

## The effect of special skill exercises in developing the skills of smash hit and smash serve in volleyball

Assoc. Prof. Dr. Fouad Abdel Latif Ghaidan<sup>1</sup> & Muhammad Rafid Mahdi<sup>1</sup>

<sup>1</sup>Diyala University, College of Physical Education and Sports Sciences

### ABSTRACT

This study aims at preparing special skill exercises to develop the skills of smash hit and smash serve in volleyball. The researchers used the experimental design because of its relevance to the research problem. The study obtained 12 players purposefully as a sample for the experiment; they are players at Hibhib Sports Club. They were divided into two equal experimental and control groups. As soon as the main experiment and tests were completed, the SPSS program was used for processing data to reach the result for discussion. The results showed that the experimental group earn statistically significant differences in the post tests in the skills of smash hit and smash serve over the control group. The researchers recommended the necessity of using the special skill exercises used under consideration during the training units by all trainers because of their large and rapid role in developing the skills of smashing hit and smashing serve in volleyball

**Keywords:** *Smash hit, smash serve, special skill exercises, volleyball.*

**\*Corresponding Author**

**Dr. Fouad Abdel Latif Ghaidan**

*Diyala University, College of Physical Education and Sports Sciences*



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### INTRODUCTION

There are many training techniques aiming to boost the level of physical, skillful and tactical performance in all sports to achieve advanced positions in various activities. Trainers seek to choose the best types of training methods, apply the most appropriate ones, and use the most modern means that match with the type of specialized activity to invest the most important physical abilities related to the specific type of activity. These training methods have direct impact on raising the level of physical and skill performance [1].

Volleyball is one of the sports that is widely practiced. It occupies a good position as an exciting game. It requires various skills that players must train and master in a high way through preparing training programs and following modern scientific methods in developing and achieving the best results.

Good skillful performance plays a major role in achieving a positivity in favor of the team. The skill mechanism plays a prominent role in the process of mastering and succeeding in the way of playing to a high degree, which leads to confusion of the opponent team and its inability to control the course of play and performance. Thus the attacking team with field control due to the advantages of high skills of the team members to take the initiative by being in good places and positions.

The skills of smashing hit and smashing serve are considered one of the most important effective offensive skills in gaining points in volleyball. They are the key to winning the team in matches [2] and herein lies the importance of the research.

### Research problem

Based on self-observation and self-experience, the researchers noticed a weakness in the effectiveness of implementing the smashing hit and smashing serve skills. Developing these skills play an effective weapon in gaining points and deciding them to win matches for most of the sample players. Therefore, the researchers sought to prepare special skill exercises to develop the sample's performance of the smashing hit and smashing serve skills in volleyball.

### Research objectives

The research aims at:

- 1- Preparing special skill exercises to develop the skills of smashing hit and serve in volleyball.
- 1- Identifying the impact of special skill exercises in developing the skills of smashing hit and serve in volleyball.

### Research hypotheses

1. In the post tests, the control group scored statistically significant higher than the pre-test in the skills of smashing hit and serve in volleyball.
2. In the post tests, the experimental group scored statistically significant higher than the pre-test in the skills of smashing hit and serve in volleyball.
3. In the post tests, the experimental group scored statistically significant higher than control group in the skills of smashing hit and serve in volleyball.

## METHODS

### Research design

The nature of the research problem obliges the researchers to choose the appropriate approach. Yet, the experimental approach, which is considered one of the most sufficient approach in reaching reliable knowledge [3]. The researchers used the experimental approach by designing the two equal groups, the control and the experimental to address the research problem. Experimental design is more appropriate to the nature of the research, leading to the results. The study was conducted in the period from 6/5/2022 to 9/7/2022. The study recruited the players of Hibhib Sports Club.

### Participants

The research community included 12 players of the Hibhib Sports Club. They were divided into two equal and homogeneous groups, control and experimental, each group 6 players, randomly by lottery. The homogeneity and equivalence were achieved for the research sample, as shown in Tables 1,2 & 3).

**Table 1:** The homogeneity of the sample and the variables used in the research

		Measurement	Mean scores	Standard deviation	Median	skewness
variables	Age	Year	22.33	22.33	22	0.00
	Length	Centimeter	170.00	170.00	170.50	0.00
	Weight	Kilogram	67.00	67.00	67.00	0.00

**Table 2:** The Mann-Whitney test of the experimental and control groups in the pre-test of the smash hit skill.

Smashing hit skills		Mann-Whitney Test			Tabular	Sig.
Control group	Experimental group	Low	High	Computed	5	Not significant
30	31	17	19	17		
34	33					
36	35					
32	31					
35	34					
37	41					

**Table 3:** The Mann-Whitney test of the experimental and control groups in the pre-test of the smash hit skill.

Smashing hit skills		Mann-Whitney Test			Tabular	Sig.
Experimental group	Control group	Low	High	Computed	5	Not significant
13	12	17	19	17		
15	13					
12	12					
10	14					
13	16					
15	13					

### Data collection instrument

Observation.

Research studies in the Arab and foreign contexts.

Personal interviews with experts and specialists.

### Tools used in the research

Volleyball court, 10 balls, whistle, stopwatch, stationery.

### Equipment

1 DELL laptop.

### Tests

- i. Measuring the accuracy of the skill of the smash hit in volleyball.
- ii. Measuring the accuracy of the smash linear and diagonal hit used by [4].

### Exploratory experience

The researchers conducted the exploratory experiment on 6/5/2022 at exactly 10 o'clock in the morning, on two players from the Diyala Sports Club in the hall of the Hibhib Sports Club. The exploratory experiment was conducted to get familiarity with the difficulties that the researchers may encounter while conducting the main experiment on the sample of the research. It also aims to assess the efficiency of the assistant work team and their knowledge of the course of events and tests of the research in addition to knowing the suitability of exercises and testing for the sample.

### Pre-tests

The researchers conducted the pretests on the players, at exactly 10 o'clock in the morning on Saturday, corresponding to 7/5/2022. The researchers paid attention to control of the variables in terms of time, place, and the assistant team, in order to remain the same in the posttests.

### The main experience

The main experiment included the implementation of the training units prepared for the experimental group, starting from Sunday 8/5/2022, under the supervision of the researchers. On the contrary, the control group was trained on previous approach without any interference. The number of training units for the entire research period reached 24 training units conducted three days a week on (Sunday, Tuesday, and Thursday) at a rate of 60 minutes per unit.

### Post-tests

The post-tests were conducted on the participants at exactly 10 o'clock in the morning on Saturday 9/7/2022. The researchers were keen to create similar conditions to that one of the pre-tests in all respects, temporal and spatial, and the assistant team in order to identify the extent of improvement that has been achieved to the skills of smash hit and serve by the independent variable exclusively.

### Statistical tests

The researchers used SPSS in processing the results of the tests.

## RESULTS AND DISCUSSION

**Table 4:** The Wilcoxon test for calculating the differences between the pre and posttest values of the experimental group in the smash hit skill

Pretest	Post test	Range	Rank	Wilcoxon		F Calculated	F Tabular	Sig.
31	88	-75	-2	W-	W+	0	0	Significant
33	90	-87	-1	21	0			
35	89	-45	-5					
31	86	-55	-3					
34	83	-49	-4					
41	84	-43	-6					

**Table 5:** The Wilcoxon test for calculating the differences between the pre and posttest values of the control group in the smash hit skill

Pretest	Post test	Range	Rank	Wilcoxon		F Calculated	F Tabular	Sig.
30	62	-32	-2.5	W-	W+	0	0	Significant
34	64	-30	-5.5	21	0			
36	66	-30	-5.5					
32	65	-33	-1					

35	63	-32	-2.5					
37	68	-31	-4					

**Table 6:** The Wilcoxon test for calculating the differences between the pre and posttest values of the experimental and control group in the smash hit skill

Pretest	Post test	الفرق	رتبة الفرق	Wilcoxon		F Calculated	F Tabular	Sig.
13	21	-8	-3	W-	W+	0	0	significant
15	22	-7	-5.5	21	0			
12	20	-8	-3					
10	23	-13	-1					
13	21	-8	-3					
15	22	-7	-5.5					

جدول (7)  
يبين اختبار ولكوكسن بدلالة (0.05) لقيم الاختبار القبلي والبعدي للمجموعة الضابطة في مهارة الإرسال الساحق

Pretest	Post test	الفرق	رتبة الفرق	Wilcoxon		F Calculated	F Tabular	Sig.
17	12	-5	-1	W-	W+	0	0	significant
16	13	-3	-3.5	21	0			
13	12	-1	-5.5					
18	14	-4	-2					
17	16	-1	-5.5					
16	13	-3	-3.5					

**Table 8:** The Mann-Whitney test calculates the differences between the values of the experimental and control groups in the post-test of the smash hit skill.

Smashing hit skills		Mann-Whitney Test			Tabular	Sig.
Experimental group	Control group	Low	High	Computed	5	Significant
88	62	0	36	0		
90	64					
89	66					
86	65					
83	63					
84	68					

**Table 9:** The Mann-Whitney test calculates the differences between the values of the experimental and control groups in the post-test of the smash hit skill.

Smashing hit skills		Mann-Whitney Test			Tabular	Sig.
Experimental group	Control group	Low	High	Computed	5	Significant
21	17	0	36	0		
22	16					
20	13					
23	18					
21	17					

22	16					
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Table 1 shows that the sample is homogeneous in the aforementioned variables, but in Tables 2 and 3 after conducting the Mann-Whitney test, the results of the pre-test to test the skills of smash hitting and smash serving for the two groups, showed that the sample members are equivalent in performing the two skills. This means that the two groups will start applying the training units from one starting point.

Table 4 & 6 also showed that the results of the Wilcoxon test for the pre and post-tests of the experimental group in the skills of smash hit and smash serve. The results witnessed a significant improvement. The researchers attribute the reason for this to the special skill exercises that were carried out on them throughout the research period and led to a significant improvement in the two skills. This finding matches with Nassif [5] who reported that the level of achievement rises rapidly through the use of new exercises that the athlete is not accustomed to.

The results of the Wilcoxon test as displayed in Table 5 and 7, for the pre and posttest of the control group in the skills of smash hitting and smash serve witnessed a remarkable improvement. The researchers attribute the reason for this to the training followed by the coach, which led to the development of the players' performance.

Mann and Whitney's results in Tables 8 and 9 calculate the differences between the experimental and control groups. Results showed a great superiority in the results of the two skills of the smash hit and the smash serve in favor of the experimental group.

The researchers attribute such improvement to the special skill exercises that helped the experimental group players in raising the skill level with great superiority over the approach followed by the control group.

## CONCLUSION

The results showed that the experimental group achieved statistically significant scores in the post-tests in the skills of smash hitting and smash serving over the control group.

## Recommendations

It is recommended that volleyball coaches should use the special skill exercises used under discussion during the training units due to their great and rapid role in developing the skills of smash hitting and smash serving in volleyball.

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## Appendix 1

### A sample of some of the exercises used in this experiment

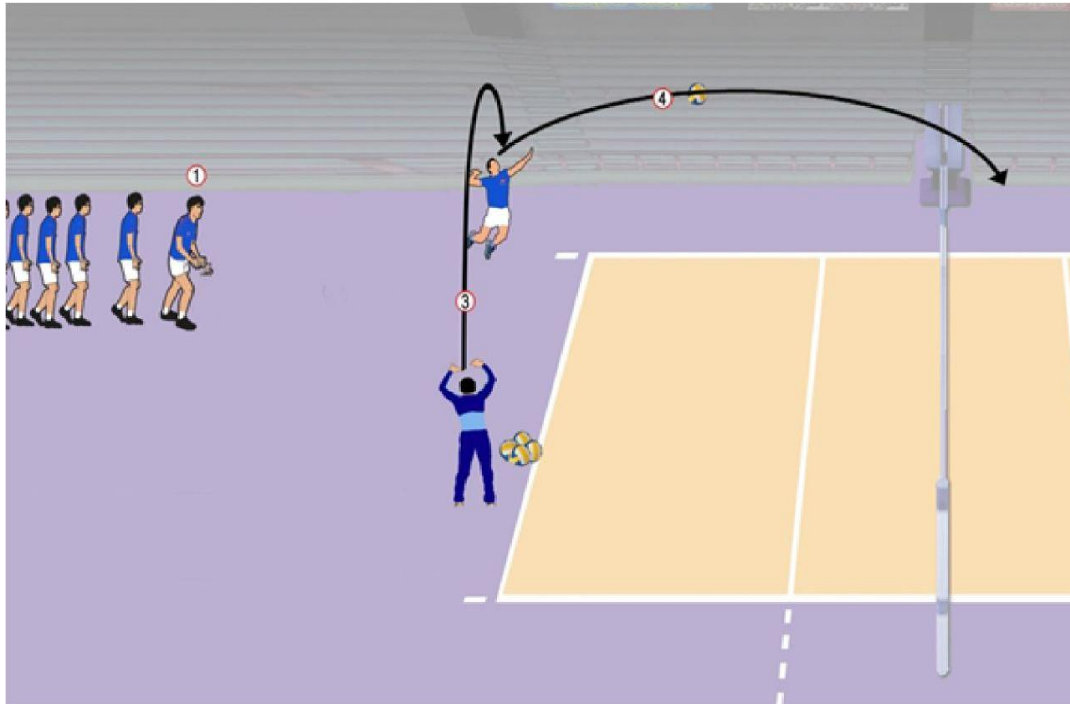
#### Exercise 1

The purpose of the exercise: to develop the smashing serve skill.

Number of participants: 6 players and a coach.

Tools used: 10 volleyballs.

Performance description: The coach stands behind the finish line in the service area. The players also stand behind the finish line. The coach asks the players to focus on serving on strength (according to the intensity of the exercise) in addition to hitting the required area, which is also changed after each set at the signal. By preparing the ball high so that the player can perform the smash serve to the center (1), the same exercise continues for the rest of the players.



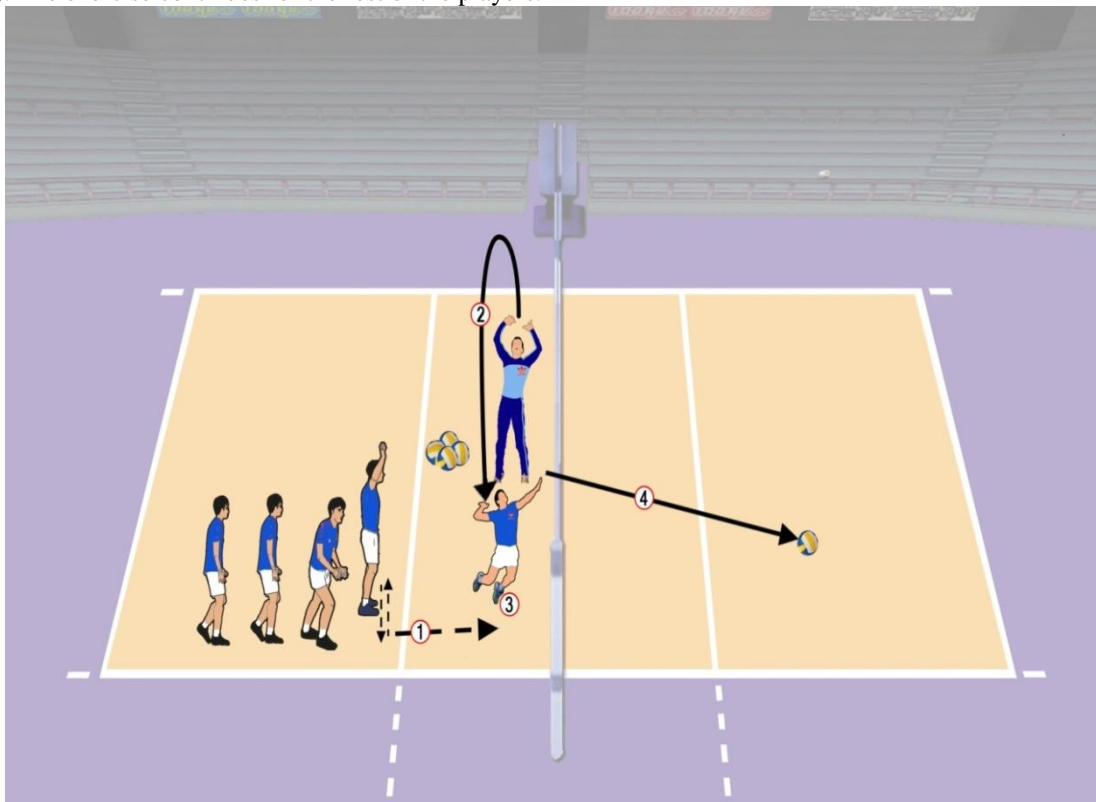
**Exercise 2**

The purpose of the exercise: to develop the smashing serve skill.

Number of participants: 6 players and a coach.

Tools used: 10 volleyballs.

Performance description: The coach stands near the net towards the center (3), while the players stand behind the attack line near to the center (1). Then the coach prepares the ball to the player at center (2), who performs the smash hits to the center (5). The exercise continues for the rest of the players.



**Appendix 2**

Module of training unit

Exercise phase	Exercised used	Load				Individual performance time	Total exercise time
		Intensity	Size	Rest			
				K	m		
Preparation 15 m	General warming up exercises						15 m
	Specific warming up exercises						5 m
Main 70 m	Exercise 1	80%	50: 2 m * 5 m	5 s back	1 m	3 s	5: 12 m
	Exercise 2	80%	50: 2 m * 5 m	3 s back	1 m	2 s	5: 12 m
	Exercise 3	80%	50: 2 m * 5 m	3 s back	1 m	2 s	10 m
closing 5 m	Calming and relaxation exercises						5 m

(Day and date: Tuesday 5/17/2022

Educational objective: skill development (Smash hit and smash serve.

Training unit time: 60 minutes

Educational objective: persistence and self-confidence

Training method: high-intensity interval

Training unit intensity: 80%

Number of players: 4 players