



The Contribution of Some Physical Abilities to the Accuracy of the Forehand Groundstroke Skill in Squash Among Iraqi Premier League

Alhamza Issa Abdulateef¹, Amir Thamer Aziz²

^{1,2} University of Baghdad, College of Physical Education and sport sciences.

DOI:

[https://doi.org/10.37359/JOPE.V38\(3\)2026.2522](https://doi.org/10.37359/JOPE.V38(3)2026.2522)

<https://creativecommons.org/licenses/by/4.0/>

Article history: Received 14/ May /2026; Accepted 1/January/2026; Available online 28/ September/2026

Abstract

The importance of the research lies in studying the skill of the front ground strike in squash in order to reach the values of the studied physical abilities and the extent to which these abilities contribute to the accuracy of the front ground strike skill to reach the best accuracy in the chosen skill and thus lead to better performance and then achieve the goal of skill performance, which is to achieve a point in the game, but the problem of the research lies in answering the following questions: Knowing what physical abilities have a great role in the accuracy of the forehand grounding skill in the game of squash and knowing its values .Knowing the contribution percentage of each ability researched in the accuracy of the front ground strike skill in the game of squash .Therefore, the two researchers decided to go into the study of the problem by knowing the percentage of the contribution of some physical abilities accurately the skill of the front ground strike in squash on the players of the Iraqi Premier League in squash, and the objectives of the research Identify the most important physical abilities that have a significant role in the accuracy of the front ground strike skill in the game of squash among the Iraqi Premier League players in squash .Knowing the percentage of the contribution of each of the physical abilities to the accuracy of the front ground strike skill in the game of squash among the Iraqi Premier League players in squash .As for the research methodology, the researcher used the descriptive approach in the method of correlational relations in order to suit the nature of the research problem. As for the research community and sample, the community researcher was chosen in the deliberate way represented by the players of the Iraqi Premier League in squash. The research sample was chosen in a random way, as players were selected from each club and the total research sample was (24) players. As for the statistical means, the two researchers used the SPSS program to analyze and process the data statistically. The most important conclusions reached by the two researchers are : In order to improve accuracy, it is necessary to develop the physical qualities, especially the strength and flexibility of the Iraqi Premier League players in squash.

¹ University of Baghdad, College of Physical Education and sport sciences.
alhamza.i@cope.uobaghdad.edu.iq

² University of Baghdad, College of Physical Education and sport sciences.
amir.t@cope.uobaghdad.edu.iq



Journal of Physical Education

Volume 38 – Issue (3) – 2026 Open Access

P-ISSN: 2073-6452 , E-ISSN: 2707-5729

<https://jcope.uobaghdad.edu.iq>



As for the most important recommendations reached by the two researchers: Using tools and training means in order to develop physical qualities and thus develop the accuracy of the Iraqi Super League squash players.

Keywords: Contribution, Accuracy, Forehand Groundstroke Skill, Squash.

Introduction:

Squash is an individual sport that requires its players to possess specific characteristics that enable them to perform the basic skills of the game, particularly the forehand groundstroke, with a high level of proficiency.

A squash player should possess a high level of physical abilities that qualify them to perform the forehand groundstroke and other fundamental skills in squash effectively and accurately. Among the most important of these physical abilities are strength, flexibility, and speed, which play a major role in the accuracy of the forehand groundstroke in squash. Based on the above, the importance of this study lies in examining the forehand groundstroke skill in squash in order to identify the values of the investigated physical abilities and determine the extent of their contribution to the accuracy of the forehand groundstroke.

This is intended to achieve the highest possible level of accuracy in the selected skill, thereby leading to better performance and ultimately accomplishing the objective of skill execution, which is scoring a point during play.

Research Problem:

The forehand groundstroke is considered one of the fundamental skills in squash and plays a significant role in scoring points. Through attending training sessions of Iraqi Premier League squash players and observing their matches, the researchers noticed a slight weakness in the accuracy of the forehand groundstroke among these players. The researchers attributed this weakness to deficiencies in certain physical abilities, particularly strength and flexibility, which negatively affect the accuracy of skill performance. Therefore, the research problem seeks to answer the following questions:

- What are the physical abilities that play a major role in the accuracy of the forehand groundstroke in squash, and what are their values?
- What is the percentage contribution of each investigated physical ability to the accuracy of the forehand groundstroke in squash?

Accordingly, the researchers decided to investigate this problem by identifying the contribution of some physical abilities to the accuracy of the forehand groundstroke among Iraqi Premier League squash players.

Research Objectives

- To identify the most important physical abilities that play a major role in the accuracy of the forehand groundstroke in squash among Iraqi Premier League squash players.
- To determine the percentage contribution of each physical ability to the accuracy of the forehand groundstroke among Iraqi Premier League squash players.

Methodology and Instruments

Research Method

The researchers used the descriptive method with a correlational approach, as it was appropriate for the nature of the research problem. This is consistent with (Diaa Subhi Kazem and Yasser Najah Hussein, 2022), who stated that correlational research aims to study the relationship among variables of different types, whether they are continuous or discrete, regardless of the number of variables.

Research Sample

One of the most important scientific considerations that researchers should take into account is selecting a sample that truly and accurately represents the research population. Therefore, the research population was selected intentionally and consisted of the Iraqi Premier League squash clubs, which included (12) clubs. The research sample was selected randomly by choosing two players from each club, making a total of (24) players.

Data Collection Methods

- Arabic and foreign references.
- Personal interviews.
- Observation.
- The Internet.
- Data recording forms.
- Computer software and applications.
- Tests and measurements.

Equipment and Instruments Used in the Research:

- Two (2) DELL laptop computers, manufactured in China.
- A metric measuring tape.

Tests Used in the Research:

First Test: Throwing a 2-kg medicine ball.

(Naseef Jasim Mohammed and Firas Mohammed Kareem, 2018)

Second Test: Sit-and-Reach Test (Arm Extension). (Sura Mahmood, 2016)

Third Test: Forehand Groundstroke Accuracy Test Toward a Divided Target.

(Manahel, 2012, p. 67)

Purpose of the Test:

To measure the accuracy of the forehand groundstroke.

Test Procedures:

The test is conducted on a standard squash court using squash rackets, squash balls, and a score recording form. Five square targets are drawn on the right side of the front wall. Each square measures 35 cm × 35 cm, with a distance of 25 cm between each two adjacent squares. Figure () illustrates the scoring targets, the players' standing position, and the procedures for conducting the test.

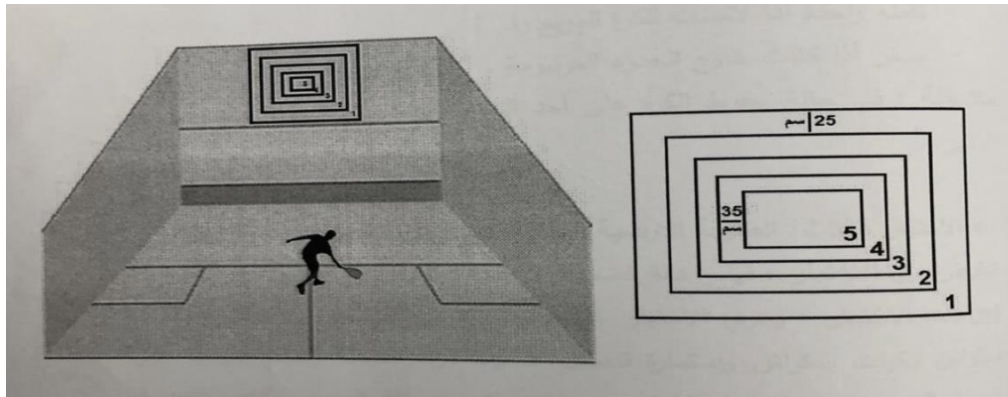


Figure (1) illustrates the forehand groundstroke test toward the divided target.

Performance Description:

The test requires the player to stand behind the service box facing the right side wall while assuming the correct forehand groundstroke position. After the test has been explained, each player is given five (5) practice attempts following the warm-up to become familiar with the test procedure. Each player is then allowed ten (10) official attempts, during which they continuously hit the ball toward the divided target. The player must strike the ball after it has bounced on the floor; otherwise, the attempt is considered invalid.

Scoring:

Points are awarded for each successful attempt as follows:

- Five (5) points if the ball hits Square No. 5.
- Four (4) points if the ball hits Square No. 4.
- Three (3) points if the ball hits Square No. 3
- Two (2) points if the ball hits Square No. 2.
- One (1) point if the ball hits Square No. 1.
- Zero (0) points if the ball lands outside the marked areas.

Note. If the ball lands on the line shared by two squares, the score of the higher-value square is awarded.

Pilot Study:

The researchers conducted a pilot study on six (6) players who were not included in the main research sample. The study was carried out on Thursday, January 15, 2026, at 3:00 p.m. in the squash courts of the College of Physical Education and Sport Sciences, University of Baghdad. The pilot study aimed to verify the suitability of the equipment and instruments used in the research, ensure that the selected tests were appropriate for the research sample, evaluate the efficiency of the assisting team, and determine the time required for each test and for each player.

Main Study:

The researchers conducted the main study on the research sample, which consisted of players from the Iraqi Premier League Squash clubs. The research population included twelve (12) clubs, and the research sample consisted of twenty-four (24) players. All tests were carried out on a single day, Thursday, January 22, 2026, at 3:00 p.m. Two squash courts at the College of Physical Education and Sport Sciences were used, with each court prepared for one specific test.

Statistical Methods:

The researchers used the Statistical Package for the Social Sciences (SPSS) to analyze the data statistically. The following statistical measures were calculated: arithmetic mean, standard deviation, correlation coefficient, and contribution percentage.

Results:

Table 1. The shows Means and Standard Deviations of Strength and Flexibility in Relation to the Accuracy of the Forehand Groundstroke Skill

Tests	mean	SD
A wide leap from a stationary position, with the front kick accurately directed towards the split target	1.32	0.15
Sit-and-reach test (arms outstretched), with the front kick accurately directed towards the split target	14.20	4.008

Table2. The shows Correlation Coefficient, Contribution Percentage, Significance Value, and Significance Level of Strength and Flexibility in Relation to the Accuracy of the Forehand Groundstroke Skill

Tests	Correlation coefficient	Contribution Percentage	SIG	Significance
A wide leap from a stationary position, with the front kick accurately directed towards the split target	0.890	0.792	0.03	Significant
Sit-and-reach test (arms outstretched), with the front kick accurately directed towards the split target	0.981	0.978	0.02	Significant

Note. All p-values ≤ 0.05 are statistically significant at 19 degrees of freedom (df = 19).

Discussion of the Results:

According to Table (2), the Medicine Ball Throw test, which measures the explosive strength of the arms, showed an effect on the accuracy of the forehand groundstroke. Strength plays a fundamental role in accuracy. As is well known, increasing force may reduce accuracy. Squash is a fast-paced sport that requires a high level of strength to enable players to score points and win matches. This is consistent with Firas Matchar and Farah Essam (2018), who stated that strength is one of the most important physical abilities that athletes seek to develop, especially in squash, because the fast and physically demanding nature of the game requires considerable strength to maintain the same level of performance throughout the match. They also pointed out that developing strength improves movement patterns.

Furthermore, Ali Kamal Hussein et al. (2020) stated that strength ranks first among the physical abilities required in most sports activities. In addition, Mohammed Abdul Hassan (2010, p. 27) explained that strength is one of the fundamental physical abilities that plays an important role in sports performance, particularly in squash. The integration of strength with flexibility and movement speed provides the player with a high level of movement efficiency.

Regarding flexibility, Table (2) shows that its contribution percentage was very good. Flexibility is also considered one of the essential physical abilities that squash players should possess because of the small court dimensions, the speed of play, and the rapid rebound of the ball. Therefore, players should have a high level of flexibility, in addition to the ability to return the ball quickly, especially when performing the forehand groundstroke. Mohammed Ibrahim Shehata (2006, p. 63) stated that flexibility allows the optimal application of force through the appropriate range of movement according to the technical requirements of performance, particularly in squash.

The researchers believe that strength and flexibility are among the most important physical abilities that squash players should develop continuously. These abilities enable players to score points, maintain continuous rallies, and perform consistently throughout the match. This agrees with Farah Essam Abdul Amir and Ali Shaboot Ibrahim (2023), who stated that flexibility is one of the most important physical abilities athletes should acquire because it increases movement capacity, which positively affects the accuracy of the forehand groundstroke in squash.

Conclusions:

- Strength plays a major role in the accuracy of the forehand groundstroke in squash.
- Flexibility and reaching the ball at an early stage help players achieve greater accuracy in the forehand groundstroke.
- It is necessary to design training programs to develop physical abilities, particularly strength and flexibility.
- Similar studies should be conducted on other physical abilities.
- Training equipment and instructional aids should be used to develop physical abilities, especially strength and flexibility, thereby improving the accuracy of Iraqi Premier League squash players.



References:

- Abdul Hassan, M. (2010). Sports Training Science *III* (1st ed.). Al-Ibtikar Library for Printing.
- Al-Nuaimi, S. M. A. (2016). The Effect of Corrective Exercises According to Some Biomechanical Variables on Developing Certain Physical Abilities and Skill Performance in the Flat Tennis Serve for Juniors. Ph.D. Dissertation, University of Baghdad.
- Essam, F., & Shaboot, A. (2023). The Effect of Preventive Exercises on the Range of Spine Motion for Squash Players Under 20 Years Old. *Journal of Physical Education*, 35(2), 528–540. [https://doi.org/10.37359/JOPE.V35\(2\)2023.1469](https://doi.org/10.37359/JOPE.V35(2)2023.1469)
- Gassim, N., & Muhammed, F. (2018). Effect of Exercises Using Rubber Bands on the Development of Special Strength in Young Volleyball Players. *Journal of Physical Education*, 30(3), 402–409. [https://doi.org/10.37359/JOPE.V30\(3\)2018.419](https://doi.org/10.37359/JOPE.V30(3)2018.419)
- Kamal, A., Mohammed, B., & Selam, K. (2020). Comparing Explosive Strength and Speed–Strength in College of Physical Education and Sport Sciences’ Leagues of Basketball and Handball. *Journal of Physical Education*, 32(4), 66–70. [https://doi.org/10.37359/JOPE.V32\(4\)2020.1041](https://doi.org/10.37359/JOPE.V32(4)2020.1041)
- Khazal, M. A. J. (2012). The Effect of using Some Training Methods on Learning the Accuracy of the Most Important Basic Skills in Squash for Students. Master’s Thesis, College of Physical Education and Sport Sciences, University of Baghdad.
- Mutasher, F., & Issam, F. (2018). Correlation Relationship Between Physical Abilities and the Accuracy of Forehand Shot in Squash. *Journal of Physical Education*, 30(2), 294–302. [https://doi.org/10.37359/JOPE.V30\(2\)2018.365](https://doi.org/10.37359/JOPE.V30(2)2018.365)
- Shehata, M. I. (2006). Fundamentals of Sports Training. Egyptian Library for Printing and Publishing.
- Subhi, D., & Najah, Y. (2022). Some Biomechanical Limitation During Acceleration Phase and Its Relationship With (110) m Hurdles Achievement for Advance Runners. *Journal of Physical Education*, 34(4), 493–500. [https://doi.org/10.37359/JOPE.V34\(4\)2022.1296](https://doi.org/10.37359/JOPE.V34(4)2022.1296)



Journal of Physical Education

Volume 38 – Issue (3) – 2026 Open Access

P-ISSN: 2073-6452 , E-ISSN: 2707-5729

<https://jcope.uobaghdad.edu.iq>

