

The Impact Of The Use Of The Fluidity Of Movement In Teaching The Technical Performance Of Offensive Skills In Volleyball Among Middle School Students (12-14) Years, Males And Females

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Abstract

The study aimed to identify the impact of using the kinetic property in teaching the technical performance of offensive skills in volleyball among middle school pupils (12-14) years, males and females. For this purpose, we used the experimental approach on a sample of 100 male and female pupils divided into two experimental and witness groups, each group included 28 males and 22 females who were randomly selected. The offensive skills tests were used for volleyball and the design of an educational program, and the results concluded that it affects the use of the kinetic property in teaching the technical performance of the offensive skills represented in sending, preparing, crushing beating, and the offensive blocking wall in volleyball among middle school pupils (12-14) years, males and females.

Keywords: fluidity of movement, technical performance of offensive skills, volleyball, middle school students.

1. Introduction

The fluidity of movement plays a prominent role in the effective and integrated teaching and development of basic motor skills. Since movement is a harmonious series that contributes to building strength and developing coordination and balance, and represents the basis for the development of more complex motor skills. From a biomechanical point of view, the fluidity of movement refers to the ability to carry out movements smoothly and effectively without wasting energy or being injured. This fluidity is achieved when there is an ideal balance between the forces affecting the body and the structure of the body and its motor mechanics Zaid (2008) defines motor flow as the integration of motor performance and the highest level reached by the athlete (Zaid, 2008, p. 38), and motor performance is affected by several factors, including balance, muscular coordination, movement control, proper distribution of weight, muscle strength, speed, flexibility, and balance between strength and flexibility. When these factors work harmoniously together, a smooth and elaborate movement is achieved. Hassan (2010) says that biomechanics' understanding of these movements allows teachers and trainers to analyze movement accurately and guide students correctly to improve their techniques and avoid injuries. Movement flow is also a direct result of balance and harmony of motor skills.

When performance is integrated, it produces It is to carry out the movements in a smooth and elaborate manner, where the movement is controlled accurately and effectively, without any disturbances or disturbances. This enhances the fluidity of movement, making it look more accessible and beautiful. (Hussein, 2010, p. 47)

Offensive skills in volleyball are one of the main factors that determine the team's success and performance in matches, as they include a set of offensive movements used by players to score points and outperform competitors, as these skills include serve, preparation, crushing hit, offensive blocking wall, and Zaki (2008) states that skills require high coordination between team members, excellent physical strength, accuracy in implementation, and perfect timing (Zaki, 2008, page 66), if implemented correctly, these offensive skills help the team to control the game and achieve positive results. Movement flow is highly linked to the implementation of offensive skills in an effective and proficient manner. Kinetic flow enables smooth and efficient movement on the field. This is a key factor for the successful implementation of offensive skills. When players have high mobility, they can better interact with the ball and move with accurate and fast movements. This enhances their ability to implement offensive skills more effectively and efficiently. Wissam (2015) states that movement flow contributes to improving coordination between players in the team, as they can move smoothly on the field and implement offensive skills in a balanced and accurate time. This leads to an increase in the chances of achieving points and outperform competitors. (Wissam, 2015, p.89)

Since kinetic flow is an important element in teaching pupils offensive skills in volleyball because of its smooth interaction and coordination during the implementation of offensive skills, when pupils can move smoothly on the field and understand the movement of their colleagues, they can communicate better and coordinate in the implementation of offensive plans more efficiently, in addition to its contribution to increasing the ability of pupils to adapt to different play situations and the movements of the opposing team. Hassan (2017) says that when pupils have high kinetic skills, they can easily deal with the changes of play and move quickly and harmoniously to respond to the challenges they face (Hassan, 2017, page 22). In this way, kinetic flow and offensive skills in volleyball are integrated to achieve effective and distinctive performance. If pupils can achieve this balance between smooth movement and effective offensive implementation, the chances of the team to achieve victories and excel in matches increase dramatically, and in light of the above we ask the following question:

Does the use of movement flow affect the technical performance of offensive skills in volleyball among middle school students (12-14) years old, males and females?

1.1. Partial problems:

- Does the use of movement flow affect the technical performance of the offensive sending skill in volleyball among middle school students (12-14) years old, males and females?
- Does the use of movement flow affect the technical performance of the skill of offensive preparation in volleyball among middle school students (12-14) years, males and females?
- Does the use of movement flow affect the technical performance of the skill of offensive batting in volleyball among middle school students (12-14) years, males and females?
- Does the use of movement flow affect the technical performance of the offensive block wall skill in volleyball among middle school students (12-14) years old, males and females?

1.2. Hypotheses

1.2.1. General hypothesis:

The use of movement flow affects the technical performance of offensive skills in volleyball among middle school students (12-14) years old, males and females.

1.2.2. Partial hypotheses:

- The use of movement flow affects the technical performance of the offensive sending skill in volleyball among middle school students (12-14) years old, males and females.
- The use of movement flow affects the teaching of technical performance of the skill of offensive preparation in volleyball among middle school students (12-14) years, males and females.
- The use of movement flow affects the technical performance of the skill of offensive crushing batting in volleyball among middle school students (12-14) years old, males and females.
- The use of movement flow affects the technical performance of the offensive block wall skill in volleyball among middle school students (12-14) years old, males and females.

1.3. the objectives of the study

- Teaching movement coordination through smooth movement exercises for students, in order to carry out offensive movements more accurately and effectively.
- Enhancing the muscular strength and physical fitness of students, in order to improve their offensive performance and increase their strength and endurance during exercises and matches.
- Teaching balance and stability to pupils during movement, in order to improve the accuracy of the strike and direct it correctly.
- Teaching students to respond and interact with different situations during matches, which increases their ability to make quick and appropriate decisions on the playground.

1.4. Research importance

The importance of our study is reflected in highlighting the use of the aerodynamic property in movement, which is important in teaching offensive performance in volleyball to students in the intermediate education stage, because this type of training enhances the coordination and direction of movement more accurately and effectively, which contributes to improving the use of muscle strength and the ability to control the body while doing various offensive skills, and also contributes to improving the player's balance and stability during movement, which enhances the strength and accuracy of the skill, and thus enhances offensive performance in general.

1.5. Defining terminology concepts:

- **The property of the flow of movement:** A phenomenon of utmost importance for motor performance. It is one of the distinctive characteristics of sports movement, and it is an essential criterion in evaluating the level of motor performance. The flow of movement means the optimal compatibility between all parts of the body when performing sports movement, as it is the succession of stages of movement without stopping and the flow of movement from the phenomena that raise the question when studying sports movement. The availability of flow means the health of technical performance and the ability of the player to adapt all parts of his body to achieve the goal of movement (Wissam and Samer, 2021, page 55).
- **Technical performance of offensive skills:** refers to how players carry out offensive movements and techniques accurately and mastery in the sports field, and this performance includes the use of technical and creative abilities to attack and score and create fruitful opportunities to achieve goals (Akram, 2009, page 48).
- **Volleyball:** A team sport played between two teams of six players in each team. Each team tries to send the ball over the net so that the other team cannot tackle it and aims to put the ball inside the opponent's area in a way that makes it difficult for the other team to tackle it. The sport is characterized by rapid movement and a technical demonstration of skills (Zaki, 2008, p. 83).

- **Pupils of intermediate education:** They are pupils who study in the age groups between the ages of 11 and 15 years, and this is followed by the journey of primary education and precedes the secondary stage. Pupils receive higher academic and skill education than the previous stages, where various study materials are provided. This stage aims to develop the students' mental, social and practical abilities, and prepare them for academic achievement and qualification for the secondary education stage (Essam, 2020, p. 65).

1.6. Previous and similar studies

1.6.1. The study of Adel Majeed Khazal 2008 entitled *The Impact of a Proposed Educational Curriculum Using Different Heights of the Network to Develop Some Basic Volleyball Skills*.

- Objective of the study: The study aimed to prepare an educational curriculum to develop basic skills in volleyball, while identifying the most appropriate altitudes for the volleyball net and finding the best altitude for the process

- Approach: The researcher used the experimental approach.

- Research sample: The study sample consisted of 30 players who were divided into three groups by lot, chosen in an intentional way.

The study Findings:

- The experimental curriculum prepared by the researcher was an effective influence on the events of evolution.

- The use of exercises similar to the activity practiced in terms of the motor path led to the economy of effort and thus reflected on the improvement of performance.

- The emergence of significant differences between pre and post-tests for all groups and for all heights and in favor of post-tests.

1.6.2. Jamal Khairy's 2018 study entitled *"The Impact of Exercises for the Development of Motor Compatibility on the Accuracy of the Performance of the Transmission Reception Skill in Volleyball according to Some Biokinematic Variables"*.

- The aim of the study: to show that the exercises to develop motor compatibility have an impact on the accuracy of the performance of the transmission reception skill in volleyball, according to some biokinematic variables of the skill and to detect mechanical errors that have an impact on the accuracy of the performance of the skill according to some of its biokinematic variables, to identify the percentage of the contribution of some biokinematic variables in the result of the performance of the skill, showing that the biokinematic variables have a significant impact in determining the motor compatibility exercises of the skill, and finally to show the effectiveness of the proposed motor compatibility exercises in improving the accuracy of the performance of the transmission reception skill in volleyball. Assuming that motor compatibility has a significant impact on the accuracy of the performance of the transmission reception skill in volleyball according to some biokinematic variables

- Approach: The researcher used the experimental approach.

- Research sample: The study sample consisted of volleyball clubs active in the second national section of the regional center of volleyball, consisting of 30 players, a control group of 15 players from the Rck club and an experimental group of 15 players from the ASJK club chosen in an intentional manner.

The study Findings:

- That kinetic compatibility has an impact on the accuracy of the performance of the skill of receiving the transmission in volleyball and this according to some biokinematic variables of the skill and that mechanical errors have an impact on the accuracy of the performance of the skill according to some biokinematic variables of its own.

- Some biokinematic variables have varying contribution ratios to the result of skill performance, and biokinematic variables have a significant impact in determining appropriate motor compatibility exercises to improve the skill.

- The proposed kinesthetic exercises are very effective in improving the accuracy of the performance of the transmission reception skill in volleyball.

1.6.3. The study of Hussein Abdul Kawthar 2023 entitled The Impact of Combined Exercises in the Frequent High-Intensity Style on the Development of Some Basic Skills among Volleyball Players Sitting in the Dhi Qar Committee.

- Objective of the study: The study aimed to identify:

- Preparing the integrated exercises in the frequent method of intensity in developing some of the basic skills of volleyball players sitting in a dignified committee.

- Identifying the statistical differences between pre- and post-tests in developing some of the basic skills of volleyball players sitting on a committee.

- Approach: The researcher used the experimental approach.

The research sample: The sample was represented by the players of the Dhi Waqar Committee for the Challengers of Disability in the Airplane Seating, which numbered 12, who were chosen intentionally.

The study Findings:

- Each of the exercises integrated with the frequent intensity method followed by the coach has a role in the process of developing the basic skills under study for volleyball players sitting.

- The skill of the block wall did not improve because of the lack of use of the two handicapped players to jump because of their physical disability, as well as the law did not allow the hip to be lifted while working with the ball.

1.6.4. The study of Qarasha Tayeb, Sabaa Bouabdallah, Turki Ahmed 2018, entitled an analytical study of some kinematic variables and their relationship to accuracy in the performance of the overwhelming sending skill in volleyball, Nahda team, Chelf offers men's volleyball.

Objective of the study: The study aimed to identify the values of some kinematic variables that distinguish the performance of the overwhelming sending skill in volleyball (speed and angle, ball start, ball flight time, angle of inclination of the trunk at the moment of hitting the ball), in addition to knowing the relationship between them and the accuracy of performance that distinguishes this skill.

- Approach: The researcher used the descriptive approach.

- Research sample: The study sample included 06 players from the Nahdlat Nahdlat Al Shalaf POC Volleyball Team for the sports year 2016-2017 who were selected in an intentional manner.

The study Findings:

- There is a statistically significant correlation between accuracy, velocity and angle of launch of the ball and time of launch of the ball.

- There is a statistically significant correlation between the angle of inclination of the torso at the moment of hitting the ball in the performance of the batting skill with volleyball.

1.6.5. The study of Brahimi Kaddour, Ayad Mustafa, Ben Sy Kaddour Habib 2019 entitled The Effectiveness of Using Cooperative Learning in Competition and Inclusive Styles to Learn Some of the Basic Skills of Volleyball Practitioners (13-15 Years).

Objective of the study: The study aimed to find out the impact of the use of cooperative education in competitive and inclusive methods on learning some basic skills in volleyball. We assumed that the use of cooperative education in the competitive and inclusive method differs from learning some skills in volleyball. Its impact is positive in cooperative education in the competitive method and negative when teaching in the inclusive method. The best is cooperative education in the competitive method.

- Approach: The researcher used the experimental approach.

- Research sample: The research sample included 30 students from intermediate education, as the sample was selected in an occasional way to conduct the experiment in good conditions in order to avoid all obstacles and difficulties and obtain highly credible results.

The study Findings:

- There are statistically significant differences between the three groups in the post-test in favor of the first experimental group that was trained in the competing style in the basic skills.
- The best method of cooperative teaching to learn some basic skills in volleyball is the competitive method.

2. Method and tools:

2-1- The exploratory study: The exploratory study was carried out in the middle of lajgar Bashir in the souk Ahras, which corresponds to the age group (12-14) years for the academic season 2022/2023 during the period from 06/11/2022 to 13/11/2022 to determine the obstacles that may occur during work and the appropriateness of the time allocated for the study. The tests under study were also applied to 10 students practicing physical and sports education to find the validity and stability coefficient.

2-2-The community and sample of the study: Our study community was represented in the intermediate students of lajgar Bashir in Souk Ahras, which corresponds to the age group (12-14) years for the academic season 2022/2023, and their number is (400) males and females. The study sample consisted of 100 male and female students randomly selected from the original community by 25%, divided into two experimental and control groups, each group consisting of 28 males and 22 females.

2.3. Study Approach: In their study, the researchers relied on the experimental approach in the simple design style, an experimental and control group for different genders to suit the nature of the study.

2.4. The homogeneity of the sample and the equivalence of the research groups

2.4.1. Homogeneity of the sample: In order to homogeneity of the sample, the researcher calculated the torsion coefficient for the experimental and control groups of the variables that have an impact on the study, which are (height, weight, age) as follows:

Table 1: The homogeneity of the research sample shows males and females

Variables	Gender	UOM	Mean	St.Deviation	skewness
Length	Males	m	169.08	4.74	0.807
	Females		166.13	6.98	0.524
Weight	Males	kg	64.73	5.82	0.553
	Females		66.08	6.55	0.641
Age	Males	Year	15.87	0.83	0.242
	Females		15.59	0.78	0.885

Source: Prepared by researchers, 2024.

It is clear from Table No. (1) that the values of the torsion coefficient are limited between (-1, +1), which indicates the homogeneity of the male and female members of the research sample in these variables in the sense of the normal distribution of them.

2.4.2. Equivalence of the sample: In order to attribute the differences to the experimental factor, the researcher worked to verify the parity of the research groups in the offensive skills of volleyball represented in transmission, preparation, crushing batting, and the offensive blocking wall among the different genders as follows:

Table 2: The parity of the research groups in the offensive skills of volleyball shows males and females

Exams	Gender	Experimental group		Control group		T value	SIG	Significance
		Mean	St. Deviation	Mean	St. Deviation			
Serving	Males	15.14	7.00	12.85	8.45	1.102	0.232	Not significant
	Females	13.09	5.11	12.00	5.23	0.699	0.843	Not significant
Preparation	Males	12.28	4.09	11.03	3.40	1.243	0.621	Not significant
	Females	8.59	1.70	7.81	2.10	1.336	0.703	Not significant
Smash	Males	7.25	2.36	7.60	1.91	0.621	0.300	Not significant
	Females	7.77	1.79	7.22	1.44	1.109	0.235	Not significant
Blocking wall	Males	6.78	2.29	6.85	1.89	0.127	0.261	Not significant
	Females	6.27	1.88	5.63	1.94	1.104	0.917	Not significant
Scheduling: Males: 1.671 Females: 1.684				Degree of freedom: Males: 54 Females: 42			Level of Significance: 0.05	

Source: Prepared by researchers, 2024.

It is clear from Table (2) that the values of (T) calculated for all experimental and control groups, males and females, are less than the table value of (T) and the values of (SIG) are greater than the significance level of 0.05, which indicates the equivalence of the research groups in these candidate skill tests.

2.5. Data collection tools and scientific foundations

2.5.1. Data collection tools: Tests measuring offensive skills were used in volleyball as follows:

2.5.1.1. Testing the accuracy of Serving to difficult points.

- Purpose of the test: Measuring the accuracy of the transmission to specific difficult points.
- Tools: A legal volleyball court, (6) balls, divides the field into three areas.
- Performance specifications: The laboratory performs ten attempts for each of the three specified areas, that is, ten missions on area (A), ten more on area(B) and ten seconds on area (C). Only attempts in which the ball falls in the specified areas are counted.
- Scoring: 4 points for each correct serve in which the ball falls within the specified area.

2.5.1.2. Testing the Preparation near the network.

- Purpose of the test: Measuring the accuracy of the numbers near the network.
- Tools: A legal volleyball court, a network with a legal height, 15volleyballs, a ring holder, a basketball with a diameter of (1m) so that its borders touch the middle line and its center is 4.5m away from the side line (designated for laboratory parking).
- Performance Specifications:

- The coach throws the ball in an arc up towards the player standing in the circle to prepare it so that it is directed to the basket ring to fall inside it.
- Each laboratory has 10 attempts.
- Hands should be used and swiped up.
- The preparation must be done from the inside of the circle showing the stand on one side so that it is 30cm away from the grid, a mark (x) is placed at a distance of (2m) from the finish line, 4.5m from the side line (this mark is allocated to the trainer's stand) .
- Registration: The laboratory shall be registered with the total points obtained in the ten attempts granted to it in accordance with the following considerations:
 - 3 marks for each attempt in which the ball enters without touching it.
 - 2 degrees for each attempt in which the ball enters the ring with its contact (contact with the ring).
 - 1 degree for each attempt in which the ball touches the ring without entering it.
 - 0 0 in the event of any performance contrary to the above.

2.5.1.3. Testing the skill of Smash (straight multiplication)

Objective No. (1): 3m x 3m.

Objective No. (2): 3m x 4.5m.

- 15 attempts for Goal No. (1)
- 15 attempts for Goal No. (2)
- Registration: Number of valid attempts out of a total of (30attempts)

2.5.1.4. Testing the skill of the offensive Blocking wall

- 5 attempts in each center (2, 3, 4)
- Registration: The player takes the score of each area where the ball is located in the other field, and calculates the total score for each position, then the total score for the three positions.
- Note: The trainer stands on a table in order to give the normal position to perform the crushing beating.
- A rest period of 30 seconds is given after each (5) attempts.

2.5.1.5. Educational Program:

- The educational program: Due to the nature of the study, and to design a program that achieves its objectives, the researchers reviewed a set of sources and references related to the subject of the kinetic property of movement in motor learning and the subject of offensive skills of volleyball, where the proposed educational program was built in its initial form and presented to the arbitrators, so that it included in its content a focus on the availability of the kinetic property of sports movement by focusing on the external observation of the progress of movement by focusing on the movement path and the extent to which the student's motor duty was achieved, in addition to focusing on the time of motor performance and the study of movement dynamics, that is, finding the relationship between intensity and relaxation. The program contained 32 educational units with 16 educational classes for the experimental group and 16 educational classes for the control group on the basis of two classes per week (one for males and one for females), with the exception of the pre and post measurement class, which was done for both groups at the same time taking into account the nature of gender, and the program contained four offensive skills of the sending volleyball, the numbers, crushing, and the offensive wall, taking into account the characteristics of skill of each educational unit except for the design of the control group worked in the usual way.

2.5.2. The scientific foundations of data collection tools:

2.5.2.1. Validity of tests: Discriminatory validity was used to ensure the validity of tests on a survey sample consisting of (5) distinguished students and(5) undistinguished students who were excluded from the study sample, and the (T) test was used for two independent groups to

compare between the members of the distinguished group and the members of the undistinguished group, as shown as follows:

Table (3): shows the validity of the tests used

Skill	HSA Group	Number	Mean	St. Deviation	T value	Significance
Serving	Non-Distinguished Group	10	13.40	6.11	3.148	0.004
	Distinct Group	10	28.80	14.21		
Preparation	Non-Distinguished Group	10	6.00	1.76	5.629	0.009
	Distinct Group	10	14.40	4.37		
Smash	Non-Distinguished Group	10	7.20	1.03	6.209	0.007
	Non-Distinguished Group	10	14.30	3.46		
Blocking wall	Non-Distinguished Group	10	4.10	1.19	4.136	0.003
	Non-Distinguished Group	10	8.40	3.06		
Degree of freedom: 18				level of significance: 0.05		

Source: Prepared by researchers, 2024.

It is clear from Table No. (3) that there are statistically significant differences between the members of the distinctive group and the members of the non-discriminatory group in favor of the members of the distinctive group in all tests at the level of significance 0.05 and the degree of freedom 18, and the result of distinctive honesty confirms the validity of these tests and that they measure what they are designed to measure.

2.5.2.2. Stability of tests

To ensure the stability of the tests, the method of testing and retesting was used on the members of the exploratory sample of 20 students, and the time period between the first and second application was 07 days, and the Pearson correlation coefficient was used as shown in the following table:

Table (4): shows the stability of the tests used

Skill	test		retest		
	mean	St.Deviation	mean	St. Deviation	
Serving	13.40	6.11	17.00	6.48	0.982
Preparation	6.00	1.76	8.00	1.88	0.969
Smash	7.20	1.03	8.90	1.10	0.899
Blocking wall	4.20	1.31	5.60	1.34	0.925
Number of individuals: 10			level of significance: 0.05		

Source: Prepared by researchers, 2024.

It is clear from Table No. (4) that there is a positive correlation between the test and the retest, as the values of the Pearson correlation coefficient were respectively (0.982, 0.969, 0.899, 0.925), and these results indicate the stability of the tests and meet the purposes of the study.

2.6. Statistical tools: We used statistical methods: arithmetic mean – standard deviation - discriminative validity, torsion coefficient, Pearson correlation coefficient – T-test for two non-correlated samples, using the Statistical Package for Social Sciences v28 (SPSS) program.

3. Analyzing and discussing the results:

3.1. Studying the significance of the differences between the pre and post measurements in the test of offensive skill Serving in volleyball among different genders

Table 5: Differences in Study Groups in the Male and Female Serving Skill Test

		Pre-test		post-test		sig	statistical Index
		Mean	Std Deviation	Mean	Std Deviation		
Control Group	M	12.85	8.45	18.42	8.45	0.001	Significant Statistically
	F	12.00	5.23	14.54	6.23	0.003	
Experimental Group	M	15.14	7.00	23.42	6.50	0.000	Significant Statistically
	F	13.09	5.11	18.00	7.48	0.002	
Degree of freedom: Males: (27) Female:(21)						Level of signification: 0.05	

Source: Prepared by researchers, 2024.

Through the results shown in Table No. (5), the differences were statistically significant between the pre and post-test in the experimental group and the control group for different genders in the Serving skill test:

- For males, the value of (SIG) for the control group was estimated at (0.001), while for the experimental group, the value of (SIG) was estimated at (0.000), which is less than the significance level of 0.05 at the degree of freedom 27.

- For females, the value of (SIG) for the control group was estimated at (0.003), while for the experimental group, the value of (SIG) was estimated at (0.002), which is less than the significance level of 0.05 at the degree of freedom 21. From this, we conclude that there are statistically significant differences between the pre and post measurement of the different genders in the offensive skill of Serving.

3.1.1. Studying the significance of the differences between the post measurement in the offensive skill test Serving in volleyball among different genders.

Table 6: Differences in post-tests between study groups in the sending skill test, males and females

		post-test		Significance level	T value	sig	Degree of freedom	Scheduling	statistical Index
		Mean	Std Deviation						
Males	Control Group	18.42	8.45	0.05	2.485	0.004	27	1.703	Significant Statistically
	Experimental Group	23.42	6.50						
Females	Control Group	14.54	6.23		2, 270.	0.001	21	0.721	Significant Statistically

	Experimental Group	18.00	7.48						
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Source: Prepared by researchers, 2024.

Through the results shown in Table No. (6), it was found that there are statistically significant differences between the dimensional measurements of the different sexes in the offensive skill represented in Serving in volleyball:

- For males, the arithmetic mean of the control group was 18.42 with a standard deviation of 8.45. For the experimental group, the arithmetic mean was 23.42 with a standard deviation of 6.50. The calculated value of T was 2.485, which is greater than the estimated dialectical value of 1.703, while the value of (SIG) was 0.004, which is less than the significance level of 0.05 at the degree of freedom 27.

- For females, the arithmetic mean of the control group was 14.54 with a standard deviation of 6.23. For the experimental group, the arithmetic mean was 18.00 with a standard deviation of 7.48. The calculated value of T was 2.270, which is greater than the estimated dialectical value of 1.721, while the value of (SIG) was 0.001, which is less than the significance level of 0.05 at the degree of freedom 21.

From this, we conclude that there are statistically significant differences between the post measurements of the offensive skill Serving between the control group and the experimental group of different genders and in favor of the experimental group of males and females.

3.2. Studying the significance of the differences between the pre and post measurements in the test of offensive skill in volleyball preparation for different genders

Table 7: Differences in study groups in the preparation skill test for males and females

		Pre-test		post-test		sig	statistical Index
		Mean	Std Deviation	Mean	Std Deviation		
Control Group	M	11.03	3.40	13.35	4.67	0.002	Significant Statistically
	F	7.81	2.10	9.22	2.87	0.003	
Experimental Group	M	12.28	4.09	17.67	7.90	0.000	Significant Statistically
	F	8.59	1.70	12.36	2.55	0.000	
Degree of freedom: Males: (27) Female:(21)						Level of signification: 0.05	

Source: Prepared by researchers, 2024.

Through the results shown in Table No. (7), the differences were statistically significant between the pre and post-test in the experimental group and the control group for different genders in the preparation skill test:

- For males, the value of (SIG) for the control group was estimated at (0.002), while for the experimental group, the value of (SIG) was estimated at (0.003), which is less than the significance level of 0.05 at the degree of freedom 27.

- For females, the value of (SIG) for the control group was estimated at (0.000), while for the experimental group, the value of (SIG) was estimated at (0.000), which is less than the significance level of 0.05 at the degree of freedom 21. From this, we conclude that there are statistically significant differences between the pre and post measurement of different genders in offensive skill preparation.

3.2.1. Studying the significance of the differences between the post measurement in the offensive skill test preparation in volleyball among different genders.

Table 8: Differences in post-tests between study groups in the preparation skill test for males and females

		post-test		Significance level	T value	Degree of freedom	sig	Scheduling	statistical Index	
		Mean	Std Deviation							
Males	Control Group	13.35	4.67	0.05	3.231	27	0.004	1.703	Significant Statistically	
	Experimental Group	17.67	7.90							
Females	Control Group	9.22	2.87		3.685	21	0.001	1.721		Significant Statistically
	Experimental Group	12.36	2.55							

Source: Prepared by researchers, 2024.

Through the results shown in Table No. (8), it was found that there are statistically significant differences between the dimensional measurements of the different sexes in the offensive skill represented in the preparation in volleyball:

- For males, the arithmetic mean of the control group was 13.35 with a standard deviation of 4.67. For the experimental group, the arithmetic mean was 17.67 with a standard deviation of 7.90. The calculated value of T was 3.231, which is greater than the estimated dialectical value of 1.703, while the value of (SIG) was 0.003, which is less than the significance level of 0.05 at the degree of freedom 27.

- For females, the arithmetic mean of the control group was 9.22 with a standard deviation of 2.87. For the experimental group, the arithmetic mean was 12.36 with a standard deviation of 2.55. The calculated value of T was 3.685, which is greater than the estimated dialectical value of 1.721, while the value of (SIG) was 0.001, which is less than the significance level of 0.05 at the degree of freedom 21.

From this, we conclude that there are statistically significant differences between the post measurements of the offensive skill prepared between the control and experimental groups of different genders and in favor of the experimental group of males and females.

3.3. Studying the significance of the differences between the pre and post measurements in the offensive skill test Smash in volleyball among different genders

Table 9: Differences in Study Groups on the Male and Female Smash Skill Test

		Pre-test		post-test		sig	statistical Index
		Mean	Std Deviation	Mean	Std Deviation		
Control Group	M	7.60	1.91	8.71	1.86	0.001	Significant Statistically
	F	7.22	1.44	8.77	2.20	0.002	
Experimental Group	M	7.25	2.36	10.71	2.95	0.000	Significant Statistically
	F	7.77	1.79	10.81	1.99	0.000	
Degree of freedom: Males: (27) Female:(21)						Level of signification: 0.05	

Source: Prepared by researchers, 2024.

Through the results shown in Table No. (9), the differences were statistically significant between the pre and post-test in the experimental group and the control group for different genders in the Smash skill test.

- For males, the value of (SIG) for the control group was estimated at (0.001), while for the experimental group, the value of (SIG) was estimated at (0.000), which is less than the significance level of 0.05 at the degree of freedom 27.

- For females, the value of (SIG) for the control group was estimated at (0.002), while for the experimental group, the value of (SIG) was estimated at (0.000), which is less than the significance level of 0.05 at the degree of freedom 21. From this, we conclude that there are statistically significant differences between the pre and post measurement of different genders in the offensive skill of Smash.

3.3.1 Studying the significance of the differences between the post-measurement in the offensive skill test and the Smash in volleyball among different genders.

Table 10: Differences in post-tests between study groups in the overwhelming multiplication skill test for males and females

		post-test		Significance level	T value	Degree of freedom	sig	Scheduling	statistical Index
		Mean	Std Deviation						
Males	Control Group	8.71	1.86	0.05	3.103	27	0.004	1.703	Significant Statistically
	Experimental Group	10.71	2.95						
Females	Control Group	8.77	2.20		3.423	21	0.003	1.721	
	Experimental Group	10.81	1.99						

Source: Prepared by researchers, 2024.

Through the results shown in Table No. (10), it was found that there are statistically significant differences between the dimensional measurements of the different sexes in the offensive skill represented in the Smash in volleyball:

- For males, the arithmetic mean of the control group was 8.71 with a standard deviation of 1.86. For the experimental group, the arithmetic mean was 10.71 with a standard deviation of 2.95. The calculated value of T was 3.103, which is greater than the estimated dialectical value of 1.703, while the value of (SIG) was 0.004, which is less than the significance level of 0.05 at the degree of freedom 27.

- For females, the arithmetic mean of the control group was 8.77 with a standard deviation of 2.20. For the experimental group, the arithmetic mean was 10.81 with a standard deviation of 1.99. The calculated value of T was 3.423, which is greater than the estimated dialectical value of 1.721, while the value of (SIG) was 0.003, which is less than the significance level of 0.05 at the degree of freedom 21.

From this, we conclude that there are statistically significant differences between the post measurements of the offensive skill and the Smash between the control group and the experimental group of different genders in favor of the experimental group of males and females.

3.4. Studying the significance of the differences between the pre and post measurements in testing the skills of the offensive block wall in volleyball among different genders

Table 11: Differences in Study Groups on the Offensive block Wall Skill Test Male and Female

		Pre-test		post-test		sig	statistical Index
		Mean	Std Deviation	Mean	Std Deviation		
Control Group	M	6.85	1.89	8.14	1.77	0.001	Significant Statistically
	F	5.63	1.94	7.09	2.09	0.002	
Experimental Group	M	6.78	2.29	9.96	2.58	0.000	Significant Statistically
	F	6.27	1.88	9.50	2.01	0.000	
Degree of freedom: Males: (27) Female:(21)						Level of signification: 0.05	

Source: Prepared by researchers, 2024.

Through the results shown in Table No. (11), the differences were statistically significant between the pre-test and the post-test in the experimental group and the control group of the different genders in the test of the skills of the block Wall:

- For males, the value of (SIG) for the control group was estimated at (0.001), while for the experimental group, the value of (SIG) was estimated at (0.000), which is less than the significance level of 0.05 at the degree of freedom 27.

- For females, the value of (SIG) for the control group was estimated at (0.002), while for the experimental group, the value of (SIG) was estimated at (0.000), which is less than the significance level of 0.05 at the degree of freedom 21. From this, we conclude that there are statistically significant differences between the pre and post measurement of different genders in the offensive block wall skill test.

3.4.1. Studying the significance of the differences between the post measurement in the test of the skills of the offensive block wall in volleyball among different genders.

Table 12: Differences in post-tests between study groups in the offensive block wall skill test, males and females

		post-test		Significance level	T value	Degree of freedom	sig	Scheduling	statistical Index
		Mean	Std Deviation						
Males	Control Group	8.14	1.77	0.05	3.287	27	0.003	1.703	Significant Statistically
	Experimental Group	9.96	2.58						
Females	Control Group	7.09	2.09		3.434	21	0.002	1.721	
	Experimental Group	9.50	2.01						

Source: Prepared by researchers, 2024.

Through the results shown in Table No. (12), it was found that there are statistically significant differences between the posterior measurements of the different sexes in the offensive skill represented in the test of the offensive block wall skill in volleyball:

- For males, the arithmetic mean of the control group was 8.14 with a standard deviation of 1.77. For the experimental group, the arithmetic mean was 9.96 with a standard deviation of 2.58. The calculated value of T was 3.287, which is greater than the estimated dialectical value of 1.703, while the value of (SIG) was 0.003, which is less than the significance level of 0.05 at the degree of freedom 27.

- For females, the arithmetic mean of the control group was 7.09 with a standard deviation of 2.09. For the experimental group, the arithmetic mean was 9.50 with a standard deviation of 2.01. The calculated value of T was 3.434, which is greater than the estimated dialectical value of 1.721, while the value of (SIG) was 0.002, which is less than the significance level of 0.05 at the degree of freedom 21.

From this, we conclude that there are statistically significant differences between the post-measures of the offensive block wall skill between the control and experimental groups of different genders and in favor of the experimental group of males and females.

4. Discussion

4.1. Discussing the results of the first hypothesis, which states that: The use of movement flow affects the technical performance of the offensive sending skill in volleyball among middle school students (12-14) years old, males and females, through the results obtained in Table No. (5) and (6), it was found that the differences between the arithmetic averages of the control and experimental sample are statistically significant differences in favor of the post-test in the experimental and control research groups at different genders. It was also found that the differences between the averages of the post-tests of the same two samples are statistically significant differences in favor of the experimental sample males and females and that the differences are real, and not due to chance. The researcher attributes this because the use of movement flow helps to improve coordination between movement and thinking and promotes focus and correct implementation of basic techniques. It is also considered a key to improving overall performance and increasing players' confidence in themselves and their abilities. It also enhances consistency and organization in performance, which reduces errors and helps develop the ability to adapt to different conditions and situations in real matches. By repeating exercises that focus on flow, students can enhance the physical and mental abilities required to achieve excellent performance in offensive serve in volleyball. Thus, the use of flow represents an effective method to improve technical performance and develop the skills of players in this sport comprehensively. In the same context, Wadih (2014) believes that the use of flow in movement enhances the ability to adapt to different situations on the field, and contributes to promoting rapid interaction and making the right decisions in moments of pressure. It also contributes to reducing the risk of injuries and increasing pleasure and longing for training, which makes it an effective method to enhance the development of the skills of players at various age and skill levels (Wadih, 2014, p. 71). Our study agrees with what was confirmed by the study of Adel Majid Khazal (2008), which found the use of exercises similar to the activity practiced in terms of the motor path, which led to the economy of effort and thus reflected on the improvement of performance, and the study of Jamal Khairy (2018), which found that motor compatibility has an impact on the accuracy of the performance of the receiving skill in volleyball. This is according to some biokinematic variables of the skill and that mechanical errors have an impact on the accuracy of the performance of the skill according to some of its biokinematic variables.

4.2. Discussing the results of the second hypothesis, which states that: The use of movement flow affects the teaching of technical performance of the skill of offensive preparation in volleyball among middle school students (12-14) years, males and females, through the results obtained in Table No. (7) and (8), it was found that the differences between the arithmetic means of the control sample and the experimental male and female for the pre and post-test are

statistically significant differences in favor of the post-test in the experimental and control research groups at different genders, and it was also found that the differences between the means of the post-tests of the same two samples are statistically significant differences in favor of the experimental sample males and females and that the differences are real, and not due to chance, and the researcher attributed to the fact that the use of movement flow enables players to move smoothly and quickly on the field, so that they can carry out the numbers more accurately and effectively, and this property also enhances helping players to reach the balls, and quickly adapt their positions to implement the exact numbers that meet the needs of the attack effectively. Thus, the skill of preparation is improved and its effectiveness in playing and positively affecting the team's results is increased. It also enhances the coordination between movement and thinking, and contributes to improving the focus and correct implementation of basic techniques, in addition to increasing the speed and accuracy of implementation. This leads to improving the overall performance of players and increasing their confidence in their abilities. It also contributes to reducing the risk of injuries and increasing fun in training, which enhances the development of skills effectively. In the same context, Ahmed (2010) says that training players to use fluidity in movement while developing motor skills is vital to enhance the ability to communicate and interact with teammates. Good coordination and smooth movement on the field contribute to improving players' communication with each other, and enhancing direct interaction and coordination in the implementation of effective preparation. Thus, this leads to improving the performance of the team as a whole and achieving positive results during matches (Ahmed, 2010, p. 55), and our study agrees with what was confirmed by the study of Hussein Abdel Kawthar (2023), which found that both combined exercises in the frequent method of intensity followed by the coach have a role in the process of developing the basic skills under study for volleyball players sitting, and the study of Qarasha Tayeb, Saba Bouabdallah, Turki Ahmed (2018), which found a statistically significant correlation between accuracy, speed and angle of departure of the ball and the time of departure of the ball, and there is a statistically significant correlation between the angle of inclination of the trunk at the moment of hitting the ball in the performance of the overwhelming sending skill with volleyball.

4.3. Discussing the results of the third hypothesis, which states that: The use of movement flow affects the technical performance of the skill of offensive crushing batting in volleyball among middle school students (12-14) years old, males and females, through the results obtained in Table No. (9) and (10), it was found that the differences between the arithmetic means of the control and experimental sample, males and females for the pre and post-test are statistically significant and in favor of the post-test in the experimental and control research groups of different genders, and it was also found that The differences between the averages of the post-tests of the same two samples are statistically significant and in favor of the experimental sample, males and females, and the differences are real, and not due to chance. The researcher attributed this to the fact that the use of flow in the movement enhances balance and coordination, which contributes to improving the strength and accuracy of the batting, in addition to improving the orientation of the ball and increasing its speed. Thus, the use of flow in the movement improves the performance of offensive crushing batting and increases its effectiveness, which enhances the performance of players and contributes to achieving positive results in matches. From a biomechanical point of view, the use of flow in the movement affects the development of the skill of offensive crushing batting in volleyball in several ways, through Improved coordination of movement and balance of the body during a crushing hit, which increases the strength and accuracy of the hit and improves the orientation of the ball towards the target. In addition, smooth transitions between stages of movement, such as preparation, hitting, and follow-up, are promoted in the movement, allowing the strike to be carried out more

quickly and effectively. As a result, the performance of offensive crushing batting is enhanced and better results are achieved in the field, and in the same context, Akram (2009) says, the use of flow in movement improves the distribution of weight and directs force more effectively during the implementation of the skill, and the body's balance and angle are improved and the force is directed in the right direction, which increases the effectiveness of the skill and reduces the chances of injuries due to wrong movements. In addition, the flow of movement contributes to achieving an optimal balance between speed and accuracy, allowing the skill to improve continuously with time and regular training (Akram, 2009, p. 101). Our study is consistent with what was confirmed by the study of Brahimi Kaddour, Ayad Mustafa, Ben Sy Kaddour Habib (2019), which found that there are statistically significant differences between the three groups in the post-test in favor of the first experimental group that trained in the competitive style in basic skills, and the study of Qarasha Tayeb, Sabaa Bouabdallah, Turki Ahmed (2018), which found there is a statistically significant correlation between accuracy, speed and angle of the ball's launch and the ball's launch time, and there is a statistically significant correlation between the angle of the torso's inclination at the moment of hitting the ball in the performance of the batting skill with volleyball.

4.4. Discussing the results of the fourth hypothesis, which states that: The use of movement flow affects the technical performance of the offensive block wall skill in volleyball among middle school students (12-14) years old, males and females, through the results obtained in Table No. (11) and (12), it was found that the differences between the arithmetic averages of the control and experimental sample, males and females, for the pre and post-test, are statistically significant differences in favor of the post-test in experimental and control research groups at different genders. It was also found that the differences between the averages of the post-tests of the same two samples are statistically significant differences in favor of the experimental sample, males and females, and that the differences are real, and not due to chance. This is due to the researcher that the use of movement flow contributes to improving coordination between movement and thinking, and enhances the ability to move smoothly and quickly to implement the block correctly and effectively, and their use also contributes to enhancing balance and muscular coordination, which helps improve the ability of pupils to cope with strong balls more effectively and closely. Thus, the use of flow in movement is considered one of the main factors to improve the performance of the offensive block wall and develop it comprehensively among players. In the same context, Bastawisi (2001) believes that the use of flow in movement improves the players' response to the movement of the ball and the timing of blocking, which increases the chances of success of blocking and reduces the chances of scoring points by the opposing team. It also contributes to increasing the speed of interaction and making the right decisions in moments of pressure, which enhances the players' self-confidence and improves their overall performance on the field, and thus contributes to the development of the skill and greatly increases its effectiveness among players (Bastawisi, 2001, p. 84). Our study agrees with what was confirmed by the study of Hussein Abdul Kawthar (2023), which found that both the combined exercises in the intensity method followed by the coach have a role in the process of developing the basic skills under study of volleyball players sitting, and the study of Adel Majeed Khazal (2008), which found the use of exercises similar to the activity practiced in terms of the motor path. The economy led to effort and thus improved performance.

5. Conclusions and Suggestions

5.1. CONCLUSIONS

- The use of movement flow affects the technical performance of the offensive skills in volleyball under study among middle school students (14-12) years, males and females.

- The fluidity of movement increases the confidence and optimism of players with their offensive abilities, which is reflected positively on the level of performance and skill achievement
- Streamlined motion improves balance and motion control reducing the risk of injuries caused by incorrect or asynchronous movements.
- The use of fluidity in movement promotes coordination between the neuromuscular system, which improves the smooth interaction between the muscles responsible for carrying out offensive skills.
- The use of fluidity in movement positively affects the biomechanical movement processes of students, which contributes to improving their offensive performance and developing their skills effectively in volleyball.

5.2. Proposals

- Conducted an analytical study of the impact of aerodynamic training on the ability of players to adapt to different play situations and their changes during matches.
- Undertake guiding studies to understand how movement flow training affects motor neuron responses and muscle coordination during the execution of offensive skills.
- Conducting more research on the flow of movement in various individual games.
- Applying the feature of smooth movement during the educational process in teaching activities during the physical education class.

References

- Ahmed Bastawisi. (2001). *Foundations and Theories of Motion* (Version 2). Dar Al-Fikr Al-Arabi
- Zaki Khattabah Akram. (2009). *Modern Volleyball Encyclopedia* (Version 1). Amman: Dar Al-Fikr for Printing, Publishing and Distribution.
- Riad Hussein and Sam. (2015). *Offensive Volleyball Performance* (Version 1). Iraq: Dar Al-Kitab for Publishing and Distribution.
- Salah Abdul Hussein, Wissam , and Youssef Mutaib Samer. (2021). *Motor learning and its applications in physical and sports education* (version 2). Lebanon: Scientific Books House.
- Abass Hussein (2010). *The concept of mathematical skill and its applications* (Version 2). Alexandria: Al-Maaref Establishment.
- Abdul Jawad Hassan. (2017). *Volleyball Basic Principles* (Version 1). Beirut: House of Millions.
- Abdullah Assaf Issam. (2020). *The Concept and Reality of Secondary Education in the Arab World* (Version 1). Jordan: Wael Publishing and Distribution House.
- Abdul Nahida Zaid. (2008). *Fundamentals of Kinetic Learning* (Version 1). Baghdad: House of Books and Documents.
- SARA FAWZI AHMED (2010). *Learning Psychology for Mathematical Motor Skills* (Version 1). Cairo: Dar al-Ma'arif.
- Muhammad Hasan. (2008). *Volleyball Defense and Attack Training Strategy* (Version 2). Egypt: Al-Maaref Establishment.
- Yassin Tikriti Wadih. (2014). *Kinesthetic Learning and its Applications* (Version 1). Jordan: Euphrates Publishing House.
- Adel Majeed Khazaal, The Impact of a Proposed Educational Curriculum Using Different Network Heights to Develop Some Essential Volleyball Skills, Contemporary Sports Journal, Volume 7 (9) , 2008, pp. 101-132.
<https://www.iasj.net/iasj/download/2840752f73d58bb0>

- Jamal Khairy, The impact of exercises to develop motor compatibility on the accuracy of the performance of the skill of receiving the transmission in volleyball according to some biokinematic variables, Journal of Sports Creativity, Volume 9 (2) , 2018, pp. 227-249.
<https://www.asjp.cerist.dz/en/article/70023>
- Hussein Abdul Kawthar, The Impact of Combined Exercises in the Frequent High-Intensity Style on the Development of Some of the Basic Skills of Volleyball Players Sitting in the Dhi Qar Committee, Raseen Journal of Sports Activities and Movement Sciences, Volume 4 (2), 2023, pp. 38-57.
<https://www.asjp.cerist.dz/en/article/234548>
- Qarasha Tayeb, Sabaa Bouabdallah, Turki Ahmed, An Analytical Study of Some Kinematic Variables and Their Relationship to Accuracy in the Performance of the Aces in Volleyball Nahda Team Chelf presents Volleyball Men, Journal of Physical Activity and Sports Society, Education and Health, Volume 1 (1), 2018, pp. 44-49.
<https://www.asjp.cerist.dz/en/article/67722>
- Brahimi Kaddour, Ayad Mustafa, Ben Sy Kaddour Habib, The Effectiveness of Using Cooperative Learning in Competition and Inclusion Styles to Learn Some of the Basic Skills of Volleyball Practitioners (15-13 Years), Journal of Sports Physical Activity Science and Technology, Volume 10 (1), 2019, pp. 169-183.
<https://www.asjp.cerist.dz/en/article/94719>