ISSN NO: 2770-0003
March 2025

Designing and standardizing tests for the accuracy of fast (quick) play performance for Premier League volleyball players

Prof. Assist. Dr. Amjad Hamed Badr
College of Physical Education and Sports Sciences – University of Tikrit, Iraq.
a_albadr@tu.edu.iq

Abstract
The study aimed at:

- Design a test to measure the accuracy of fast play (snap attack) performance among Premier League volleyball players.
- Standardize a test to measure the accuracy of fast play (snap attack) performance among Premier League volleyball players.
- Establish normative levels and standardized scores for the test of fast play (snap attack) accuracy among Premier League volleyball players.

The researcher employed the descriptive survey method due to its suitability for the nature of the study. The research population consisted of Premier League volleyball players, totaling (128) players, while the research sample included (94) players from (6) clubs. The researcher designed and standardized the test following established scientific procedures for test development and standardization. Data was analyzed using the Statistical Package for the Social Sciences (SPSS) to obtain the necessary results and achieve the study's objectives.

Findings

- The test for measuring the accuracy of fast play (snap attack) in volleyball was successfully designed and standardized.
- Normative levels and standardized scores for the accuracy of fast play (snap attack) test in volleyball were established.
- The test can be used to assess the accuracy of fast play (snap attack) performance for all Premier League volleyball players.

Keywords: (Design, Standardization, Fast Play Accuracy, Premier League Players, Volleyball).

1. Introduction to the Study

1.1 Introduction and Research Significance

Tests, in their various forms, serve as essential scientific tools for evaluating the validity of any assessment instrument or program and determining its ability to achieve its intended objectives in both the humanities and natural sciences. This is particularly crucial in the field of sports, where performance is measured through numerical data and achievements.

Accurate measurement and testing are essential in volleyball, as sport requires continuous development of player performance, which is directly linked to enhancing the effectiveness of execution. In this context, designing standardized scientific tests is a fundamental step toward improving athletic performance. Player development relies on the availability of objective assessment tools that align with the modern demands of the game at the global level. According to Shamal Salahaddin Ahmed (2022, p. 2), modern measurement tools enable coaches to assess player performance with precision, allowing them to devise more specialized training programs.

Despite efforts to enhance volleyball performance, tests for evaluating the accuracy of fast play (snap attack) remain insufficient, especially concerning Premier League players. These tests, in their various forms, play a significant role in the development of integrated technical performance. Scientifically validated tests are essential for player selection, assessing their potential for future technical performance, and determining their ability to reach elite levels. Since individual characteristics are closely linked to high-level technical achievements, having such tests available for volleyball players provides a greater opportunity to refine their

ISSN NO: 2770-0003
March 2025

technical skills. These tests also contribute significantly to achieving positive results, leading to superiority over competing teams.

The significance of this study lies in developing a test that addresses the current gap in specialized assessments for fast play (snap attack) performance. This skill is a fundamental aspect of the game, requiring precise standardized measurement tools. The design of scientific tests is a cornerstone in advancing sports knowledge, as these tests can contribute to improving overall team performance by providing structured plans for enhancing technical execution.

1.2 Research Problem

The primary research problem lies in the absence of scientific measurement tools that can comprehensively and accurately evaluate the fast play (snap attack) spike performance of volleyball players. This lack of assessment methods hinders coaches' ability to identify players' training needs and guide them in addressing their weaknesses. The fast play spike requires an elevated level of physical and motor adaptability, necessitating the development of tests that align with the evolving demands of the sport.

To address this gap, the researcher has developed a specialized test for assessing the fast play (snap attack) spike performance of Premier League volleyball players.

The core research question guiding this study is:

- Is it possible to design and standardize a test to measure the accuracy of fast play (snap attack) performance among Premier League volleyball players?

1.3 Research Objectives

The study aims to:

- Design a test to measure the accuracy of fast play (snap attack) performance among Premier League volleyball players.
- Standardize the test to measure the accuracy of fast play (snap attack) performance among Premier League volleyball players.
- Establish normative levels and standardized scores for the fast play (snap attack) accuracy test among Premier League volleyball players.

1.4 Research Scope

- **Human Scope:** Players from Premier League volleyball clubs for the 2024/2025 sports season.
- **Time Scope:** From December 13, 2024, to March 18, 2025.
- **Spatial Scope:** The indoor sports halls of the sample clubs.

2. Research Procedures

2.1 Research Methodology

The researcher employed the descriptive survey method due to its suitability for the nature of the study.

2.2 Research Population and Sample

The research population consisted of Premier League volleyball players, totaling 128 players. The sample was selected from six clubs, comprising ninety-four players. The construction sample included sixty-four players from four clubs, with forty-eight players from three clubs for the scientific foundations and sixteen players from one club for pilot study. The application sample consisted of thirty-two players from two clubs. Table (1) presents the details of the sample.

Table 1: Distribution of the Research Sample

Club	Population	Scientific Foundations	Pilot Sample	Application Sample	Out of Sample
1. Police	16	16			
2. North Refineries	16	16			
3. Peshmerga	16	16			

ISSN NO: 2770-0003
March 2025

4. Al-Muqaddadiya	16		16		
5. Erbil	16			16	
6. South Gas	16			16	
7. Nineveh	16				16
8. Al-Daghara	16				16
Total	**128**	**48**	**16**	**32**	**32**
Percentage	**100%**	**37.5%**	**12.5%**	**25%**	**25%**

2.3 Data Collection Methods

The researcher used several methods to collect the required information and data for the study, which include:

- Content analysis of scientific sources and references.
- The design test.
- A registration and result recording form for the designed test.

2.4 Design of the Fast Play (Snap Attack) Accuracy Test

The researcher reviewed and analyzed numerous scientific sources and references, such as:

- Mohamed Nasr El-Din Radwan (1997, p. 66)
- Mohamed Sobhi Hassanine (1979, pp. 61-71)
- Kamel Abdel Hamid Ismail, Osama Kamel Rateb (1986, pp. 169-318)
- Qais Najy Abdel Jabbar, Bostouisi Ahmed (1987, pp. 347-380)
- Abdul Moneim Ahmed Jassim Al-Janabi (2019, pp. 175-195)
- Nouri Ibrahim Al-Shouk (1996, p. 114)
- Amer Mishaal Faihan (2008, p. 77)

These references were related to the topic of research to design and standardize a test for measuring the accuracy of fast play (snap attack) performance using the established scientific methods and steps for this purpose. The researcher created an initial version of the test and its instructions in a questionnaire form and presented it to experts for their feedback on the validity of the test and determining the evaluation scores. After gathering the completed forms, the experts suggested some modifications to the test. Once these changes were made, the test was finalized and is now ready in its final form as follows:

3-4-1 Specifications of the Fast Play (Snap Attack) Accuracy Test in Volleyball

Test Name: Fast Play (Snap Attack) Accuracy Test in Volleyball

Objective of the Test: To measure the accuracy of fast performance in volleyball

Equipment:

- A volleyball court
- Five official volleyballs
- A whistle

Procedure:

The front area of the court opposite the tested player is divided into twelve zones, with six zones on the right side and six zones on the left side. Each zone measures half a meter, with zone six being the closest to the net, followed by zone five, and so on, with zone one being the nearest to the front line of the court.

Performance Description:

The player stands in the front area of the court, and on one side of the court, a person holds the ball. Upon hearing the whistle, the ball holder prepares the ball and passes it to the tested player, who then hits the ball towards the right or left side of the opposite court, attempting to land the ball in the front area of the opposing court.

ISSN NO: 2770-0003
March 2025

Scoring:
Each player is given five attempts, and the total points for the five attempts are calculated. The points are recorded as follows:

- **Six points** are awarded when the ball touches zone (6) on the opposite court.
- **Five points** are awarded when the ball touches zone (5) on the opposite court.
- **Four points** are awarded when the ball touches zone (4) on the opposite court.
- **Three points** are awarded when the ball touches zone (3) on the opposite court.
- **Two points** are awarded when the ball touches zone (2) on the opposite court.
- **One point** is rewarded when the ball touches zone (1) on the opposite court.
- **Zero points** are rewarded if the player fails to perform or if the ball does not touch any of the designated zones.

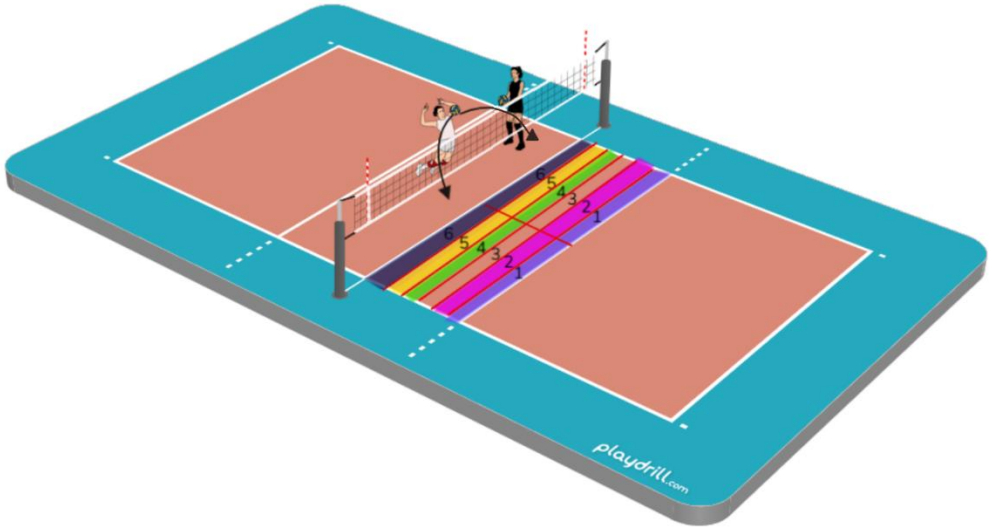

Figure (1) "Shows the Fast Play (Snap Attack) Accuracy Test in Volleyball"

2-5 Pilot Experiment: The researcher applied the designed test on a sample of (16) players from Al-Muqaddadiyah Club on Monday, 12/1/2025, at Al-Muqaddadiyah Volleyball Club court. The purpose of this pilot experiment was to:

- Train the assisting team on how to perform the test.
- Verify the dimensions and distances for the test.
- Ensure the test is suitable for the research sample.
- Check the efficiency of the tools used in the research.
- Determine the time required to complete the test.

2-6 Scientific Foundations for the Fast Play (Snap Attack) Accuracy Test:

2-6-1 Test Validity: The validity of the test was established through:

- **Content Validity:**
- The researcher confirmed content validity by explaining the concept being measured, which is the accuracy of the fast play (snap attack) in volleyball, through an analysis of scientific sources.
- **Self-Validity:**
  The researcher established self-validity, which is an indicator of the experimental validity of the test, by calculating the square root of the reliability coefficient. Self-validity refers to the test's ability to measure and assess the trait for which it was designed. (Ali Saloum, 2004, 58).
- **2-6-2 Reliability:** To ensure the reliability of the tests and their ability to produce the same or similar results when re-applied, the researcher used the method of administering and re-administering the test to a sample of (48) players from the clubs (Al-Police, North Refineries, Peshmerga) on 19th, 21st, and 23rd of January 2025, with one day dedicated to each club. The test was then re-applied on 26th, 28th,

ISSN NO: 2770-0003
March 2025

and 30th of January 2025, following the same specifications and procedures used in the first application. Table (2) shows the test days.

Table (2) Shows the days of the first and second application of the test on the construction sample.

No.	Club	First Application Date	Second Application Date
1	Al-Shurta	19/1/2025	26/1/2025
2	North Refineries	21/1/2025	28/1/2025
3	Peshmerga	23/1/2025	30/1/2025

2-6-3 **Objectivity**:

The objectivity of the test was determined by calculating the correlation coefficient between the results recorded by two referees[1] who assessed the test outcomes.

Table (3) Reliability, Validity, and Objectivity Coefficients for the Fast Performance Accuracy Test (Quick Smash)

Test	First Application (Mean ± SD)	Second Application (Mean ± SD)	Reliability	Self-Validity	Objectivity
Fast Performance Accuracy (Quick Smash)	19.625 ± 3.600	21.250 ± 3.125	0.818	0.904	0.93

2-7 Final Application:

The main experiment for the research was applied from 9/2/2025 to 12/2/2025 on a sample of (32) players from the research population representing players from the clubs (Erbil, South Gas). During the application, the following were considered:

- Preparation of the registration forms.
- Allocation of a warm-up period.
- Ensuring players perform the test seriously.

2-8 Statistical Methods:

- Arithmetic mean
- Standard deviation
- Mode
- Square root
- Skewness coefficient
- Percentage
- Pearson's correlation coefficient
- Standard score (6 Sigma)

3. Presentation of Results:

3-1 Statistical Description and Standard Scores/Levels for the Fast Performance Accuracy Test (Quick Smash) in Volleyball:

3-1-1 Statistical Description of the Fast Performance Accuracy Test (Quick Smash) in Volleyball:

[1] • **The referees**:

- Prof. Dr. Saad Abbas Abdul – Professor and volleyball player.
- Prof. Dr. Ahmed Sabaa Attia – Professor and volleyball player.

ISSN NO: 2770-0003
March 2025

Table (4) Statistical Description of the Fast Performance Accuracy Test (Quick Smash)

S.D.	±M	Mode	Lowest Value	Highest Value	Skewness
20.156	3.611	20	11	25	0.043

The table (4) shows that the mean value was 20.156 with a standard deviation of 3.611. The mode value was twenty, with the highest score in the test being twenty-five and the lowest score being eleven. The skewness value was 0.043, which is within the range of ±1. From this, we can conclude that the test is appropriate for the sample level and closely follows a normal distribution.

3-1-2 **Standardized Levels for the Fast (Quick) Performance Accuracy Test in Volleyball:**

Table (5) Standardized Levels for the Fast (Quick) Performance Accuracy Test in Volleyball

Level	Scores	Frequency	Percentage
High	Twenty-one and above	11	34.375%
Average	16 - 20	18	56.25%
Low	Fifteen and below	3	9.375%

3-1-3 Statistical Scores for the Fast (Quick) Performance Accuracy Test in Volleyball:

Table (6) 6 Sigma Standardized Scores for the Fast (Quick) Performance Accuracy Test in Volleyball

Raw Score	6 Sigma	Raw Score	6 Sigma
11	8	19	45
12	12	20	49
13	17	21	54
14	22	22	59
15	26	23	63
16	31	24	68
17	35	25	72
18	40		

4- Conclusions and Recommendations:

4-1 Conclusions:

- A test for measuring the accuracy of quick performance (quick strike) in volleyball has been designed and standardized.
- The grades and standard levels for the quick performance accuracy test (quick strike) in volleyball have been determined.
- The quick performance accuracy test (quick strike) can be used for all players in the Premier League of volleyball.

4-2 Recommendations:

- It is recommended to use the quick performance accuracy test (quick strike) periodically to assess the performance level of players in the Premier League of volleyball.

ISSN NO: 2770-0003
March 2025

- The test should be standardized for youth and junior category players as well.

References

- Shahmal Salahuddin Ahmed Mustafa; "Evaluation of Prediction Equations Based on Predictive Validity for Skill Performance in Relation to Some Selection Determinants for Volleyball Youth Aged 15-17" (Unpublished PhD Dissertation, Salahaddin University, Erbil, 2013).
- Amer Mishaal Fayhan; "Design and Standardization of Two Test Batteries to Measure (Physical Specific Aspects – Offensive Skills) in Volleyball for Youth Clubs (Baghdad and the Shaliyah Area)" (Unpublished PhD Dissertation, University of Baghdad, College of Physical Education, 2008).
- Abdul-Munim Ahmed Jassim Al-Janabi; "Fundamentals of Measurement and Testing in Physical Education" (Cairo, Center for Book Publishing, 2019).
- Ali Saloum; "Tests, Measurement, and Statistics in Sports" (University of Qadisiyah, Al-Taif Printing, 2004).
- Qais Naji Abdul-Jabbar and Bastawisi Ahmed; "Tests and Principles of Statistics in Sports" (Baghdad, Higher Education Printing, 1987).
- Kamal Abdel-Hamid Ismail and Osama Kamel Rateb; "Body Measurements for Athletes" (Cairo, Arab Thought House, 1986).
- Mohamed Sobhi Hassanien; "Evaluation and Measurement in Physical Education, Vol. 1, 1st Edition" (Cairo, Rose Al-Youssef Foundation, 1979).
- Mohamed Nasr El-Din Redwan; "Reference in Body Measurements" (Cairo, Arab Thought House, 1997).
- Nouri Ibrahim Al-Shouk; "Some Technical Determinants for Volleyball Youth in Iraq Aged 14-16" (Unpublished PhD Dissertation, College of Physical Education, University of Baghdad, 1996).

ISSN NO: 2770-0003
March 2025

Tikrit University
College of Physical Education and Sports Sciences
Appendix (1)
Survey
Subject: Opinions of Experts and Specialists on the Tests Designed by the Researcher

Dear Professor .....

The researcher extends their warm greetings to you,

I am conducting a study titled "Design and Standardization of a Test for the Accuracy of Quick Play Performance (Fast) for Players in the Premier Volleyball League," and I would like to kindly request your assistance in determining the validity of the attached tests, the construction method used in the tests, as well as the performance and recording methods. Please place a checkmark ( ) next to the designed tests that you find suitable and beneficial for the research.

Thank you for your cooperation and your valuable input for the advancement of scientific research.

With respect,

The Researcher,
Amjad Hamed Badr
Phone: 07705874798

Tests Designed for Experts and Specialists

Not Suitable	Suitable	Test Name
		Test for the Accuracy of Quick Performance (Fast) in Volleyball

Test Name: Test for the Accuracy of Quick Performance (Fast) in Volleyball.
Objective of the Test: To measure the accuracy of quick performance in volleyball.
Tools: Volleyball court, (5) legal volleyballs, whistle.
Procedures:

The front area of the court opposite the player being tested is divided into (5) zones, aligned with the attack line. The measurement for each zone is (1 meter). The area closest to the net is zone (5), followed by zone (4), and so on, until zone (1), which is closest to the front area line of the court.
Description of Performance: The player stands in the front area of the court. A person standing on one side holds the ball. Upon hearing the whistle, the ball holder prepares the ball and passes it to the player being tested, who then attempts to hit the ball into the designated zone on the opposite side of the court, aiming to drop the ball in the opposite front area.
Recording:

Each player is given (5) attempts, and the total points for the five attempts are calculated as follows:

- (5) points are awarded when the ball touches zone (5) on the opposite court.
- (4) points are awarded when the ball touches zone (4) on the opposite court.
- (3) points are awarded when the ball touches zone (3) on the opposite court.
- (2) points are awarded when the ball touches zone (2) on the opposite court.
- (1) point is awarded when the ball touches zone (1) on the opposite court.
- (0) points are awarded if the player fails to perform the test, or the ball does not touch any of the designated zones.

ISSN NO: 2770-0003
March 2025

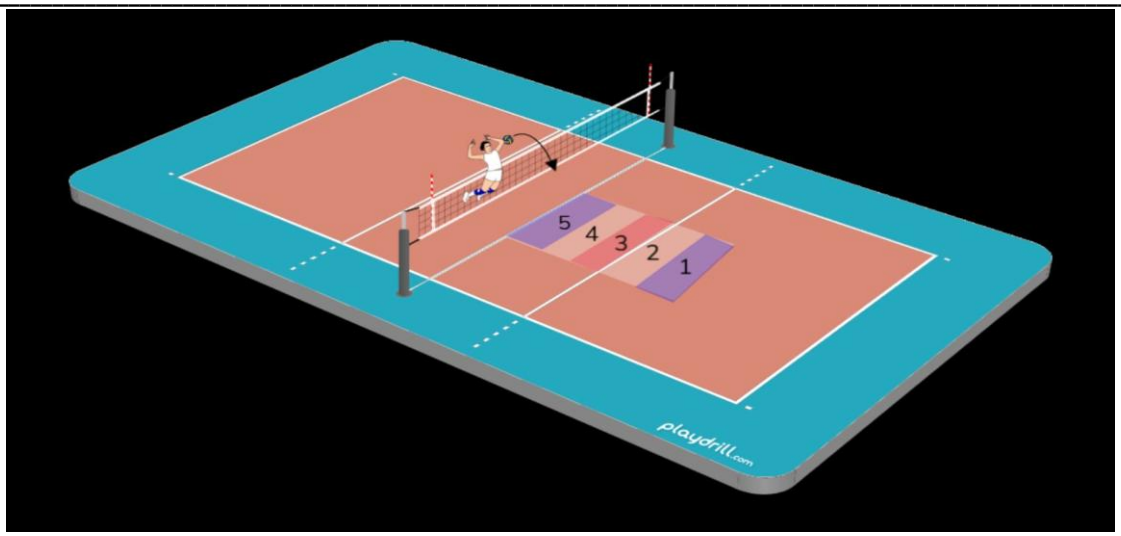

Figure (1) (Shows the Test for Quick Performance Accuracy (Fast) in Volleyball in its initial form))

Annex (2) Names of Experts and Specialists to Whom the Designed Tests Were Presented

No.	Expert's Name	Academic Title	Specialization	Place of Work
1	Dr. Mohamed Sobhi Hassanin	Professor	Measurement & Evaluation / Volleyball	Egypt / Helwan University / Faculty of Physical Education for Boys
2	Dr. Mohamed Walid Shihab	Professor	Measurement & Evaluation / Volleyball	University of Diyala - Faculty of Physical Education and Sports Sciences
3	Dr. Eythar Abdul Karim Ghazal	Professor	Measurement & Evaluation	University of Mosul - Faculty of Physical Education and Sports Sciences
4	Dr. Ahmed Sabaa Atiyah	Professor	Biomechanics / Volleyball	University of Baghdad - Faculty of Physical Education and Sports Sciences
5	Dr. Naima Zidan Khalaf	Assistant Professor	Measurement & Evaluation / Volleyball	University of Baghdad - Faculty of Physical Education and Sports Sciences
6	Dr. Tarek Ali Youssef	Assistant Professor	Measurement & Evaluation / Volleyball	University of Baghdad - Faculty of Physical Education and Sports Sciences

Annex (3) Data Differentiation Form for Test Results

No.	Test	Test (1)	Test (2)	Test (3)	Test (4)	Test (5)	Total Attempts
1	Quick Performance Accuracy Test (Fast) in Volleyball						

ISSN NO: 2770-0003
March 2025

Annex (4) Names of the Support Team Members

No.	Full Name	Specialization	Place of Work
1	Prof. Dr. Mohamed Walid Shihab	Measurement & Evaluation / Volleyball	University of Diyala / Faculty of Physical Education and Sports Sciences
2	Prof. Dr. Hamid Ahmed Mohamed	Biomechanics	University of Tikrit / Faculty of Physical Education and Sports Sciences
3	Prof. Dr. Ahmed Sabaa Atiyah	Biomechanics / Volleyball	University of Baghdad / Faculty of Physical Education and Sports Sciences
4	Assoc. Prof. Dr. Tarek Ali Youssef	Measurement & Evaluation / Volleyball	University of Baghdad / Faculty of Physical Education and Sports Sciences
5	Dr. Mohamed Khalil Ibrahim	Measurement & Evaluation	Salahaddin Education Directorate