



Article

Constructing a Special Agility Test for First-Division Volleyball Club Players in the Center of Al-Anbar Governorate

Imad Saadallah Khamis¹, Ibrahim Khalil Ibrahim², Ali Khaled Mekhle³

1. College of Physical Education and Sports Sciences, University of Anbar.
* Correspondence: imad.s.kamees@uoanbar.edu.iq
2. Anbar Education Directorate
ibrahim.80100@gmail.com
3. College of Physical Education and Sports Sciences, University of Anbar
ali.k.muklef@uoanbar.edu.iq

Abstract: The importance of the research lies in finding an accurate scale that is close to the conditions of the game to measure these important abilities to help coaches in the two selection coins, as well as to enhance the training program. The research aims to design a test to measure the special agility of volleyball players. Study the differences of the free player's special agility with the rest of the volleyball players. The researchers used the descriptive approach with the developmental normative method. A simple device was made to perform the test and obtain objectivity that does not tolerate interpretation. After conducting the exploratory experiment and the main experiment of the research, and after undergoing the test on the scientific foundations, the researchers used statistical methods through (SPSS) for the purpose of analyzing the study data. After presenting, analyzing and discussing the data, the researchers concluded that this test measures the special agility of volleyball players with high accuracy. A free agent needs a higher level of agility than a player in other positions.

Keywords: building a special fitness test for players of first-class volleyball clubs in the center of Anbar province.

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1. Introduction to the Research

1-1 Research Introduction

Nowadays, volleyball is considered the second most interesting sport after football, due to the great development in the technical and skill performance of this game, and the skills of this game are of the most dependent on motor and physical abilities, and special agility is one of the main enhancers of technical performance and achieving the best results due to the nature of this game and the rapid changes in the direction of the game [1]. This attracted the attention of coaches to develop these skills through various methods and means of training to be a basic basis for developing the performance of skills of players and reaching them at the levels required to achieve the desired results in matches, which requires that there be tests that measure those abilities that will serve coaches and coaching staff to select players with high abilities that make them more effective. qualified for technical and skills performance, and at levels that enable them to achieve high performance

The importance of the research lies in creating an accurate measurement tool similar to the actual game conditions to measure these vital abilities, assisting coaches in the selection process and enhancing training programs.

1-2 Research Problem

Through a review of special agility tests in volleyball, it became apparent to the researchers that the current tests used are not sufficiently accurate, as they measure general agility. Therefore, the researchers aimed to design a test suitable for these specific abilities, which leads to the following question:

- Does the special agility test for volleyball, which the researchers intend to construct, measure this ability with a high degree of accuracy?

1-3 Research Objectives

- Designing a test to measure special agility for volleyball players.
- Studying the differences in special agility between the Libero and other volleyball players.

1-4 Research Hypothesis

- There are statistically significant differences in the test results between the Libero and other players.

1-5 Research Scope

- **1-5-1 Human Scope:** First-division volleyball club players in the center of Al-Anbar Governorate.
- **1-5-2 Time Scope:** From August 1, 2024, to September 3, 2024.
- **1-5-3 Spatial Scope:** Courts of first-division volleyball clubs in the center of Al-Anbar Governorate.

Definition of Terms:

- **Agility:** The ability to change body positions or parts rapidly on the ground or in the air, and the ability to control body movement changes [2].
- **Special Agility:** The ability to use skills according to the requirements of a rapidly changing situation with speed and accuracy, and the ability to reshape performance according to these situations quickly [3].

2. Research Methodology and Field Procedures

2-1 Research Methodology

The researchers used the descriptive approach utilizing the normative-developmental style, as it is the most suitable method for the nature of the research [4], [5].

2-2 Research Population and Sample

The research population consisted of (98) players distributed across (7) first-division and premier clubs in Al-Anbar Governorate. The research sample was purposefully selected from Al-Anbar Sports Club, totaling (42) players, representing approximately (43%) of the original population. This is considered appropriate according to [6], as it exceeds (20%) of the research population [7].

2-3 Devices and Tools

- A device designed for the test by the researchers.
- Legal volleyballs.
- Whistle.
- Stopwatch.
- HP Laptop.

2-4 Test Design

A simple device was manufactured to perform the test and ensure objectivity that allows for no misinterpretation. It includes:

- Three stands at a height of 1.5m (adjustable).

- One stand at a height of 3.5m or a basketball hoop (adjustable).
- A button on the ground connected to a sensor that starts and stops the stopwatch.

2-5 Test Specifics

- **Test Name:** Volleyball Special Agility Test.
- **Test Goal:** Measuring special agility for volleyball players.
- **Tools:** The designed device, 4 volleyballs, a whistle, and a measuring tape.
- **Test Procedure:**

The player stands at point (1) as in Figure (1), and when he hears the start signal, he starts forward and presses the button on the ground point (2), which is 1 m away from point (1), and when pressing the button, the time clock connected to it starts calculating the time and then goes back to area number (3) which is 2.5 m away from area No. (2), and performs the handling from the top of the suspended ball by completing it, and it is noted that this pass needs to jump up, due to the height, and then it goes forward to area No. (4), and handles the suspended ball from the bottom, then goes to the area No. (5) and performs the handling from below, then launches for the ball in the area No. (6), and in the same way as before, he performs the pass and then returns to point No. (2) and presses the button to stop the timer, and gives it to the player Three attempts and calculates the best performance score.

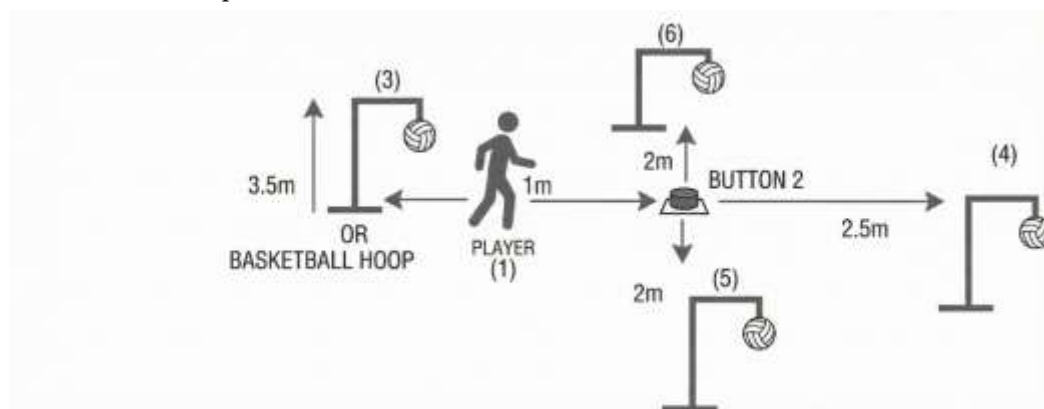


Figure 1. Reference Data

2-6 Pilot Study

A pilot study was conducted on five players to determine the difficulty of application and the suitability of the devices and tools used. The experiment was repeated on the same sample under the same conditions to determine the test's reliability coefficient.

2-7 Main Experiment

The test was conducted on a sample of (23) players, after excluding the five players involved in the pilot study. The sample included (8) Liberos to compare their results with other players and identify statistically significant differences.

2-8 Scientific Foundations of the Test

- **2-8-1 Test Reliability:** The researchers verified reliability by re-testing the same sample after three weeks under the same conditions. The correlation coefficient between the two tests was high (0.84), indicating test stability.
- **2-8-2 Test Validity:**
 - **Face Validity:** Achieved by presenting the test to experts. They agreed on it with a 90% agreement rate after minor modifications.
 - **Intrinsic Validity:** Achieved through the square root of the reliability coefficient. The validity coefficient reached (0.96).
- **2-8-3 Test Objectivity:** This test is considered to have a high objective coefficient, since there is no diligence for the referees, since it depends on tools that are not prepared to intervene, because the beginning and the end are through the electronic clock, and the way of performance does not require complex observations. The objectivity of the test was also verified by a presentation to

experts, and it obtained the approval of (9) of (10) reviewers, i.e. the objectivity coefficient achieved (90%).

Table (2-1): Shows the scientific foundations of the test

Test Name	Intrinsic Validity Coefficient	Content Validity Coefficient	Objectivity Coefficient
Volleyball Special Agility Test	0.96	0.90	0.90

2-9 Statistical Methods

To explain and process the data statistically, the researchers used statistical methods through SPSS [8], [9].

3. Presentation and Discussion of Results

3-1 Presentation and Analysis of Results

Table (3-1): The volleyball agility test for non-free players shows and discusses

Maximum Time	Minimum Time	Arithmetic Mean	Standard Deviation
7.40 sec	5.60 sec	6.470	0.576

Through the results of Table (3-1), it was found that the lowest time was (5.60), and the highest time was (7.40), and that the arithmetic mean was (6.470) with a standard deviation of (0.576), indicating the great homogeneity in the research sample, since its levels were very close, and that the dispersion of the values in their arithmetic mean is very limited, and there is no doubt that the limited distance in motion according to the measurements and instructions of the test reduces this dispersion, but there were clear differences in the execution time, and this means that the test has the ability to measure the attribute or the ability to measure, and that this difference in results is due to several reasons, the most important being: the agility trait of volleyball depends on qualities and skills that the player must possess, such as: speed, coordination, coordination of movements, speed of performance of motor duty, speed of reaction, change of direction and linking of movements with their lightness, and this is confirmed by [10]: ((Believes that agility includes motor reaction, guidance, balance, coordination, preparation, lightness, and lightness of movement)).

Table (3-2): Presentation and Analysis of Test Results for the Libero

Maximum Time	Minimum Time	Arithmetic Mean	Standard Deviation
6.8	5.3	5.84	0.57

Table (3-2) shows that the maximum time was (6.8) seconds, the minimum was (5.3) seconds, and the mean was (5.84) seconds with a standard deviation of (0.57). These results indicate that the Libero possesses a better level of special agility than players in other positions.

Table (3-3): Results of the Test and Differences Between the Libero and Other Players

Playing Position	Max Time Mean ($\bar{x}$)	Max Time SD (σ)	Libero Mean ($\bar{x}$)	Libero SD (σ)	Calculated (t) Value	Significance Level	Significance
Players	5.60	0.576	5.84	0.57	2.16	0.05	Significant

Table (3-3) shows that the calculated (t) value reached (2.16), and the difference is statistically significant at the (0.05) level. This indicates that the Libero possesses a high level of special agility, which is a requirement for that position. The Libero moves between defensive positions with high speed and lightness, and court defense skills are very similar to the movements in the test. Overhead and underhand receptions represent the bulk of the Libero's duties, requiring a high ability to change direction [11]. In addition, the free agent is shorter than the rest of the players, which gives him greater balance, and therefore his ability to change direction and maneuver, as well as because

his center of gravity is closer to the ground and has a lower range of motion than the taller player [12], [13] [14][15].

Conclusions and Recommendations

Conclusions

The current study built and validated a specialized agility test that mimicked the performance needed for first-division volleyball players within Center of Al-Anbar Governorate. The results showed that the test designed is scientifically sound in high reliability (0.84), high the value of intrinsic validity (0.96) and objectivity (90%) confirming that the tailor-made test developed measures real-time actions of volleyball players in the simulation of game-related movements. Of particular note among the results is a significant difference ($t = 2.16$, $p \leq 0.05$) between the Libero and positional groups, highlighting that the Libero is noted to demonstrate a greater special agility, specific to the tactical and defensive demands of such roles. On the basis of these findings, position-specific physical tests are important for successful player selection, talent identification and the implementation of role-specific training programs aligned with the unique physiological and technical demands of each position. This study also emphasises the need to ensure that sport-specific measurement tools are used over general agility tests. The application and standardization of this test in other age groups, competition levels and in different geographic locations is warranted, as is research into its predictive criterion validity in relation to real match outcome measures.

Recommendations

The researchers recommend the following:

- Utilizing this test on other age groups and skill levels.
- Benefiting from the idea of this test to design agility tests for other sports.

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