

## **Effects of Compound Exercises on the Level of Difficulty of Squash Players' Volley Stroke Accuracy Indicator**

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### **Abstract**

The research problem lies in the fact that when a squash player performs the skill of the volley strike, if he has the opportunity to implement this skill, he will be reluctant to implement it due to his fear of not gaining the point or even losing the exchange because of playing it in an inaccurate or accurate but not fast manner, and here it must be The player is fully prepared to execute the Volley strike skill quickly and accurately when the opportunity arises to be effective in deciding the exchange.

The aim of the research is to prepare complex exercises according to the level of difficulty to develop the accuracy index of the Volley strike for squash players and to identify its effect. The researchers hypothesized that compound exercises according to the level of difficulty had a positive effect on the development of the Volley strike accuracy index for squash players.

The researchers used the experimental method with the two experimental groups on the players of the Babylon Governorate clubs who participated in the Iraqi Squash League for the year (2020), and they numbered (12) with (6) players for each group.

The complex exercises developed according to the level of difficulty were implemented throughout the duration of the training curriculum, and then information was obtained on which conclusions were built, the most important of which is that training in such environments helps in developing the athletic level from all sides, and then the researchers recommended the need to introduce such new environments in the operations Athletic training.

### **Introduction**

What distinguishes a squash player in this individual sport, the measurements of the field, the movement of the fast ball, the strong competition with him, and many of the variables that necessitate continuous movement and immediate thinking about the course of play and the continuous updating of playing plans and how to resolve the exchange, so it was necessary to stand on how to develop the bio-kinetic capabilities of squash players as well as Know the reasons that prevent access to good performance.

Also, stressing that coaches choose appropriate exercises that contribute to developing the level of athletic performance, especially in the game of squash, as it is characterized by speed, strength, intelligence and correct expectation, and achieving high levels in the game of squash requires focusing on many elements that include skill and physical abilities, especially what is related to the speed and accuracy of the implementation of skills Offensive, as well as economizing on physical effort and working to distribute effort throughout the match.

The level of difficulty is one of the important things in the game of squash, especially for the development of offensive skills, since these skills require their implementation quickly, accurately, and an appropriate range of motion in order to be effective. Therefore, training according to different difficulties opens the way for the player to develop his potential.

The importance of the research lies in the development of complex exercises according to the level of difficulty to develop the accuracy index of the Volley strike for squash players.

### **Research problem**

The problem of the research lies in that the squash player, when he implements the skill of flying strike, if he has the opportunity to implement this skill, he is reluctant to implement it because of his fear of not gaining a point or even losing the exchange because of playing it in an inaccurate or accurate but not fast way, and here it must be The player is fully prepared to implement the skill of Volley strike quickly and accurately when the opportunity arises to be influential in resolving the exchange. Through the experience of researchers, they worked on developing a scientific study to develop an indicator of the accuracy of the Volley strike for squash players through the number of complex exercises according to the level of difficulty.

### **The goal of the research**

- Preparing compound exercises according to the level of difficulty to develop the accuracy index of the Volley strike for squash players and to identify its impact..

### **Research hypotheses**

- Complex exercises according to the level of difficulty have a positive effect on the development of the Volley strike accuracy index for squash players.

### **Research areas**

- Human field: Babil squash club players aged 17-19 years for the 2020-2021 season.
- The temporal domain: 25/12/2020 - 25/5/2021.
- Spatial domain: Babylon squash court - Iraq.

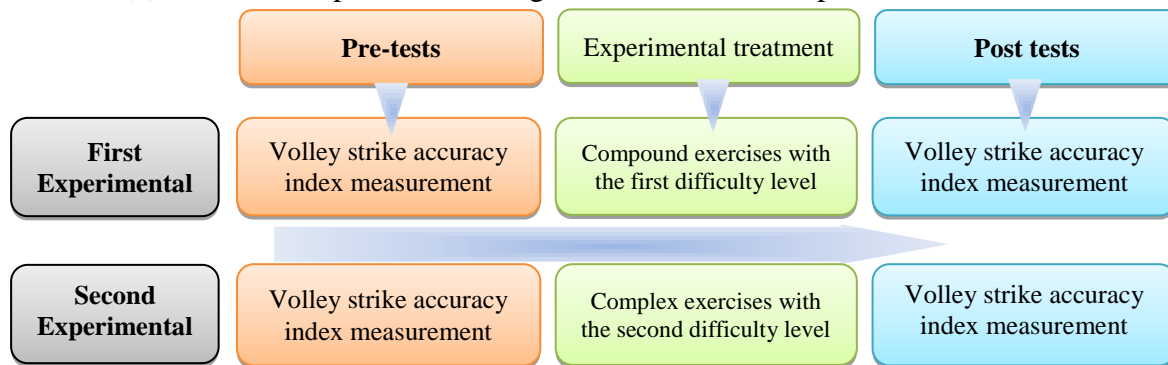
### **Research methodology and field procedures**

#### **Research Methodology**

The researchers used the experimental method for its relevance to the nature of the research phenomenon by designing the two experimental groups with a pre and post test.

The first group worked with compound exercises with the first level (easy), and the second group worked with compound exercises with the second level (hard), as shown in Scheme (1).

**Scheme (1)** shows the experimental design of the research sample



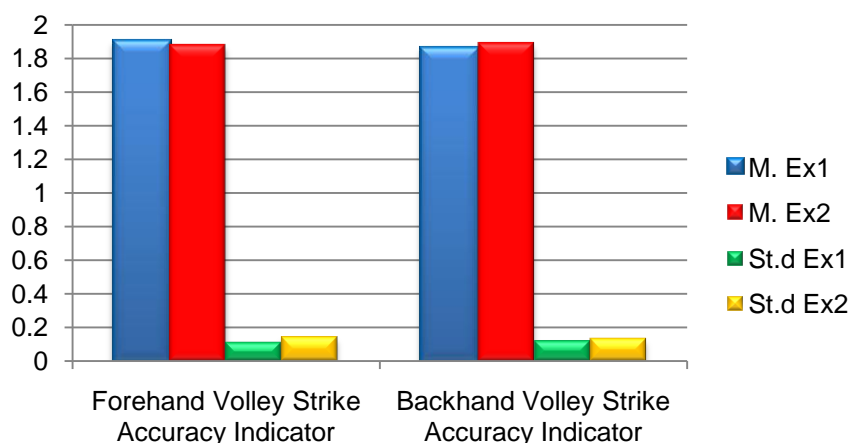
### Community and sample research

The research community determines the 12-player club players of Babil Governorate - Iraq for the 2020-2021 season.

### Homogeneity of the two search groups

The researchers used Levin's law to find out the homogeneity of the two research groups.

**Chart (1)** shows a comparison of arithmetic means and standard deviations to find out the homogeneity of the two research groups



### Scientific research tools

- Scientific sources.
- Observation and experimentation.
- Test and measurement.
- The questionnaire.
- Personal interviews.

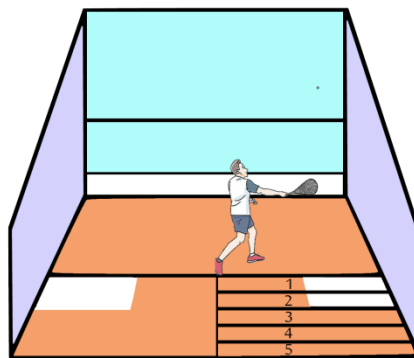
### Means and devices used in the research

- legal squash court
- Colored tapes, two measuring tape, and a red tape of 2.5 cm width.
- Dell computer (5040).
- Digital camera, type (Nikon), of Japanese origin.
- A digital display device (Data show) of Chinese origin.
- Medical scale of Chinese origin.

- A digital stopwatch of Chinese origin.
- -colored poles and cones (red, blue, yellow, green).
- Training ladder (4m)
- Collars with a diameter of (1m).
- Rubber cords of different resistors.

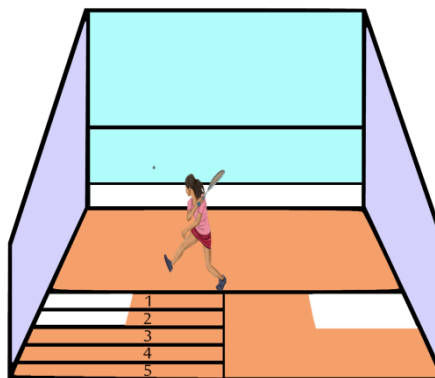
**First: The Volley strike test towards the back corner of the squash court** [\(1:54\)](#)

**Figure (1)** shows the forhand Volley strike test toward the back corner of the squash court



**Second: The backhand Volley strike test towards the back corner of the squash court** [\(1:55\)](#)

**Figure (2)** shows the backhand Volley strike test toward the back corner of the squash court



### Precision Index

In order to extract the accuracy index of the Volley strike, the researchers measured the speed when performing a sample for each attempt through two arbitrators, using a stopwatch. The researcher followed the following equation: [\(2:54\)](#)

Volley strike accuracy index = degree / time

**Recording the test score:** The average of the five attempts made by the player is calculated divided by the average time of each attempt, as this rate constitutes the score of the Volley strike accuracy indicator for each player.

### Exploratory Experience

The researchers conducted the exploratory experiment on (4) players from the research community 23\1\2021.

### The scientific basis for the tests

#### test validity

The researchers used the content validity to extract the validity of the tests and to verify the validity factor in the research.

### Stability test

The researchers used the test method and return it to extract the stability parameter, the first test was 23/1/2021, and after seven days the test was repeated 30/1/2021, and the researchers found that there is a high correlation.

### Objectivity of the test

The objectivity of the Volley strike accuracy test for squash players was calculated by finding the simple correlation coefficient (Pearson) between the scores of two judges.

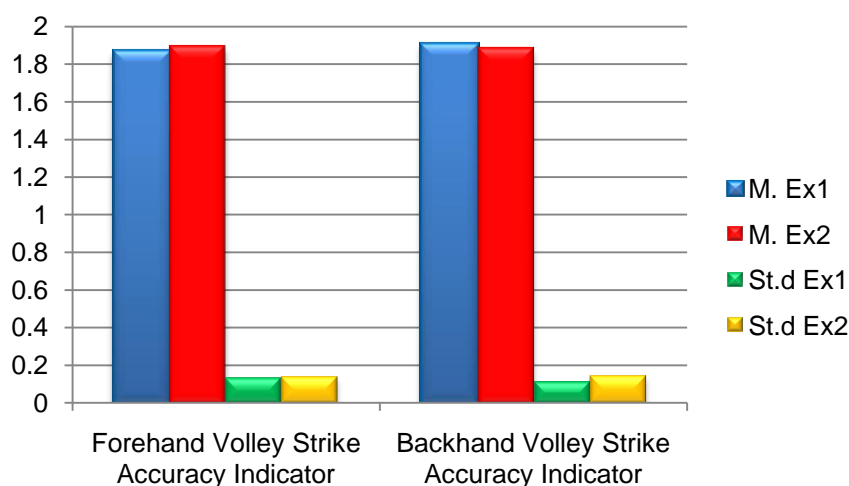
### Pre-tests

Pre-tests were performed for both experimental groups on 3/2/2021.

### The equivalence of the two search groups

In order to find out the equivalence of two groups, the researchers used the law (t). This gives researchers the green light to start with a single starting line and apply complex exercises according to difficulty level.

**Chart (2)** shows the comparison of arithmetic means and standard deviations to find out the equivalence of the two research groups



### Compound exercises according to the level of difficulty

The implementation of the complex exercises according to the level of difficulty took (8) weeks, and the number of training units in one week was (3) units with a total of (24) educational units for each group, and the time of one educational unit was (90) minutes, as the compound exercises were applied according to the level of difficulty in the section The main only, and his time was (60) minutes, and the complex exercises were applied according to the level of difficulty in a high-intensity and repetitive interval training method.

### posttests

The researchers conducted the posttests for both experimental groups on 31/3/2021.

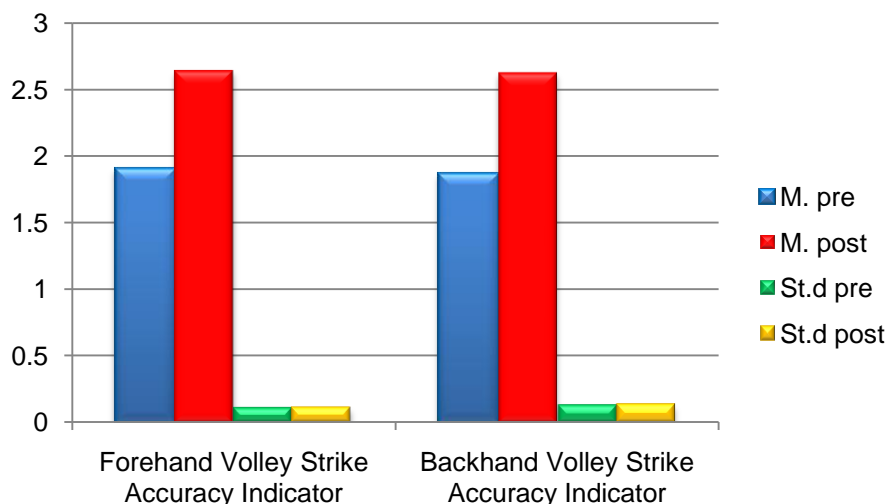
### Statistical means

The researcher used the statistical package (SPSS) version (26) to process the data reached by the researcher during the research period.

### Presentation and analysis of the results of the accuracy index of the squash Volley strike for the two experimental groups

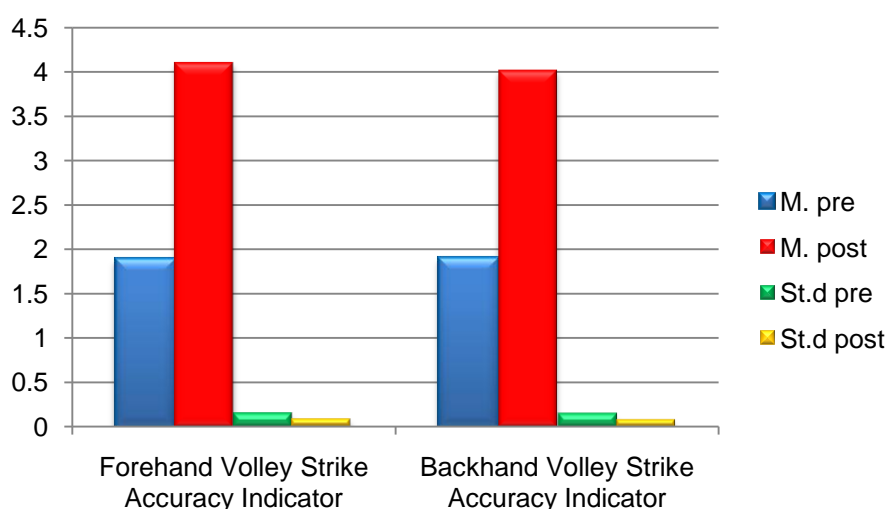
**Presentation and analysis of the results of the squash Volley strike accuracy index for the first experimental group with an easy level in the pre-post measurement**

**Chart (3)** shows the comparison of the arithmetic means and standard deviations to know the development of the results of the accuracy of the squash Volley strike index for the first experimental group with an easy level in the pre- and post-measurement



**Presentation and analysis of the results of the accuracy index of the squash Volley strike for the second experimental group, with a difficult level in the pre-post measurement**

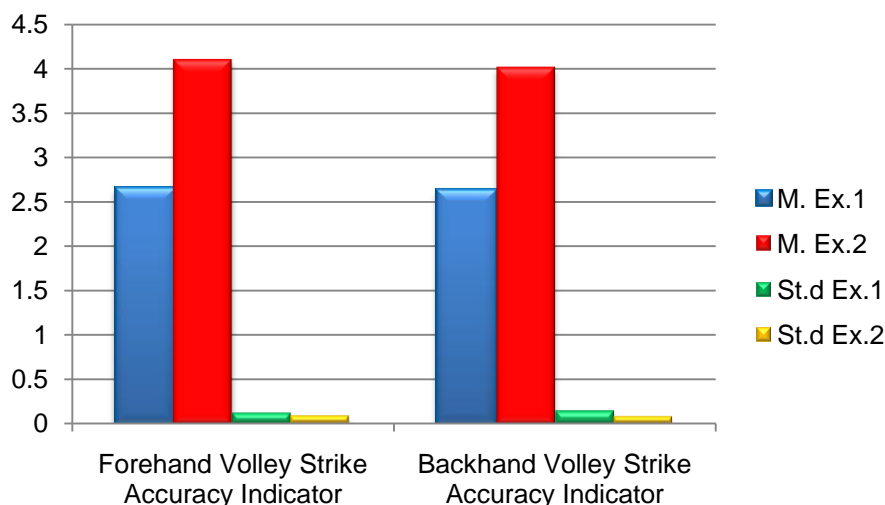
**Chart (4)** illustrates the comparison of the arithmetic means and standard deviations to know the development of the results of the accuracy of the squash Volley strike index for the second experimental group with a difficult level in the tribal and dimensional measurement



Accordingly, and from the above, the researcher finds that both groups have developed in the post test compared to the pre test. The researchers must make a comparison in the development of both groups and whether the compound exercises according to the level of difficulty applied to the players of the two experimental groups have a significant effect and difference.

**Presentation and analysis of the results of the accuracy index of the squash Volley strike for the two experimental groups in the post measurement**

**Chart (5)** shows a comparison of arithmetic means and standard deviations to find out the development of results for the accuracy index of the squash Volley strike for the two experimental groups in the dimensional measurement



### Discussing the results of the squash Volley strike accuracy index

By presenting the results of the post-test in the previous graphs of the flying strike accuracy index tests under study, which showed a significant difference in all variables between the first experimental group and the second experimental group in favor of the second experimental group.

As the researcher worked on creating a new training environment by introducing compound exercises on two levels, as well as creating an atmosphere similar to the atmosphere of competition through compound exercises for several basic skills in squash, including the skill of the front or rear plane strike, as well as the applied and very high intensity level similar to the intensity of competitions. [\(3: 518\)](#)

The researchers believe from the foregoing that the squash player must possess physical and motor abilities that enable him to move quickly, lightly, agility and strength to perform the basic skills of the game, especially when offensive skills that need high accuracy to implement them, especially the front and rear flying strikes, and that the compound exercises according to the level of difficulty led to an increase in confidence among The player played more volleyballs and gained points after he used to play them in a small way for fear of losing a point, and thus the development of the volleyball accuracy index in squash.

### Conclusions

- 1 The level of difficulty of the exercises had a significant impact on the development of the index of accuracy of the front and rear flying strike for squash players through the development of the speed and accuracy of the strikes executed by the players and on both experimental groups, especially the second experimental group that worked at the highest difficulty level (hard).
- 2 Compound exercises according to the level of difficulty have a positive effect on the players' commitment and attendance in the training unit and interaction among them and the desire to repeat a larger number of training duties.

### Recommendations

- 1 It is preferable to develop an indicator of the accuracy of the front and back plane strikes in squash, to design training programs according to levels of difficulty determined in the light of the players' capabilities and higher in order to ensure the remarkable development.
- 2 It is preferable to use complex exercises during the training process to ensure the diversity of environments for the player and at any period within the training plan periods and in any part of the training unit.
- 3 It is preferable that the training methods and methods are in line with the player's needs and his physical, motor and psychological abilities, especially since there are various levels of difficulty for the exercises that the coach uses.

### Sources

- 1 Rashad Abbas Fadhil: Impact of Complex Exercises Using Musical Rhythm in the Development of Some Kinetic Abilities and Volley Strike Performance for Squash Junior, Master Thesis, College of Physical Education and Sports Sciences, University of Babylon, 2015.
- 2 Wahb Razzaq Jabr: Scoring accuracy index with various offensive playing positions in terms of attentional control and speed of motor response for futsal players, PhD thesis, College of Physical Education and Sports Sciences, Babylon University, 2021.
- 3 Rashad Abbas Fadhil and Mazin Hadi Kazar: Effect of qualitative exercises using multimedia on kinetic balance and ground stroke for squash players, ASSR Journal of Sports Sciences, V.7, No.3, 2020.


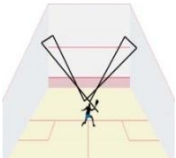
**Annex (1)** A proposed model for a training unit with complex exercises according to the level of difficulty

**Training unit:** 12

**Date:** 26/2/2021

**Number of players:** 6

**Intensity rate:** 93%

Exercise	Intensity	Time	Rep.	Set.	Rest		Note
					Rep.	Set.	
 <p>A and B stand behind the service box and supply balls to player C to execute an attacking plane into the frontcourt corners after jumping on a platform.</p>	90	20	4	2	10	45	
 <p>The player stands in the middle of the field where he performs the double corner exercise above the service line by playing the ball towards the front wall with a back kick to bounce to the middle of the field</p>	95	25	5	2	20	60	



	and then performs a forehand towards the front wall to bounce off the side wall and so on.							
	4cones are placed towards each corner of the field, and the player moves from the middle of the field behind these cones to perform a stealth strike at each corner and back to the middle of the field and so on	85	30	3	2	10	45	
	The player stands in the middle of the field and the ball thrower is set back from the right serve box to provide the balls in a straight front view for the player to move and perform straight forward flying strokes	85	20	3	2	10	45	
	A performs a high forehand (loop) for the service box B performs a forward attack plane hit toward the opposite angle	95	20	3	2	10	45	