hit. A diagonal crusher.

After that, the researcher chose the high overwhelming multiplication test in the center (4) diagonal and straight **attached (2)** (The aforementioned modifications were made to it, and the test was presented to experts and specialists **attached (1)** To demonstrate its validity for measurement, the validity of the skills test was determined according to two indicators: the coefficient of difficulty and ease of the test and the discriminatory ability of the test.

**Exploratory experience:**

To ensure the suitability of the test to the level of the sample, as well as to determine the time required for application, as well as to know the obstacles that may be encountered in the main experiment of the test, the exploratory experiment was conducted on a sample of (6) players representing the Industry Club in the closed volleyball hall of the club, and through it the Arriving at an appropriate test for the sample, as well as knowing the difficulties and requirements that the researcher needs.

**Main experience:**

The test was applied to the research sample, which numbered (84) players, for a period of (20) days, during the gatherings conducted by the teams, and the results were recorded for statistical treatments for the purpose of adjustment. The scientific basis for the sample's scores was extracted, after which the researcher extracted the scores and standard levels.

Scientific parameters for the test:

**Validity of the test:**

For the purpose of extracting the validity of the test in question, the researcher extracted the validity of the test in two ways.

**Firstly: Content veracity:**

After the questionnaire for the test in question was distributed to experts and specialists **attached (1)** (In the field of tests, measurement, and the game of volleyball, the researcher used the validity of the content to explore their opinions on the ability of the test to measure what it was designed for, as the test becomes valid if the experts or specialists in the field of testing agree, and measurement is that it measures what it was designed for, as most of them agreed that it Saleh, with some modifications being made, as these modifications were taken into consideration due to the researcher’s belief in their sobriety and scientific value, which improves the test. In addition to that, (one of the most important elements of honesty is one of the most important standards of the quality of the test or measurement, as it refers to the truth or accuracy with which the measuring instrument measures the thing. Or the phenomenon that it was designed to measure) (Al-Mashhadani, 2015, page 69)

**Ease and difficulty level:**

The researcher presented the statistical description of the modified test in question, as the arithmetic mean, standard deviation, and skewness coefficient were extracted. It was shown through Table (2) that the values of the skewness coefficient were less than (1. (□ This indicates that the modified skills test is distributed moderately“, as the test is considered appropriate if its distribution is normal, provided that the tests do not constitute a severe skewness (Allam, 2000, p. 78.)

**Table (2) Values of the means, standard deviations, and skewness coefficient for the candidate tests**

Torsion coefficient	standard deviation	Mediator	In the middle of a calculation	Statistical treatments	T
056.-	2.74533	64.0000	63.7024	<b>Overwhelming multiplication test</b>	<b>1</b>

**Discriminating ability:**

After the data for the skill test subject of the research was collected and transcribed, the researcher arranged the raw scores for each test in ascending order from“ the lowest score to the highest score ”,from which (27%) of the highest scores and the same number of lower scores were selected in order to identify the test’s ability to discriminate. Between the high-level group and the low-level group) ”Al-Kubaisi, 2010, p. 276.(

**Table (3) shows the discriminatory ability of the high smashing skill accuracy test from center (4) according to body position**

Calculated t value		Low level		High level		measruing unit	Test name	T
Significance values	T	±A	s	±A	s			
<b>0.000</b>	<b>23.308</b>	<b>1.112</b>	<b>60.3478</b>	<b>.7977</b>	<b>67.000</b>	<b>degree</b>	<b>A1</b>	<b>1</b>

**Significant < 0.05 degrees of freedom (44)**



**Stability:**

“Test reliability means the extent of the test’s accuracy in measurement and the consistency of its results when applied multiple times to the same individuals) ”.Al-Yasiri, 2010, p. 75) To know the stability and balance of the test, the researcher tested a group of the sample numbering (20) and retested the same sample after (7) days had passed from the first trial of the test and by observing the significance values that are less than the significance level ( 0.05), which indicates a significant correlation, as shown in Table (4.(

**Objectivity:**

It was calculated by (correlation between the scores of two arbitrators<sup>(\*)</sup>) They set scores for one group of individuals at the same time, as the results showed high reliability coefficients by noting the significance values, which are less than the significance level (0.05), which indicates the significance of the correlation, as shown in Table (4.(

**Table (4) shows the reliability and objectivity coefficient for the high crushing hit test from center (4) according to body position**

Indicative value	Objectivity	Indicative value	Consistency	measruing unit	Test name	T
0000.	0.953	0170.	0.671	degree	<b>Overwhelming multiplication test</b>	1

**Statistical methods:**

The researcher used the statistical package (SPSS. .(

- Arithmetic mean.
- standard deviation.
- Mediator.
- Torsion coefficient.
- Correlation coefficient (Pearson(
- Standard score (Z.(
- Modified standard score (T.(

**Results and discussion:**

Standards:

Standards mean a set of scores derived through statistical methods from raw scores and are used to compare the level of an individual’s performance with the level of performance of the group to which he belongs. They are created by collecting the scores of a group of individuals who are similar in age and gender, in addition to some characteristics related to the subject in which we use the standards, and then analyzing the data with statistical methods. To obtain the levels (Velkumar, 2014, p. 1-3), as shown in Table (5.(

**Table (5): Standard score (modified) for the accuracy test of transmission from below**

Modified standard score	Z degree	Duplicates	Raw grade	T
32.87	1.71286-	7	59	1
36.51	1.34861-	5	60	٢
40.16	0.98435-	7	61	٣

43.8	0.6201-	13	62	<b>4</b>
47.44	0.25585-	8	63	<b>5</b>
51.08	0.10841	11	64	<b>6</b>
54.73	0.47266	6	65	<b>7</b>
58.37	0.83692	10	66	<b>8</b>
62.01	1.20117	9	67	<b>9</b>
65.65	1.56543	8	68	<b>10</b>

Standard levels of testing:

The researcher chose (5) levels to measure his test, and when the standard scores were distributed among the approved levels, the standard levels appeared, as shown in Table (6.)

**Table (6): Levels and their specific percentage in the normal distribution and raw and standard scores**

**)Za and T), the number of practices and the percentage of the test**

**Accuracy of performing diagonal and straight smashes from center (4) according to body position.**

The ratio	Sample number	Limits of the standard score T	z-score limits	Raw grade	The proportion determined in a normal distribution
Zero	-	-	-	-	%2.14very good
20.23	17	(65.65) -(62.01)	– (1.20117) (1.56543)	-(67) (68)	%13.59good
65.47	55	– (40.16) (58.37)	-) (0.83692) (0.98435	- (61) (66)	Average 68,27%
14.28	12	– (32.87) (36.51)	-) (1.71286-) (1.34861	- (59) (60)	%13,59popular
-	-	-	-	-	%2.14weak

Table 6 shows that the percentages of standard levels shown by the sample in the test under

investigation are as follows:

The sample showed varying percentages compared to the percentages determined at the first standard level (very good). The sample achieved a percentage of (zero), which is a percentage lower than that determined for it in a normal distribution. At the second standard level (good), the sample achieved a percentage of (20.23) which is a higher percentage than determined in a normal distribution, and at the third standard level (average), the sample achieved a percentage of (65.47) This is a percentage lower than that determined for it in a normal distribution, and at the fourth standard level (acceptable), the sample achieved a percentage of (14.28) It is a percentage higher than what was determined for it in the normal distribution. At the fifth standard level (weak), the sample achieved a percentage of (zero), which is a percentage lower



than what was determined for it in the normal distribution. We notice from the above that the test results for the sample were confined between the levels (good and acceptable.)

This is evidence that the sample underwent organized training and good supervision by those in charge of the players, as well as the sample's involvement in an effective and continuous league, despite the presence of disparity in these levels, and this is due to the principle of individual differences. Therefore, the sample's achievement of zero percentages in the level (very good) is due to the fact that The test showed, in one way or another, the high level at which the players should appear, because the process of hitting other than directing the body requires high skills, and this is what the researcher wanted, which is to reveal the weak and strong points. Also, future repetitions, which will naturally increase the accuracy of performance, because repeated practice of the skill leads to Achieving the correct performance of the skill with consistency, harmony, and control, and without stiffness or tension(Mahmood et al., 2023) . (Ali Al-Attar & Jari, 2023)“Repetition and training give the skill greater mastery, competition, and more precise motor brilliance) ”(Kadhim, M. J., Shihab, G. M., & Zaqair, 2021)

The skill of smashing is a skill that has many variables, including those related to the opposing team, including those related to the prepared ball and the player himself. All of these variables are obstacles in front of him that affect the accuracy of the skill.(Abdulhussein et al., 2024) Therefore, the player's reaching a good level in the modified test is evidence that Premier League players need special training that will Creating a change in hitting inside the court or in a linear manner, and this is through changing the position of the body in the air, depending on surprising the player standing against the blocking wall. (Yassin et al., 2016)(Yasir & Sikhe, 2020) confirms“ ,Skill is the art of performing one of the movements that the player performs in different playing conditions ”.Which is closely linked to the physical aspect of the player ,and the researcher sees experience as an important role in this“ .The accumulated experience of the coach and player as a result of performing skills and training them over a long period has made it possible to diagnose the strengths and weaknesses of this skill, but despite the presence of this experience, some problems may arise as a result of the development of movements.(Ahmed Fadhil Farhan Mohammed Jawad Kadhim, 2016) ”Volleyball and its complexity, which made it difficult to find all the strengths and weaknesses at the same time, as it is difficult to diagnose quick and complex skills with the naked eye(Al-fatlawi et al., 2023)“ due to the fact that the human eye is incapable of analyzing incidents that appear in less than approximately a quarter of a second ,1995 ,;) ”p. 48). (Ali and Muhammad, 2022) (Ahmed Fadhil Farhan Mohammed Jawad Kadhim, 2016) also confirm that employing a set of sequential exercises in terms of accuracy, speed, ease, and difficulty also has a role in achieving teams, as well as continuing training in this manner, and not interrupting, which helped improve the players 'abilities in continuous and correct thinking, and this led to an increase in their ability to The player must choose the right action at the right time.(Hammood et al., 2024)

The researcher also agrees with (Mousa, A. M., & Kadhim, 2023)that the role of field tests is as a contributing tool for evaluation in the sports field. Therefore, attention must be given to reevaluating the sets of tests used in an objective manner based on the use of testing and measurement tools.(Abdulhussein et al., 2024)

### Conclusions:

1. The final modified form of the high smash test was reached from position (4) according to the body position of the men's volleyball Premier League players.
2. The largest percentage of results appear within the good level, which indicates that the level of modification exists well in the sample.
3. It is necessary to make adjustments to skill tests to be consistent with the levels of players and the level of developments occurring in the game.
4. Adopting the modified test and the criteria reached when evaluating players, as well as adopting them when developing training programs for the smashing skill.
5. Making adjustments to all technical skills tests in volleyball and the necessity of using different samples.

## Appendices

### Appendix (1) Names of experts and specialists

Workplace	Jurisdiction	Name of expert And the scientific title	T
University of Baghdad/ College of Physical Education and Sports Sciences	tests and measurement/ basketball	Prof. Dr. Thaeer Daoud Salman	1
University of Baghdad/ College of Physical Education and Sports Sciences	Volleyball training	Prof. Dr. Muhammad Saleh Falih	2
University of Baghdad/ College of Physical Education and Sports Sciences	Bio volleyball mechanics	Prof. Dr. Ahmed Saba Attia	3
University of Diyala/ College of Physical Education	tests and measurement/ volleyball	a. Dr. Muhammad Walid	4
University of Baghdad/ College of Physical Education and Sports Sciences	tests and measurement/ volleyball	Professor Asmaa Hikmat	5

### Appendix (2) Original test and modification

**Linear and radial crushing accuracy**) Al-Moneim, 1997, p. 208(

**-Purpose of the test** : Measuring the accuracy of crushing hits in the linear (straight) and diagonal directions.

**-Used tools** (30) : volleyball, a volleyball court, and two mattresses placed as shown in Figure (1) 5 cm away from the side lines.

Figure (1) Linear and radial crushing accuracy test

**-Performance specifications** Multiplication from center (4). The preparation is done by the coach from position 3. The tester must perform 15 crushing blows towards the diagonal direction, i.e. the position in center 5, and another 15 crushing blows towards the straight direction. The rank in the center (1).

**Register:**

- 4points for each smash in which the ball lands on the mattress.
- 3points for each smash in which the ball lands in the marked area.
- Two points for each correct hit in which the ball lands in areas (A) and (B).
- Zero when performing anything that violates all of the above.

**Test after modification**

**Test name: straight and diagonal crushing multiplication center (4) according to the position of the body**

**-Purpose of the test** Measuring the accuracy of straight and diagonal smashes according to the body position.

**-Used tools** (20) :volleyballs, a volleyball court, and two mattresses placed as shown in Figure (2) 5 cm away from the side lines.

Figure (1) Linear and radial crushing accuracy test

**-Performance specifications** Hitting from position (4) - preparation is done by the (coach) from position (3), and the tester must perform (5) attempts towards position (5) ,(specifically the position in the same position and the direction of the player’s body towards it, and then (5) attempts towards the existing position. In position (1) and his body is directed towards center (5). After giving him a rest, the experimenter returns to performing (5) attempts towards center (1), specifically the mattress in the same position and the player’s body is directed towards it, and then (5) attempts towards the mattress located in center (5). ) and his body in the straight direction, i.e. towards the center (1)

**Register:**

- 4points for each smash in which the ball lands on the mattress.
- 3points for each smash in which the ball lands in the marked area.
- Two points for each correct hit in which the ball lands in areas (A) and (B).
- Zero when performing anything that violates all of the above.

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