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The Effect of Using Special Gloves on the Accuracy of Volleyball Slamming and Smashing Skills

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Abstract
It is well known that the skills of setting up and smashing can be developed in several ways and means, whether these means are educational or training. Hence, the idea of research crystallized using some training methods with special gloves to develop the accuracy of the skills of setting up and smashing, which constitute the team's contribution in responding to the dominance of the opposing team and preparing for the attack to carry out crushing blows. Hence, the importance of researching the effect of using special gloves on the accuracy of the skills of setting up and smashing. the opposing team and preparing for the attack to perform smashes. Hence, the importance of the research on the effect of using special gloves on the accuracy of serving and smashing skills in volleyball. Through her observations and experience in the field of sports and her work in the physical education department, the researcher noticed a decline in the level of skill accuracy among the college team, especially in the skills of setting and spiking, and a failure to achieve the best and ideal attack during play. This prompted the researcher to try to identify the effect of using special gloves on improving the level of performance in setting and spiking skills in volleyball.

Research objectives:
1-Prepare exercises using special gloves.
2-Identify the effect of exercises using special gloves on improving the accuracy of setting and spiking skills in volleyball.

Research hypothesis:
1-There are statistically significant differences between the pre- and post-tests in the research sample in the accuracy of performance of the setting and spiking skills in volleyball.

Research areas:
Human domain: Players of the Basic Education College volleyball team.
Time domain: From 31/1/2025 to 11/4/2025
Spatial domain: The indoor hall at the College of Basic Education.
Research methodology: The researcher used the experimental methodology with a design (one group with pre- and post-tests) to suit the nature of the research and its problem.
The researcher defined the research community as volleyball players, numbering 18 players. After excluding players who performed poorly in the exploratory experiment, the number of players reached 16.

Research conclusions:
1- The exercises used contributed to the development of the skills of setting and spiking in volleyball.
2- There were statistically significant differences between the pre- and post-tests in favor of the post-tests in the accuracy tests for the skills of setting and spiking.

Research recommendations
1- Focus on applying exercises using special gloves to develop volleyball skills.
2- The need to conduct this study on other age groups due to its positive impact.

Keywords: Special gloves – Setting skill – Spiking skill – Volleyball

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1-Introduction:

Volleyball is a team sport and another form of ball games, which has come to occupy a prominent position among other team sports. It entered the realm of modern science in the second half of the last century and made a strong impact, taking many of its foundations, rules, and methods. It was not limited to one branch of science, but extended in all directions, taking from all branches of science and knowledge what was useful for its development and spread. It took from sports training science, teaching methods, psychology and sociology, anatomy and physiology, etc. etc. It established all these sciences in a way that reflects its development, which helps it to address its problems in a scientific manner until it reached what it is now, thanks to this scientific interconnection between them. The playing positions in volleyball vary in difficulty and are dynamic, not only in a single match and its sets, but also at every point of the set during play. Since the attacking element plays a major role in creating tension, this burden falls on the players. Farid Khashaba and others (2004) Volleyball is a team sport that has attracted the attention of players around the world. This is because it is one of the team sports that has occupied a prominent place in the educational and recreational fields, as it is suitable for all ages, does not require a lot of equipment or tools, and is associated with fun and enjoyment. It is also a competitive game with its own distinctive style of play, which is clearly evident in how the ball is handled during the performance of various skills and how points are scored. It is well known that the skills of setting and smashing can be developed in several ways and by various means, whether educational or training-related. This led to the idea of researching the use of certain training methods involving special gloves to develop the accuracy of the setting and smashing skills that form the team through their contribution to countering the dominance of the opposing team and preparing for the attack to perform smashes. Hence, the importance of the research on the effect of using special gloves on the accuracy of serving and smashing skills in volleyball.
Research problem: Volleyball skills are characterized by their interconnection and sequence, one after the other, which makes it important to train skills in a balanced manner, which is the ideal situation in training. Since the playing situations in a match are dominated by an emotional atmosphere, as they involve a constant element of surprise in the execution of tactical methods, in addition to the fact that the rules do not specify the duration of sets and matches , coaches are in a state of constant anticipation and expectation of what might happen from their players and the opposing team's players. Through her observations and experience in the field of sports and her work in the physical education department, the researcher noticed a decline in the level of skill performance of the college team, especially in the skills of setting and smashing, and the failure to achieve the ideal attack and ideal during play, which prompted the researcher to try to identify the effect of using special gloves on raising the level of skill performance in volleyball.

Research objectives:

1. Prepare exercises using special gloves.
2. Identify the effect of exercises using special gloves on improving the accuracy of setting and spiking skills in volleyball.

Research hypothesis:

1- There are statistically significant differences between the pre- and post-tests in the research sample in terms of the accuracy of setting and spiking skills in volleyball.

Research areas

Human domain: Volleyball players on the Basic Education College team.
Time domain: From January 31, 2025 to April 11, 2025.
Spatial domain: The indoor hall at the Basic Education College.

2-Research methodology and fieldwork:

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2-1 Research methodology: The researcher used an experimental methodology with a single group pre- and post-test design, as this was appropriate for the nature of the research and its problem.
2-Research methodology and fieldwork:
2-1 Research methodology: The researcher used an experimental methodology with a single group pre- and post-test design, as this was appropriate for the nature of the research and its problem.
2-2 Research community and sample: The researcher defined the research community as the players of the Basic Education College volleyball team. There were 18 players, and after excluding players for the exploratory experiment, the number reached 16 players. The researcher conducted homogeneity tests on the research sample in terms of height, weight, and age, as shown in Table 1. The results showed that the research sample had a normal distribution, as the skewness values were between (+1), indicating the homogeneity of the research sample.
Table 1 shows the homogeneity of the research sample.

Twist factor	The Mediator	Standard deviation	Arithmetic mean	Variables
0.311	1.605	0.466	1.604	Height
0.627	23.500	1.975	22.916	Age
0.449	59.000	5.348	57.333	Weight

The skewness coefficient is between +1, indicating that the distribution of the research community is moderately distributed.
2-3 **Means of collecting information and tools and devices used:**
2-3-1 Means of collecting information: (Arabic and foreign references and sources, observation and experimentation, tests and measurements, the Internet, information collection forms).
2-3-2 Research devices and tools: (special gloves, medical scale to measure weight and total height, 5 cm wide adhesive tape and office supplies, centimeter measuring tape, 10 volleyballs, electronic stopwatch, volleyball court, and volleyball net with legal specifications).
2-4 Field research procedures:
2-4-1 Selection of appropriate tests for the variables under study: A set of tests was selected in a questionnaire to survey the opinions of experts on the selection of tests, as shown in Appendix (1). After collecting the questionnaires and downloading the data, the tests that achieved a consensus rate of 75% or more were adopted as the tests, as shown in Table (2).
Table (2) shows the opinions of the experts on determining the appropriate tests for the skills of serving and smashing.

Nomination		Relative importance	Candidate tests	Skills
Rejection	Acceptance			
	√	%67 %88 %50	1- Testing the preparation from the top of the fingers from the rear area towards the net 2. Testing the accuracy of the preparation skill	Preparation

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			3. Accuracy of preparation on the basketball hoop	
	√	06% 90% %70	1- Crushing blow from center 3 2- Crushing blow from center 4 3- Crushing blow from center 2	Crushing blow

2-4-2 Description of tests and measurements used in the study:
2-4-2-1 Test of accuracy of diagonal and straight smash skills (4) (Dina Abdul Hussein, 64, 2015)
Test objective: To measure the accuracy of diagonal and straight smash skills from center (4).
Tools: Legal volleyball court, legal volleyballs, two mats 2 meters long and 1 meter wide.
Performance specifications: The tested player performs a smash from center (4) with a setup from the coach from center (3). The tested player must perform (5) diagonal smashes and (5) straight smashes.
Scoring:
Points 4 for each correct smash that lands the ball on the mat.
(3) points for each correct smash that lands the ball in the yellow zone, depending on the type of smash.
(2) points for each correct smash that lands the ball in zone (a) for diagonal smashes and zone (b) for straight smashes.
(1) One point for each slam dunk that lands the ball in the rest of the court.
(Zero) for each failed slam dunk.
Final test score (40 points).

2-4-2-2 Preparation skill accuracy test (Al-Dulaimi 2015)

- Tools used: basketball pole, 5 regulation volleyballs, skill accuracy assessment form prepared in advance.
-Method of performance: The test taker stands facing the basket at the free throw line on the circular line, lifts the ball up and then passes it into the basket. Each test taker is given 5 attempts.
- Scoring:
- Ball away from the board (zero) points.
- A ball that misses the basket ring (2) points.
- Touching the basket ring with the ball (3) points.
- Passing the ball through the basket ring (5) points.
- The maximum score for the test is (25) points.

-5 Exploratory experiment: The researcher conducted an exploratory experiment on a sample consisting of two players randomly selected from the Basic Education College team. The exploratory experiment was conducted on November 3, 2024.
2–6 Pre-tests: Pre-tests and measurements were conducted on the research sample at the Faculty of Basic Education on 5/11/2024.
2–7 Training program: The researcher prepared a training program using special glove exercises to develop smash shots and preparation using one experimental group. The program was designed using exercises based on interval training principles and in line with volleyball. It was applied in the special preparation section and for the experimental group.
-The training program was implemented from 7/11/2024 to 26/12/2024 on the experimental group of 16 players.
-The training program lasted for 8 weeks with an average of 3 training units per week, with training days on Sundays, Tuesdays, and Thursdays, for a total of 24 training units.
-The duration of each training unit was 90 minutes, with the physical and skill components lasting 60 minutes.

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- 2-1 training load was followed, and the program was implemented during the main section.
2–8 Post-tests: Post-tests were conducted for the research sample on 31/12/2024 at the College of Basic Education in Baghdad, after completion of the training curriculum.
2-9 Statistical methods: The researcher used the ready-made statistical program (SPSS) to statistically process the results.
3-Presentation, analysis, and discussion of results:
3-1 Presentation, analysis, and discussion of the results of the pre- and post-tests for the skills of addition and multiplication for the experimental group:
Table (4) shows the significance of the differences between the pre- and post-tests for the skills of addition and multiplication in the experimental group.

Statistical significance	Error level	(t) Calculated	rf	f	Post-test		Preliminary test		Skills
					sd	m	sd	m	
Moral	0.003	6.249	3.435	9.6000	3.2093	17.4000	1.3038	7.8000	Preparation
Moral	0.021	3.706	6.877	11.4000	5.0199	22.8000	3.7815	11.4000	Crushing blow

Function below significance level >0.05 and below degree of freedom 11
Table (4) shows that the arithmetic mean value for the test (sending skill) in the pre-test was (7.800), and the standard deviation was 1.303, while the mean value in the post-test was 17.400, and the standard deviation was 3.209. To identify the significance of the differences between the arithmetic means, the t-test for correlated samples was used. The arithmetic mean of the differences between the pre-test and post-test arithmetic means was 9.600, and the standard deviation was 3.435. The calculated t-value was 3.249. When comparing the error level of 0.003, it was found to be less than the significance level of 0.05, indicating that the differences between the pre-test and post-test were significant and in favor of the post-test.
The table shows that there are differences between the arithmetic mean values and the standard deviation values of the pre-test and post-test in the experimental group, as the arithmetic mean value for the pre-test (multiplication skill) was (11.400), and the standard deviation was 3.781, while the arithmetic mean in the post-test was 22.800, and the standard deviation was 5.019. To identify the significance of the differences between the arithmetic means, the t-test for correlated samples was used. The arithmetic mean of the differences between the pre-test and post-test arithmetic means was 11.400, and the standard deviation was 6.877. The calculated t-value was 3.706. When comparing the error level of 0.021, it was found to be less than the significance level of 0.05, indicating that the differences between the pre-test and post-test were significant and in favor of the post-test.
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3-2 Discussion of the results of the skill tests: Table (4) shows the results of the preparation skill accuracy test, which reveal significant differences between the pre-test and post-test results for the experimental group, with the post-test results being higher. This indicates progress and development in the players' skill performance level in terms of preparation skill accuracy. The researcher attributes this to continued training, and the use of training aids and skill exercises, in addition to the use of various special gloves and weights that were applied in each training unit, which helped improve the players' abilities and led to an increase in the player's ability to choose the right action at the right time, taking into account accuracy in performance as an influential factor. The skill of setting is one of the most important basic skills in volleyball, and it is characterized by its frequent repetition during play, as it is often one of the three touches performed by the team for each ball exchange during play. Given the importance of setting in the success of the smash, players undergo special and intensive training to master the various types of setting in order to ensure that they perform their various tactical duties and to reach the stage of precision in optimal skill performance. The setting skill is one of the important skills in volleyball that requires precision in execution and that players must excel at in order to be able to determine the location of the ball, the attacking player, and the movement of the opposing player as well. The ability of the lifting player to deceive the opposing player and prevent the formation of a successful defensive wall towards the ball when preparing it for one of the centers in order to complete the aesthetics of the game with a successful smash is consistent with what Hammad 2009 pointed out ((The starting point for launching an attack, which must be mastered in order to continue playing)) and Zaki 1996 stated ((that preparation is the most sensitive and important playing position, as the team's attack and performance depend on it))
Table (4) shows the results of the smash accuracy test, which reveal significant differences between the pre-test and post-test results for the experimental group, with the post-test results being higher. This indicates progress and improvement in the players' smash accuracy skills. This is the result of continuous training without interruption and the use of varied exercises that led to the development of the players' skills, as pointed out by Mahjoub 2000 "Training leads to the development of skills and their attainment of correct technical performance and automaticity in performance." The researcher attributes this to the special exercises using gloves, which led to the development of the players' level of accuracy in smashing skills. The use of tools in training also has a significant impact on the development of volleyball skills, as the use of gloves with varying degrees of difficulty in training had a positive effect on the development of the experimental group's skill performance, according to Hanafi 1998 "The use of training aids to develop skills is beneficial in terms of performance accuracy, as it enables the coach to consistently place the ball in the desired position, allowing the player to repeat the exercise over and over again with the ball in the same position and in the same way that they need to learn in order to master the skill accurately." The instructions were specific to the type of

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exercises, the form of the skill, and the areas of accuracy. Based on the above results, which relate to the experimental sample's accuracy in preparation and striking, these results demonstrate the success of the training method using special gloves in developing skill accuracy. Accuracy can be defined as Rowan 2001 (the individual's ability to control their voluntary movements toward a specific goal). Exercises using special gloves within the training unit provided an incentive to develop performance accuracy, as competition requires good results to outperform the opposing team or excel in a specific motor task. The purpose of these exercises was to develop performance accuracy and how to control the ball and direct it to the right place. Various exercises with varying degrees of intensity were used to develop accuracy in performance, preparation skills, and striking power, as these two skills are interrelated. Players often have strength and speed, but they lack accuracy in directing the ball to the opponent's court. Accuracy is one of the basic requirements for scoring points for the team and winning the match, so it must be given attention and sufficient time in the training unit. Good technical performance in volleyball is one of the basic characteristics and qualities that distinguish a high-level team, as confirmed by Lamb (2004). (that athletic performance depends on several factors, including improving physical and technical skills, which is achieved by developing training methods and techniques aimed at improving results and reaching the highest levels of achievement, where training methods play an important role in achieving this goal, reflecting the importance of designing standardized training programs aimed at improving the training status of players by following a scientific approach). the player's training condition through the use of scientific methods.

Conclusion:

In light of the results obtained in the study, the researcher drew the following conclusions:

1- The exercises used contributed to the development of performance in the skills of setting and spiking in volleyball.

2-There were statistically significant differences between the pre- and post-tests in favor of the post-tests in the accuracy tests for the skills of setting and spiking.

The study recommends the following:

- Focus on applying exercises using special gloves to develop volleyball skills.
- The need to conduct this study on other age groups due to its positive impact.
- Conducting similar studies on other sports in order to develop skill performance due to its positive impact.

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