

# Effect of Proposed Exercises Using the Sponge Mat in the Performance of the Skill of Court Defence in Sitting Volleyball

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## Abstract

The introduction included the community's view of people with special needs and their potential to take a great social position. It also included the effective role of the sport that contributed to their rehabilitation and integration into society to eliminate isolation, introversion and the resultant psychological problems. The research touched upon the game of Sitting Volleyball and the skill of court defence and used the sponge mat as a means to make it more difficult to perform the proposed exercises in training sessions. It also tried to determine its effect on the player in the performance of skill in matches and competitions.

The problem that this study seeks to address is the low performance of the court defence skill for Sitting Volleyball players. This led to the development of exercises designed using the sponge mat to see its impact on the skill in question. The research objectives are as designing exercises using the sponge mat in Sitting Volleyball, also recognizing the effect of exercises designed using the sponge mat on the level of performing the skill of court defence.

Research hypotheses included there are statistically significant differences between the two control and experimental research groups in pre-test and post-test results in the variable under study and in favour of post-test results. There are statistically significant differences between the two control and experimental research groups in the results of the post test in the variables under study and in favour of the test results of the experimental group. The researchers adopted the experimental method given its suitability for the nature of the research problem. The research sample was chosen in a deliberate way and included the players of Wissam Al-Majd Sitting Volleyball Club. This was composed of (fourteen) players, who represent 100% of the entire research community, all of whom have mobility disabilities. With the help of the assistant team. The prepared curriculum was applied for a period of (32) training sessions. According to the analysis of the game, the skill of court defence was evaluated, and the pre-test was conducted on Thursday, 16/12/2021. The main experiment was conducted on Saturday, (18/12/2021), and the sponge mat was used as an aid accompanying the performance of the exercises designed in the main experiment. The research discussed the nature and specifications of the mat, and the post-test was conducted on Thursday, 17 February 2022. Finally, the research contained the statistical means used in the processing of data.

## 1- Introduction to the research:-

### 1-1 Introduction and importance of the research:

Sitting Volleyball is one of the entertaining and exciting team games that occupies a great place among other sports and team games, especially in recent years. People with mobility disabilities are among the basic and main components of any society in the world. There is no

society or people devoid of disabilities of all kinds. This group of people were born after the wars imposed on the peoples, until it enlarged into a wide segment of society that cannot be overlooked or marginalized,

The sport of people with special needs aims, through its various programs and activities, to build the personality of the disabled individual in order to get a balanced growth and adapt to the new reality that accompanied him/her as a result of his/her disability" (25:1). This became clear when athletes with special needs had many achievements through which they were awarded medals and advanced positions in various individual or collective sports activities.

At the level of Sitting Volleyball, the Iraqi national team is one of the best Asian teams, and it ranked third in the Asian qualifying tournament for the World Cup which was held in China in (2017). This requires us to consider various ways and means that would achieve progress or help Sitting Volleyball players in order to stay in continuous progress. Therefore, the research employed exercises on the spongy mat to increase the players' difficulty of skating on the ground which results in them making a greater effort to move inside the court. This would help the player to move in an easier way on the normal floor by virtue of increasing the strength of the muscles of the arms, shoulders and buttocks as a result of the mat's resistance to the body, as well as reducing injuries that occur through friction with the playing field. Hence, the importance of research in the use of exercises on the spongy mat and determining its effect on the level of the players' performance of court defence skill (Al-Sirtawi & Al-Sayid, 2006; Mahjoub, 2000).

### **1-2 Research Problem:-**

The developed countries in the field of sports have adopted modern scientific means to advance the state-of-affairs of sports achievements. Optimum skill performance can only be achieved by following scientific methods and modern and advanced curricula. Through these, many factors or weaknesses can be identified that require careful study and strengthening of their role. The problem of the research lies in the low level of performing the skill of court defence in Sitting Volleyball. The problem was detected through the local participations the results of which were obtained from the Iraqi Sitting Volleyball Federation. It also detected through the tests conducted by the coach in order to identify the strengths and weakness. Therefore, the research considered studying this problem and developing appropriate solutions to it in order to improve for the better.

### **1-3 Research Objectives:-**

- Designing exercises using the sponge mat in Sitting Volleyball.
- Recognizing the effect of exercises designed using the sponge mat on the level of performing the skill of court defence.

### **1.4 Research hypotheses:-**

1. There are statistically significant differences between the two control and experimental research groups in pre-test and post-test results in the variable under study and in favour of post-test results.

2. There are statistically significant differences between the two control and experimental research groups in the results of the post test in the variables under study and in favour of the test results of the experimental group.

### 1.5 Research Areas:-

**1.5.1 The human domain:** Fourteen players from Wissam Al-Majd Sitting Volleyball Club.

#### 1.5.1 Time range:

The period from 10/12/2021 to 20/2/2022.

#### 1.5.3 Spatial domain:

Sitting Volleyball court in the Indoors hall of Wissam Al-Majd Club, Baghdad – Karkh – Yarmouk. (Mahmoud, 2011).

### 1- Research methodology and field procedures:

#### 3.1 Research Methodology:

The experimental method was used in the research by designing the experimental and control groups given the suitability of this approach and the nature of the research problem. The experimental research is the most accurate type of scientific research that can affect the relationship between the independent variable and the dependent variable in the experiment.

#### 2.3 Research community and sample: -

The research community was chosen in a deliberate manner which consisted of 14 players of the (Wissam Al-Majd) Sitting Volleyball club. This number represents the entire research community. They are all participants in the Iraqi league for the 2016/2017 sports season, which consisted of six clubs. The research sample divided into two groups, control and experimental, with (7) players for each group. (6) random players were selected as a sample for the exploratory experiment of the proposed tests and exercises. The exercises designed by the researchers were adopted as a model.

#### 3.2.1 Proportional Sampling:

The researcher divided the research sample into two control and experimental groups in a deliberate way. After completing the pre-tests, the researcher conducted a T-test for the independent samples for the two research groups before implementing the training sessions and using the designed exercises and the sponge mat. This procedure is in order to start in one line. Table (1) shows the results of the (T) test and the sum of the tests used under study.

Table (1): the pre-tests for proportional sampling for the control and experimental groups in the skill variables in Sitting Volleyball.

Statistical significance	Experimental Group		control group		calculated (T) Values	Sig. Value	Variable
	s	p	s	p			
Non-significant	1.51	0.09	1.52	0.1	0.262	0.79	Field Defence

**3.3 Study design: -**

The research relied on a study design composed of two equivalent groups, the experimental and the control with the pre and post tests, which is one of the types of experimental designs. It included the following variables:

- 1) The independent variable: suggested exercises using the sponge mat.
- 2) The dependent variable: the level of performance of the skill of field defence in Sitting Volleyball.

**3.3 Devices, tools and means of data collection:****3.3.1 Devices:**

- Video camera. Manufacturer: (Canon), (Japanese-made). Number of items used (2).
- Photographic camera. Manufacturer: (Canon). Number of items used (1).
- Electronic stopwatch (Sewan), made (German-made), Number of items used (2).
- A computer (laptop). Manufacturer: (DELL).

**3.3.2 Tools:**

- Sponge mat (100) \* piece.
- Flying balls to play number (20).
- Valid volleyball court.
- Measuring tape.
- Sticky tape.
- Whistle.
- Stopwatch.

**3-3-3 Means of data collection**

- Virtual library.
- Questionnaire forms.
- Personal interviews\*.
- Internet
- Arab and foreign sources and references.

**3-4 Procedures of the experiment: -****3-4-1 Determining the dependent variables:**

The variables under study suitable for the Sitting Volleyball player were determined. The match was filmed and analysed with the help of experts specialized in volleyball, supplemented between the players of the Wissam Al-Majd Club who make up the research sample and for the control and experimental groups. This analysis is the pre and post tests of the research sample, through which we will learn about the level of performance of the basic skills of the players. The researcher designed a questionnaire form and distributed it to the experts to obtain the results of the analysis. Then, the forms were emptied to determine the percentage of agreement among the experts by following the appropriate statistical means (Ahmed, 2012 : Jassim, 2012).

**3.5 Scores of assessment of field defence skill:**

- Defence that leads to perfect attacking structures is awarded (3) marks.
- A defence that makes the ball free and one attacking player can benefit from it is awarded a score of (2).
- The defence by which the ball crosses the opponent team's court is awarded a score of (1).

- A failed defence is given (0) scores.

### **3.6 Field research procedures**

#### **3-6-1 Pre-test:**

The test was conducted with the help of the assistant team by conducting a pre-test of the level of skill performance for the players of Wissam Al-Majd Club and for the experimental and control groups. This was done on Thursday, 12/18/2021 starting from (11:00) in the morning, where a full match was filmed from (3) sets between Wissam Al-Majd Club and the Iraqi Youth Sitting Volleyball Team using two video cameras. The video match was printed on CDs and distributed to the specialized assessors in order to give assessment scores for the real level of the skill. The evaluation scores are recorded in the observation forms that were distributed to the specialized experts by the researcher (El-Sayed, 1989; Al-Samarrai, 1991).

#### **3-6-2 The main experience:**

It is a set of basic skill exercises in Sitting Volleyball designed and divided in a way that suits the nature of the game and the level of Sitting Volleyball players. The number of skill exercises reached (40) exercises. These exercises were applied in the main section and in the practical part of the training session for the experimental group within the special preparation period. This was a period of (8) weeks at a rate of (4) sessions per week (Saturday, Sunday, Tuesday, Wednesday) starting on (Saturday) (18/12/2021) until (Wednesday) (16/2/2022), taking the following into account (Al-Sheikhly, 2000; Al-Jumaili, 1997; Khammas et al., 2012).

- 1) The number of training sessions for the experimental group was (32), approximately (40-50) minutes from the main section in one training session. Except for the main part, the applied section consists of exercises designed by the researchers using a sponge mat. We relied on the sources and scientific studies and the observation of specialists from the professors, the gradient and ripple method was used in the training.
- 2) The researcher designed basic skill exercises, 40 exercises in total, which were applied in the main section and distributed within the training session over a period of (8) weeks. The exercises were carried out within the training sessions and under the supervision of the researcher without interfering with the implementation of warm-up by the preparatory section, as well as the closing part, where the trainer undertakes this for the experimental group (Abdel-Dayem, 1985; Abdel Hafeez & Bahy, 2000; Al-Ani, 2001).

#### **3-6-3 Post-tests:**

The post tests were conducted after applying the constituents of the training session represented by the proposed exercises using the sponge mat on the individuals of the research sample represented by the control and experimental groups. In the morning, it included the same procedures and method of pre-tests, the same temporal and spatial circumstances, as well as the tools used and the assistant team (Khataiba, 1996; Yang, 2008)

#### **3-8 Videography:**

A match was filmed by placing (2) cameras with a speed of 25/sec for each team through the exploratory experiment. The camera was placed in several places on the volleyball court. It was found that the best place that does not affect the movement of the players and the movement of the sending player is in the angle between the junction of the lateral lines and the serving and at a distance of (3) m and a height of (1.5 m). This is because this distance and height are deemed the best as all players are controlled through filming in addition to the appearance of the entire arena, as well as the server during the video shooting. This makes it easier for the

assessors to set the grades for evaluating the basic skills. After the end of each set, the cameras are moved to the direction of the team concerned with filming and placed in the same place (the previous camera) (Muhammed, 1995; Al-Samarrai, 1991; Sharaf, 2000).

### 3-7 Statistical means:

The SPSS statistical package was used to obtain the research results.

## 2- Presentation, analysis and discussion of the results:

### 4-1 Presentation, analysis and discussion of the results of the pre and post tests of the research variables for the control group:

**Table 2.** shows the results of the pre and post tests of the control group for the skill of court defence in Sitting Volleyball

Skill	measuring unit	Pretest		Post-Test	
		p	s-	p	s-
<b>Field Defence</b>	Degree	0.10	1.52	0.09	1.56

**Table 3:** shows the arithmetic means and standard deviations of the differences and the calculated (t) values and significance between the pre and post tests of the control group in terms of (0.05) for the level of skill performance.

Skill	Sig	Calculated t value	P H	q-q	measuring unit	Result
<b>Field Defence</b>	0.09	1.95	0.018	0.035	Degree	<b>Non-significant</b>

The reason for the significant results of the aforementioned skill is that the players continue to train on the exercises prepared by the coach according to advanced scientific standards and foundations. Abdel-Dayem (1985), also cited by both Riad, 2000 & Khataiba, 1996), confirms that "the training programs are codified and organized according to the scientific foundations, as it works on the development of the physical and skill level."

We also attribute the emergence of non-significant results to the skill (serving) due to the lack of focus on exercises to increase muscle strength. This is because for this skill to be performed effectively and at high speed, it requires a strength factor in the muscles of the arms and buttocks, which would impart a good balance and increase the strength and accuracy of performance during serving, as shown by Zaki (1996) "Therefore, players must be distinguished when performing offensive skills with some physical, skill and mental capabilities to achieve this superiority. Among these abilities are the explosive power of the muscles of the arms, the strength of the abdominal and back muscles, the speed of movement and agility, the neuromuscular coordination, the flexibility of the shoulders and trunk, the correct timing with the ball and accuracy in kinetic performance and directing the balls to the right place (Klub, 1986; Mohsen & Majid, 1999).

#### 4-2 Presentation, analysis and discussion of the results of the pre and post tests of the experimental group for the research variables.

**Table 4:** shows the arithmetic means and standard deviations of the pre and post tests of the experimental group in the level of skill performance of the sample.

Skill	measuring unit	Pretest		Post-Test	
		p	s-	p	s-
Field Defence	Degree	0.10	1.52	0.09	1.56

**Table 5:** shows the arithmetic means and standard deviations of the differences and the calculated (t) values and significance at the level (0.05) between the pre and post tests of the experimental group for the level of skill performance.

Skill	Sig	Calculated t value	P H	q-q	measuring unit	Result
Field Defence	0.00	6.61	0.025	0.16	Degree	Significant

The development is attributed to the fact that the researcher used exercises designed according to high-accuracy and more comprehensive scientific foundations that focused on a wide range of skill and physical qualities. These exercises have been carried out correctly and regularly with commitment to their performance and application.

This is because the game of volleyball seating has a single peculiarity and a different character and several requirements from the player. In addition, the researcher used the sponge mat, which is one of the modern methods used, which showed its effectiveness and proved its worth in view of the results obtained in the post-tests of the experimental research sample, "Using the various methods, devices and modern different tools and the correct gradation in the level of difficulty of the exercises and through the correct continuous repetition, which helped the players to develop their level (Al-Rajhi, 2012; Jassim, 2012).

#### 4-3-1 Presentation and analysis of the results of the post-tests of the two experimental and control groups for the research variables:

**Table 6:** shows arithmetic means, standard deviations, t-value and significance level for the control and experimental groups in the post-tests of skills tests.

Statistical significance	Experimental Group		control group		(T) Values	Sig. Value	Skill
	s	p	s	p			
significant	0.09	1.56	0.08	1.68	0.03	2.39	Field Defence

By treating the results statistically between the pre and post tests and comparing them, it was concluded that the development in the field defence skill was the result of the researcher's use of the proposed exercises in a scientific and well-studied manner and the emphasis on the exercises that would influence the strength and speed associated with skilful performance. This is particularly so given that the game of Sitting Volleyball is one of the games that need exercises characterized by speed and accuracy of performance. In addition, the use of aid came in line with the requirements of excellence and development in performance. One of the necessary ingredients and requirements for the success of practice and excellence in volleyball is high physical fitness to master basic and technical skills, as well as providing training requirements such as devices and helping tools. Therefore, the researcher considers it necessary to use helping tools in the field of sports training, because of their importance in the training process, as good use greatly contributes to developing the player's ability to quickly master skills. It also helps shorten time and make the training process more effective. The use of devices and tools in training increases the achievement of the player's self-ability, which makes him/her not satisfied with less than the maximum effort he/she makes.

Performance can be improved, aspects of the movement to be learned and trained can be also improved. The overall shape according to which the movement should be during proper performance can be highlighted through the use of devices and utilities shared by all senses, which are the best means to allow more beneficiaries to exercise (Sakhi, 2000; Ibrahim & Farhat, 2007; Sabhan & Hasan, 2011).

The use of utilities during training facilitates the work of the coach as it saves effort and time for him/her. It also contributes to overcoming the difficulties the coach faces in clarifying the performance of the skill. It also plays a role in the ease and speed of development and deepening the parts of the player involved in performing the skill because it is an integral part of the training process (Mukhtar, 1978).

### **3- Conclusions and recommendations:-**

#### **5-1 Conclusions:**

Through the findings presented in this study, the following was concluded:

- Significant differences appeared in the performance level of the field defence skill for the two research groups.
- The use of exercises designed using the sponge mat had a significant effect on the level of defensive performance in Sitting Volleyball.
- The use of the sponge mat positively impacts the level of performance of field defence in Sitting Volleyball.

#### **5.2 Recommendations:**

In light of the findings, the following can be recommended:

- The use of exercises similar to the proposed exercises, which are scientifically designed, aiming to develop the level of skilful performance in Sitting Volleyball.
- The use of the sponge mat in training sessions in various other games for people with motor disabilities that requires performance (response speed, transitional speed, reaction speed, explosive power for the legs).

## References

1. Abdel Hafeez, E., & Bahy, M. H. (2000). *Methods of scientific research and statistical analysis in the educational, psychological and sports fields*. Cairo: Al-KitabCenter for Publishing.
2. Abdel-Dayem, M. (1985). *Following a proposed program for developing basic skills for juniors in basketball*. Paper Presented at the International Conference on High Level Sports, Cairo.
3. Al-Ani, A. M. (2001). *The effect of interval training on some central and peripheral variables and the achievement of 1500m run*. (Master's thesis) University of Baghdad, College of Physical Education and Sports Sciences.
4. Ahmed, N. A. (2012). *The effect of special exercises in developing some aspects of attention and basic skills for junior footballers*. (Master's thesis). College of Basic Education, University of Diyala.
5. Al-Jumaili, S. H. (1997). *Volleyball. Learning. Training. Arbitration* (1st ed.). Tripoli: April 7th Publications.
6. Al-Rajhi, H. A. (2012). *The effect of a training program on developing some social skills for the physically disabled*. (Unpublished master's thesis). Department of Special Education, College of Basic Education, Al-Mustansiriya University.
7. Al-Samarrai, A. A., & Mahmoud, A. (1991). *Teaching competencies in the methods of teaching physical education*. Basra: Dar Al-Hikma Press.
8. Al-Sheikhly, L. S. (2000). *The effect of using assisting tools on the speed of learning and the accuracy of performing some basic skills in volleyball*. (Unpublished Master's Thesis) College of Physical Education, University of Baghdad.
9. Al-Sirtawi, Z. A., & Al-Sayid, A. (2006). *The comprehensive inclusion of people with special needs - its concept and theoretical background*. Riyadh: Dar Al-Kitab Al-Jamiei.
10. El-Sayed, A. A. (1989). *The Effectiveness of Using Some Teaching Aids in Learning the skill of serving in volleyball to achieve educational goals*, Volume 1, p. 3, (Helwan University, 1989). *Journal of Science and Arts*, 1(3), 150-184.
11. Ibrahim, H. M., & Farhat, L. E. (2007). *Measurement and Tests in Physical Education* (4th ed.). Cairo: Al-KitabCenter for Publishing.
12. Jassim, H. J. (2012). *The effect of special exercises according to the division of the penalty area to develop some physical abilities and basic skills of soccer goalkeepers*. ( Master's Thesis). College of Physical Education and Sports Sciences, University Of Diyala.
13. Khammas, R. K., Rzuqi, T. H., & Sakhi, H. S. (2012). *Volleyball, history, skills, match management and training* (1st ed.). Baghdad: KalimaTayiba Press.
14. Khataiba, A. Z. (1996). *Encyclopedia of Modern Volleyball* (1st ed.). Amman: Dar Al-Fikr Al-Arabi for Printing and Publishing.
15. Klub, B. A. (1986). *Teaching aids prepared and used*. Beirut: Dar Ihya al-Ulum.
16. Mahjoub, W. (2000). *Exercise of Movement Learning*. Lectures for PhD Students in the College of Physical Education and Sports Sciences, University of Baghdad.
17. Mahmoud, G. S. (2011). *Football Training Concepts* (1st ed.). Muscat: Arab Society for Publishing and Distribution.
18. Mohammed, Y. (1995). *A suggested training program for developing strength with speed and its impact on the efficiency of some functional variables for volleyball juniors*. *Journal of Physical Education Research* (33).

19. Mohsen, T., & Majid, M. (1999). *Developmental Exercises in Football*, 1st Edition. Amman: Dar Al-Fikr for Printing and Publishing.
20. Mukhtar, H. (1978). *The Scientific Foundations in Football Training*. Dar Al-Fikr Al-Arabi.
21. Riad, O. (2000). *Sports of the Disabled, Medical and Sports Foundations* (1st ed.). Cairo: Dar Al-Fikr Al-Arabi.
22. Sabhan, H., & Hasan, T. (2011). *Offensive and defensive skills and plans in volleyball*. Najaf: The Good Word Press.
23. Sakhi, H. S. (2000). *The free player and its impact on the level of defensive achievement in volleyball*. (Master's thesis). College of Physical Education, University of Baghdad.
24. Sharaf, A. H. (2000). *Education Technology in Physical Education* (1st ed.). Cairo: Dar Al Fikr Al Arabi.
25. Yang, G. Z. (2008, June). *Sports body sensor networks*. In 2008 5th International Summer School and Symposium on Medical Devices and Biosensors (pp. 14-14). IEEE.