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The effect of isolation exercises using the maximum repetition method on some biomotor abilities and the accuracy of the offensive blocking skill in volleyball for young players

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Abstract

The research aims to study the effect of isolation exercises using the maximum repetition method on improving some biomotor abilities (such as strength , speed and flexibility) and the accuracy of performing the offensive blocking wall skill in volleyball for young players.By studying the values of biomechanical variables and seeking to develop those variables that have a major role in the performance of skills, including the skill of the offensive block wall according to mechanical foundations and indicators that give a good explanation for the values of some mechanical variables that have a major impact on skill performance through the amount of force applied, which helps to gain a large amount of the push index in less time, which may have a positive role in the performance of the skill of the offensive block wall. The importance of the research lies in the researchers' endeavor to use isolation exercises in the short repetitive method with a variable rhythm in developing some physical abilities and biomechanical variables that constitute an important essence for the technical performance of the skill of the offensive block wall in volleyball, in addition to achieving accuracy in performance by developing the strength of the legs to reach the highest possible height to block the ball, thus reaching the best performance in the game of volleyball. As for the problem of the research, it is through following up on the developments in the development of the game of volleyball in general and the development in the skill of the offensive block wall in particular at the local level and its impact on the result of the match.

Keywords:
Isolation exercises, short repetitive method with a variable pattern, biokinetic capabilities, volleyball.

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1- Research definition

1-1 Introduction to the research and its importance

Despite the great development that has occurred in the sports field, which came as a result of serious scientific research that helped to raise the level of all sports games and events. Scientific research and specialists in the field of sports training are still working tirelessly to find the best ways and the optimal means in the process of keeping pace with scientific modernity. This is through the interconnection and overlap of a large number of theoretical and applied sciences that would support the sports aspect and increase the possibility of achieving the best level in it. Likewise, the development of sports devices, means and equipment and many other factors that led to the development of players' performance in international forums and the emergence of high levels of record numbers and achievement. Therefore, studies and research related to the training process helped the coach develop his knowledge of the methods and techniques that could affect the success of the training process. Physical abilities in volleyball are an important and essential factor for raising the level of skill performance, as physical abilities aim to develop certain physical elements that play a prominent role in the player's mastery of basic skills, including the skill of the offensive blocking wall. Volleyball, as one of the group sports activities, is considered one of the technical sports that contain a large number of motor skills that require a large number of physical capabilities and abilities in order to be performed in a good manner and sound performance. Biomechanics is one of the important sciences in the sports field and the game of volleyball, as it helps coaches and experts through study and analysis to know the strengths and weaknesses of players, as well as to reach the correct and good mechanical positions by studying the values of biomotor capabilities and seeking to develop those variables that have a major role in performing skills, including the skill of the offensive blocking wall according to mechanical foundations and indicators that give a good explanation of the values of some biomotor capabilities that have a major impact on skill performance through the amount of force applied, which helps to gain a large amount of the push index in less time, which may have a positive role in performing the skill of the offensive blocking wall at the moment of rising, jumping and blocking the ball, as well as through the speed achieved when performing the skill that gives a good indicator of those indicators. From the above, the importance of the research lies in the researchers' endeavor to use isolation exercises using the short repetition method with a variable rhythm in developing some biomotor abilities that constitute an important core for the technical performance of the offensive blocking wall skill in volleyball, in addition to achieving accuracy in performance by developing the

strength of the legs to reach the highest possible height to block the ball, thus achieving the best performance in the game of volleyball.

Research problem:1-2

The efforts made in sports training have achieved great development in the game of volleyball, despite that there are still existing problems related to the training process that require scientific solutions that fall on the shoulders of trainers and specialists, as well as the search for modern scientific means and methods supported by experiments that help raise the level of physical and skill performance of players at all levels. The researchers noticed that isolation exercises using the short repetitive method with a variable rhythm did not take the required practical space within the coaches' curricula. There is a lack of clarity in the possibility of achieving and developing physical capabilities related to all mechanical conditions.

By following up on the developments in the game of volleyball in general and the development in the skill of the offensive block wall in particular at the local level and its impact on the outcome of the match, the researchers noticed that the technical level of this skill is not consistent with the development in the field of sports training and the field of volleyball, and that there is a great weakness and fluctuation among players in the level of accuracy of performance with the skill of the offensive block wall.

Therefore, the researchers sought to use short repetition isolation exercises with variable format to develop some biokinetic abilities and accuracy of the offensive blocking skill for young volleyball players.

1-3 Research objectives

1- Preparing short repetition isolation exercises with variable format to develop some biokinetic abilities and accuracy of the offensive blocking skill in youth volleyball.

2- Identifying the statistical differences between the pre- and post-tests of the control and experimental groups for some biokinetic abilities and accuracy of the offensive blocking skill in youth volleyball.

3- Identifying the statistical differences between the post-tests of the control and experimental groups for some biokinetic abilities and accuracy of the offensive blocking skill in youth volleyball.

1-4 Research hypotheses

1- There are statistically significant differences between the pre- and post-tests of the control and experimental groups in favor of the post-tests.

2- There are statistically significant differences between the post-tests of the control and experimental groups in favor of the experimental group .

1-5:Research areas

1-5-1 Human field: Karbala Club players

1-5-2:Time field: 1/25/2023 to 4/30/2024

1-5-3.Spatial field: Sports hall in Karbala

Research methodology and field procedures:2

2-1:Research methodology

The researchers chose the experimental method (designing two equal groups, control and experimental) because it is the most appropriate method to solve the research problem.

2-2:Research community and sample

The objectives set by the researchers and the procedures used in the research are what determine the nature of the sample they will choose. Accordingly, the researchers determined the research community in the intentional manner, and they represent the players of Al-Jabaish Club in volleyball in Dhi Qar Governorate, numbering (20) players, where (5) players were chosen from the research community and outside the sample to conduct the exploratory experiment and (15) players representing the research sample at a rate of (75.56%) from the original community. The sample was divided into the control and experimental groups in the intentional manner (to ensure the distribution of players to the two groups according to heights and playing positions) and each group contains (7) players.

-Sample homogeneity: In order to verify the sample homogeneity, the researchers conducted some procedures to control the variables. Therefore, statistical methods were used through the arithmetic mean, standard deviation, and coefficient of variation for morphological measurements to determine the reality of the difference or not, and Table (1) shows that

Table (1)

It shows the specifications of the research sample in terms of chronological age, training age, mass, height, arithmetic mean, standard deviation, and coefficient of variation.

efficient of va	andard deviation	ithmetic mean	Unit of measure	Measurements
٪0.89	1.66	250.70	Month	Chronological age
٪7.88	4.55	88.22	Month	Training age
٪4.99	3.56	79.11	KG	Mass
٪2.89	4.89	178.89	CM	height
٪1.97	2.99	86.36	CM	arm length
٪3.86	1.89	76.92	CM	arm trunk
٪1.86	1.98	99.98	CM	arm the two men

Using the coefficient of variation which shows values less than 30% and this indicates the homogeneity of the sample

-Sample equivalence

In order to know the reality of the measurements, tests and biomechanical variables under study in the experimental and control groups, the researchers measured these abilities and variables, and in order to identify the significance of the differences in the mentioned variables and to ensure the equivalence of the control and experimental groups, the (t) test was used for independent samples between the two groups as shown in the tables.(2) This qualifies the researchers to conduct their research and apply isolation exercises.

Table (2)

shows the equivalence in the values of the study variables for the pre-tests of the control and experimental groups in some physical abilities and biomechanical variables and the accuracy of the offensive blocking wall skill in volleyball

Morale	Sig	T	Experimental group		Control group		Statistical processing variables	
			ع	س	ع	س		
Non-moral	0.44	0.65	1.32	3.98	1.19	|	explosive power of arms	iokinetic variable
Non-moral	1.12	1.43	11.65	43.2	3.96	37.30	explosive power of THE LEGS	
Non-moral	1.77	1.20	1.230	12.3	1.170	12.5	Arm speed strength	
Non-moral	1.21	0.47	0.677	10.40	1.301	10.87	The distinctive power of speed for the legs	
Non-moral	0.598	0.611	0.78	3.46	1.011	4.1	Approach speed	iokinetic capabilities
Non-moral	0.344	0.898	1.65	69.99	2.93	69.98	Rise angle	
Non-moral	0.405	0.910	1.12	129.19	1.50	129.17	Maximum height of the center of mass of the body at the moment of hitting	
Non-moral	0.456	0.533	1.67	13.67	1.76	13.89	Circular velocity of the hitting arm	
Non-moral	0.612	0.599	1.43	12.87	1.35	13.2	Ball velocity	
Non-moral	0.499	0.622	40.45	790.1	40.78	899.32	Maximum force at the moment of contact	iokinetic variables
Non-moral	0.260	1.301	0.034	0.055	1.45	0.055	Time of maximum force at the moment of contact	
Non-moral	0.601	0.565	37.14	844.19	22.65	789.65	Minimum force absorption phas	
Non-moral	0.198	1.298	0.045	1.055	0.033	0.044	Time of minimum force absorption	
Non-moral	0.201	0.87	1.89	11.21	2.45	12.99	Accuracy of the offensive blocking wall skill	

2-3:Means, tools and devices used

- Means of collecting information

- Arab and foreign sources- Personal interviews- Experimentation- Testing and measurement.

- Tools and devices used

- Measuring tape- Floor ladder- Japanese-made whistle- Japanese-made (SONY) video camera with a frequency of 300 frames/second- Japanese-made (SONY) video camera with a frequency of 25 frames/second- Medical scale- Swedish-made force measuring platform- Japanese-made (CASIO) hand calculator- Irish-made (Dell Ci7) laptop computer- 2 DVDs.

- Legal volleyball court- Legal volleyball balls, number (5). - Adhesive tape (5) cm wide and office supplies. - Casio electronic stopwatch. - Plaster (Borke). - 10 indicators. - 10 exercise barriers

4-2:Field research procedures

4-2-1:Description of the tests under study-

1:Explosive strength test for the arms

Throwing a medicine ball weighing (3) kg with both hands from a sitting position on a chair. (6: 157(

Purpose of the test: Measuring the explosive strength of the arm and shoulder muscles.

Tools used: Medicine ball weighing (3) kg, measuring tape and chair with a secure torso fixation belt.

Performance method: The tester sits on the chair and the medicine ball is held by the hands so that the ball is above and behind the head. The belt is placed around the tester's chest and held from behind in a secure manner in order to prevent the tester from moving forward while throwing the ball with the hands, so that the movement is limited to pushing the ball with the hands only.

Conditions: The tester is given three consecutive attempts. The tester must be allowed to perform a number of throws for the purpose of warming up before performing. When the tester moves from the chair during performing one of the attempts, the result is not counted and another attempt is given instead.

Recording: The distance between the front edge of the chair and the closest point that the ball lands on the ground is calculated. The result of the best attempt out of the three attempts is calculated

2:Explosive strength test for the legs

(Test name: Sargent vertical jump from standing (12: 70

Purpose of the test: To measure the explosive strength of the legs

Tools used: A smooth wall of suitable height. Measuring tape, chalk.

Method of performance: The tester stands facing the wall, then the tester extends his arms upwards to their full extent in order to know the first mark, then records the number, noting that the heels are close to the ground. The tester swings the arms downwards and backwards while bending the torso forward and downwards and

bending the knees to a right angle only. Then the tester extends the knees and pushes the feet together to jump upwards while swinging the arms forcefully forward and upwards to reach the maximum possible height in order to mark the second mark.
Recording: The number of centimeters reached by the tester from a standing position, and the mark he reaches as a result of jumping upwards is recorded, as the mark (the distance between the first mark and the second mark is the amount of explosive power of the legs.(
Test of the strength characterized by speed for the arms3:
Front support, bending and extending the arms continuously for (15) seconds .(
Purpose of the test: Measuring the muscles of the arms.
Tools used: Stopwatch, whistle.
Performance method: The tester assumes a front-back position on the ground so that the body is in an upright position. At the start signal, the tester bends the arms completely, and continues to repeat the performance as many times as possible without stopping for ten seconds.
Recording: The tester's score is: the number of correct repetitions during a period of ten seconds
Test of the speed-characteristic strength of the legs4:
Test name: Hopping on one leg for a distance of (20) m right and left
Test objective: Measuring the speed-characteristic strength of the leg muscles
Performance specifications: The tester stands with the jumping leg touching the starting line and the free (swinging) leg free backwards.
When the start command is given, the tester hopping to a distance of (15) m, then changing the hopping to the other free leg to the finish line. The tester is given two attempts and the best is counted.
Recording: The time is calculated in seconds.
Accuracy of the offensive blocking wall skill (17: 945:(
Test name: Accuracy of the blocking wall skill.
Test objective: Measuring the accuracy of the blocking wall skill with the ball The plane.
The tools used: Legal volleyball court. Legal volleyballs, number (5). Colored tape to divide the opposite court.
Performance specifications: The tester stands between centers (3-4) in front of the net and at a distance of (20) cm from the net and in a position of readiness for the blocking process. The coach performs the smashing skill from the opposite court from center (2) and the tester performs the blocking wall skill by moving towards center (4) according to the method agreed upon in advance.

2-4-2:Biomechanical variables under investigation

1-Approach speed variable: It is the approach distance traveled per unit of time and its unit of measurement is (m/s) and it is the ratio between the approach distance represented by the beginning of the movement of the center of gravity of the body, from its movement on the ground until before leaving the ground to rise over the time of this distance and it was calculated by (Trakpath.(

2-Rise angle variable: It is the angle between the horizontal level and the line connecting the fulcrum of the rising foot on the ground and the point of the player's hip joint in the last image before the foot leaves the ground and it is measured from the front.

3- Maximum height variable of the center of mass of the body at the moment of hitting: It is the vertical distance between the hip point at the moment of hitting the ball and the surface of the ground.

4- Circumferential velocity variable of the hitting arm: The circumferential velocity of the hitting arm was measured after finding its angular velocity by tracking the path (Trak path) (S Z x R ÷ 57,3.(

5-Ball speed variable: It is measured from the moment the ball is hit, and to a distance of (1) m, divided by the time taken.

3-4-2:Biokinetic variables

1-Maximum force variable at the moment of contact: It is the largest value recorded on the curve in the first push stage.

2-Time to reach maximum force variable at the moment of contact: The time taken to the nearest fraction of a second from the moment of contact with the platform until the maximum force is recorded in the first push stage was obtained.

3-Minimum force variable at the absorption stage: It is the smallest value recorded on the curve in the absorption stage.

4-Minimum force time variable for absorption: It is the time taken by the force from the moment of the first push until reaching the lowest force on the force curve and is measured in (sec.(

4-4-2 :Exploratory experiments

The first exploratory experiment :

The most important thing that scientific research scientists recommend in order to obtain accurate and reliable results is to conduct an exploratory experiment, which is known as "a miniature experiment of the main experiment, the purpose of which is to experiment with work to uncover the obstacles and negatives facing the application of the main experiment or for the purpose of training some of the support staff to work" (3: 132). The researchers conducted the exploratory experiment on Friday,

25/1/2023 at nine in the morning in karbala Hall on a sample of players from the specialized center for volleyball, numbering (5) players from the research community and from outside the sample to apply the tests. After a period of (7) days, the test was repeated with the same procedures in terms of time and place. The purpose of this experiment is to know the negative aspects and variables that will face the work, as well as to ensure the following :

1.Finding the scientific foundations for the tests
2 .Knowing the appropriate tools and devices to conduct these tests
3.Knowing the appropriate time and place to conduct them
4.Identifying the distances and heights at which the cameras should be placed
5.Ensure the adequacy of the assistant staff -5
6.Defining the assistant staff in how to apply these tests
7.Knowing the difficulties and problems facing the test researchers
8.Clearly defining the range of motion for the cameras from the beginning of the movement to its end, as well as for the distances (dimension) and heights of the .cameras
9.Determining the location of the force platform

The second exploratory experiment-:

The second exploratory experiment was conducted on Sunday, 27/1/2023 at four o'clock in the afternoon in karbala Hall on the research sample (the experimental group), and isolation exercises were applied using the short repetitive method with a variable pattern for the following purposes:

1-Standardizing these exercises and finding the components of the load for them (intensity, volume, and comfort.(
2.Knowing the extent of the sample's ability to apply these exercises
3.Knowing the time required to apply these exercises
4.Knowing the assistant staff and trainer in how to apply these exercises
5-Knowing the difficulties and problems facing researchers in applying these exercises before applying them in the main experiment.

3-4-2:Scientific foundations of tests

First: Validity:

Validity is one of the indicators that must be available in the approved test to measure any of the mathematical characteristics and phenomena. A valid test is defined as "a test that accurately measures the thing to be measured and does not measure anything instead of it or in addition to it (10: 23.(

To determine the validity of the tests, researchers used apparent validity, "which means that the test appears valid in its apparent form because its name relates to the function to be measured" (2: 55). The tests were presented to a group of experts and specialists to obtain the validity of the arbitrators, and they agreed on their suitability to measure what they were designed to measure. This procedure is considered validity in the tests, as (Mustafa Mahmoud et al. 1990) indicate that "a test can be considered valid if it is presented to a number of specialists and they judge that it measures what it was designed to measure efficiently" (14: 116.(

Second: Reliability:

In order to extract the stability coefficient for the tests, the principle of the "fixed test" must be applied, which gives similar results or the same results if applied more than once in similar conditions (16:145). This is done in similar conditions. The researchers used the test-retest method to calculate the stability coefficient, with a time interval between the first and second tests of (7) days. The first test was conducted on Friday, 12/22/2023 at nine in the morning, and it was repeated on Friday, 12/29/2023 at nine in the morning, on (5) players from the research community and outside the sample. The researchers extracted the stability coefficient using the correlation coefficient (Pearson) between the results of the first test and the results of the second test and extracting the significance of the correlation. The researchers concluded that the tests have high significance because the calculated (SIG) value is less than (0.05), which indicates that the tests have a high degree of stability, as shown in Table (2.(

Third: Objectivity:

The objective test "is one in which there is no discrepancy between the opinions of the arbitrators If they judged the individual tested more than one judge (8:77), the researchers found the objectivity coefficient for each of the physical tests and the offensive wall test by finding the simple correlation coefficient (Pearson) between the results of the two judges in the first application that was conducted during the exploratory experiment, and the correlation coefficients were high, which indicates the objectivity of the tests used in the research, and Table (3) shows that.

Table (3) shows the coefficient of stability and objectivity of the tests.

Sig	Objectivity factor	Sig	stability coefficie	test
0.043	0.765	0.122	0.823	Arm Explosive Power
0.011	0.854	0.034	0.850	Legs Explosive Power
0.344	0.758	0.021	0.889	Arm Speed Power
0.211	0.843	0.034	0.875	Legs Speed Power
0.016	0.901	0.032	0.843	Attack Blocking Skill Accuracy

The correlation coefficient is significant at a significance level of (0.05) and in front of a degree of freedom (3), as the tabular value of (r) is (0.878(

2-5:The main experiment

1-5-2:Pre-tests for the research sample

The researchers conducted the pre-tests on the research sample before starting to implement the exercises used on Tuesday, 1/25/2023 at nine o'clock in the morning (in karbala Hall). All members of the research sample, numbering (10) players, attended, and then the researchers and the assistant work team conducted the tests on the sample.

Isolation exercises using the short repetition method with variable rhythm2-5-2:

In order to obtain effective exercises, it was necessary to review the modern sources and references in sports training science that would be sufficient to enrich researchers with information that would help them in placing exercises and exercises within the training curriculum. Therefore, the researchers prepared the exercises for the research sample members (the experimental group), relying in their preparation on the scientific foundations of training and on some scientific sources and references, in addition to the opinions of some specialists in the field of sports training science and volleyball.

The researchers prepared isolation exercises using the short repetition method with variable rhythm during the special preparation period for a period of (8) weeks, at a rate of (3) training units per week. The number of training units was (24) units and the time of each training unit was (55-60) minutes. The researchers also measured the maximum intensity (100%) for each exercise in order to extract the intensity required to perform the exercises. In addition, the researchers measured the maximum intensity (100%) for each exercise and for each player and took an arithmetic mean during its calculation in the curriculum and to identify the exercise time with the required intensity. The researchers' work will be limited to the main part of the training unit.

The exercises were applied on Sunday, 1/5/2024, , 4/30/2024, for a period of eight weeks, with three training units per week (Sunday, Tuesday, Thursday.(

The following are some clarifications regarding the compound exercises:

-The training phase (special preparation phase(

-The duration of the curriculum application is two months (8 weeks(

-The number of training units per week is (3) units.

-The total number of training units is (24) training units.

-Training days (Sunday, Tuesday, Thursday.(

-The time of the main section is (45-90) minutes.

-Using sub-maximum and average intensity.

-The average intensity of the experimental group was extracted to unify the intensity and start with one starting line.

-The researchers took into account the scientific foundations in the relationship between the components of the training load (intensity, volume and rest(

Post-tests for the research sample3-5-2:

The post-tests for the research sample were conducted on Tuesday 4/3/2024 (in karbala Hall) after the completion of the period of applying the ballistic exercises, which took (8) weeks. The researchers were keen to provide the same conditions as the pre-tests.

6-2:Statistical methods

The researchers used statistical methods that helped in processing the results and testing the research hypotheses by using the statistical bag (IBM SPSS Statistics 24), which are:

•Percentage.

•Arithmetic mean.

•Standard deviation.

•Coefficient of variation.

•Pearson correlation coefficient.

•T-test)) for correlated samples.

•T-test)) for independent samples.

Presentation, analysis and discussion of the results3:

1-3:Presentation and analysis of the results of the values of some biokinematic variables and the accuracy of the volleyball smash skill for the pre- and post-test of the control group:

Table (4) shows the values of the arithmetic means, standard deviations, the calculated (T) value and the sig value for some biokinematic variables and the accuracy of the volleyball smash skill for the pre- and post-test of the control group

Result	Sig	T	)after(		)before(		Unit of measure	Variables
			ع	سَ	ع	سَ		
Moral	0.000	5.023	5.01	3.60	0.201	3.94	M	explosive power of arms
Moral	0.000	4.512	8.04	48.10	3.43	40.1	Cm	explosive power of THE LEGS
Moral	0.001	3.511	0.876	11.10	2.234	9.5	S	Arm speed strength
Moral	0.000	3.12	1.101	8.898	0.512	10.1	S	The distinctive power of speed for the legs
Moral	0.000	8.418	1.050	4.10	0.040	2.93	m/s	Approach speed

Moral	0.011	7.404	2.15	73.73	2.38	75.40	M	Rise angle
Moral	0.001	8.432	1.24	120.73	1.73	122.20	M	Maximum height of the center of mass of th body at the moment of hitting
Moral	0.000	6.994	1.44	11.21	1.60	10.88	m/s	Circular velocity of the hitting arm
Moral	0.000	7.101	1.25	13.20	2.11	13.24	m/s	Ball velocity
Moral	0.000	7.633	50.43	897.62	44.20	897.89	n/s	Maximum force at the moment of contact
Moral	0.001	2.231	0.090	0.056	0.017	0.050	S	Time of maximum force at the moment ontact
Moral	0.000	5.202	23.18	560.54	22.64	910.10	n/s	Minimum force absorption phase
Moral	0.000	7.522	0.087	0.038	0.013	0.032	S	Time of minimum force absorption
Moral	0.000	8.622	0.611	15.340	1.30	12.76	M	Offensive blocking skill accuracy

From Table (4) it is clear that there is a significant difference between the pre-test and post-test in favor of the post-tests of the control group in all physical abilities and biomechanical variables and the skill of the offensive block wall in volleyball because the sig value for all abilities and variables is less than (0.05) and this indicates that the difference is significant between the pre-test and post-test.

2-3:Presentation and analysis of the results of the values of some biokinematic variables Accuracy of the skill of the smashing serve in volleyball for the pre-test and post-test of the experimental group:

Table (5) shows the values of the arithmetic means and standard deviations and the calculated (T) value and the sig value for some biokinematic variables and the accuracy of the skill of the smashing serve in volleyball for the pre-test and post-test of the experimental group

Result	Sig	T	)after(		)before(		Unit of measure	Variables
			خ	س	خ	س		
Moral	0.000	11.29	0.311	3.89	1.298	3.98	m	explosive power of arms
Moral	0.003	5.412	3.34	51.7	2.3	38.6	cm	explosive power of THE LEGS
Moral	0.000	6.00	1.09	12.6	1.302	13.1	s	Arm speed strength
Moral	0.001	4.63	0.340	11.101	0.768	3.98	s	The distinctive power of speed for t egs
Moral	0.000	37.80	1.13	3.80	0.56	2.97	m/s	Approach speed
Moral	0.001	11.70	1.70	76.15	1.66	69.44	m	Rise angle
Moral	0.000	9.034	2.30	130.17	1.05	129.15	m	Maximum height of the center of ma of the body at the moment of hitting
Moral	0.003	3.498	2.56	12.98	1.39	13.55	m/s	Circular velocity of the hitting arm
Moral	0.001	4.899	2.04	14.70	2.42	13.45	m/s	Ball velocity
Moral	0.000	13.007	20.60	919.11	39.80	898.1	n/s	Maximum force at the moment ontact

Moral	0.000	11.30	1.034	1.023	1.011	0.023	s	Time of maximum force at t moment of contact
Moral	0.001	9.10	53.80	1010.20	31.17	789.13	n/s	Minimum force absorption phase
Moral	0.000	13.69	0.012	0.020	0.011	1.050	S	Time of minimum force absorption
Moral	0.001	6.301	0.590	19.023	1.39	11.97	m	Offensive blocking skill accuracy

From Table (5) it is clear that there is a significant difference between the pre-test and post-test in favor of the post-tests of the experimental group in all physical abilities and biomechanical variables and the skill of the offensive block wall in volleyball because the sig value for all abilities and variables is less than (0.05) and this indicates that the difference is significant between the pre-test and post-test.

3-3:Presentation and analysis of the results of the values of some biokinematic variables Accuracy of the skill of the smashing serve in volleyball for the post-test for the control and experimental groups:

Table (6) shows the values of the arithmetic means and standard deviations and the calculated (T) value and the sig value for some biokinematic variables and the accuracy of the skill of the smashing serve in volleyball for the post-test for the control and experimental groups

Result	Sig	T	)after(		)before(		Unit of measure	Variables
			ع	سَ	ع	سَ		
Moral	0,001	6,393	0.288	4.45	3.10	3.98	m	explosive power of arms
Moral	0,000	4,33	8.30	60.8	6.10	45.10	cm	explosive power of THE LEGS
Moral	0.000	1.511	2.05	13.4	0.898	11.2	s	Arm speed strength
Moral	0.012	3.80	0.211	9.365	0.502	10.788	s	The distinctive power of speed for th legs
Moral	0.000	13.76	0.10	4.93	0.050	2.43	m/s	Approach speed
Moral	0.002	13.898	1.70	85.16	1.89	75.98	m	Rise angle
Moral	0.000	6.343	3.34	145.16	1.43	129.11	m	Maximum height of the center of ma of the body at the moment of hitting
Moral	0.000	3.809	1.65	14.51	2.34	10.04	m/s	Circular velocity of the hitting arm
Moral	0.003	5.656	1.04	15.60	2.32	11.66	m/s	Ball velocity
Moral	0.000	13.301	20.44	1276.66	50.54	833.93	n/s	Maximum force at the moment of contact
Moral	0.02	1.959	0.030	0.024	0.078	1.234	s	Time of maximum force at the mome of contact
Moral	0.000	8.898	59.82	1065.00	24.17	911.22	n/s	Minimum force absorption phase
Moral	0.04	2.848	0.019	0.030	0.034	1.030	S	Time of minimum force absorption
Moral	0.001	6.089	.988	8.333	0.800	4.300	m	Offensive blocking skill accuracy

From Table (6) it is clear that there is a significant difference between the post-tests of the control and experimental groups in favor of the experimental group in all biomotor abilities and the skill of the offensive block wall in volleyball because the sig value for all variables is less than (0.05) and this indicates that the difference is significant between the post-tests of the two groups.

Discussion of the results3-3:

There were significant differences in physical abilities and the researchers attribute the reason for this to the effective impact of the nature of isolation exercises, as the benefits of these exercises include increasing focus on a specific muscle and thus treating the weakness of the biomotor abilities under study and improving muscle coordination and strengthening weak muscles because they leave the muscle group isolated and able to do all the work, as isolation exercises are exercises that put the finishing touches on the muscle.

The researchers believe that the reason for the emergence of significant differences is due to the fact that isolation exercises using the short repetition method with a variable rhythm have positively affected the explosive strength of the arm muscles resulting from the use of various throwing exercises in many forms (pushing the ball, throwing the ball, throwing medical discs with actual performance, weight exercises, and resistance exercises with rubber ropes for the arms and legs), as well as the use of strength exercises and intensity that work to develop this ability that aims for maximum strength and in the shortest possible time, which were applied to the sample members in a scientifically studied manner according to the requirements of distributing the correct training load during the specified time period and taking into account the sample's ability to apply the exercises contributed to reducing the duration of muscle contraction and increasing the speed of performance and thus obtaining the maximum contraction and the highest strength. This is consistent with what was indicated by (Mohamed Hassan Alawi and Abu Al-Ala Ahmed Abdel Fattah) that "the shorter the period of muscle contraction, the greater the strength, and on the contrary, the longer the period of muscle contraction, the amount of strength does not remain constant but changes" (9: 124(

As it contained Isolation exercises using the short repetition method with a variable rhythm, jumping, hopping and skipping exercises with different resistances and with intensity governed by the progression of their progression with a variable rhythm, have succeeded in increasing the intensity of training loads, ascending and descending, in a scientifically studied manner according to this method, to develop the explosive strength of the arms and legs. Since "muscle intensity is the force produced or exerted by the muscle when it contracts, and it depends on the number

of muscle fibers involved in the contraction and also differs according to the type of muscle contraction" (11: 236), therefore it can be said that using the short repetition method with a variable rhythm, the possibility of keeping the intensity of training loads high to the point of developing the explosive strength of the arms and legs in a good way has been realistically translated. As for the strength distinguished by speed for the arms and legs, the researchers attribute the reason for the significant differences shown by the results of the post-tests of the research sample to the isolation exercises with medium intensity and quick responses using the short repetition method with a variable pace that allows players to center and stabilize in intensity weekly and then go up or down to change the intensity and volumes, as well as focusing on the isolation exercises being appropriate for the player's movement, physical abilities and physical specifications.

In addition, the short repetition method achieves development in the level of muscle strength of the muscles working in the performance of all tests, which indicates the development of the efficiency of the sample members who trained using this method when the performance is repeated more than once, provided that training tends to build special physical abilities related to the player's future specialization and uses exercises with a special preparation nature according to the characteristics and requirements of each game. Coaches must pay attention to the correct skill performance while implementing isolation exercises and use appropriate weights and appropriate doses that can reflect positive effects in the development process. (15:12(

The researchers also attribute the development in biomechanical variables to the short repetition isolation exercises with a variable rhythm, as the isolation exercises target one muscle group or one joint, thus focusing well on the correct technique of the skill, as these exercises worked to develop strength as well as speed, as we find that the push increases with the player's speed, so it is possible to achieve the maximum values of the push to obtain the increasing path of the center of gravity movement towards the desired direction and with a maximum final speed for launch, and from this standpoint we can say that speed is the important mechanical factor in achieving the push for the players, as time has an important effect in achieving the push, as the coordination of the body parts and their rapid strength has a positive effect in achieving the push, and on this basis some current studies of physical education and sports science research have proven that "the process of tension applied to the thigh muscle gave a close relationship with the accuracy and speed of the ground push and flight, and this result is an important indication that can be relied upon in the short repetition isolation exercises with a variable rhythm" (1: 25(

The researchers also attribute the result of the isolation exercises to developing the variable of maximum strength and its time The exercises used according to the scientific foundations related to biomechanics have achieved their goal, which is to develop the strength and speed of performance and the functional changes associated with them, and to reduce the time of exerted effort, in addition to creating a state of adaptation in the working forces of the body parts contributing to the instant performance of volleyball players. Not to mention that volleyball skills require the player to move quickly and have appropriate strength according to the playing situation for good execution or a correct pass that ensures that the competitor does not control a higher height than the competitor when performing the blocking wall, as well as having good acceleration is often necessary to obtain good speed to prepare for the jump and the level of that depends on the speed of contraction of the white muscle fibers. Walid Khaled states that the player must exert the maximum possible force when blocking the ball, which confirms the need for strong muscles in the legs to perform the contraction and expansion process until achieving the highest height. Therefore, the knee angle of the pushing leg before the moment of letting go plays a role in the final push process by directing the movement upwards. In order for the push movement to occur, "the strength of the muscle tension of the working rings must increase with the support and to produce an acceleration directed upwards that serves the working limbs to perform the movement, and through the dynamic force and change in the value of the force and its effect, the push begins" (7:285). Researchers believe that the push of players can be evaluated through the maximum force variable, as it is one of the biomechanical variables. The task that results from the contraction of the groups, where Ibrahim Aql confirms that "explosive power is the ability of the muscle to overcome maximum resistance while distinguishing the performance with high speed at the same time, so extending the body upwards with the help of the knee angle works to increase the acceleration and thus increase the values of the vertical speed of flight" (4: 90), "Abdul Ali Naseef" confirms that "the final speed of the movement is related to the method of acceleration, i.e. by bending and extending the joints working in the performance" (18: 101.(

The researchers attribute that the jump height has a correlation with the time of arrival of the impact, as the short time leads to the level of muscle power being very high through the variable of jump height and because of that, there is an improvement in the phenomenon of motor transfer in the working joints in a way that serves the skillful performance of the offensive blocking wall, and since the force of propulsion means exerting a force in the shortest possible time to change the momentum of the body from one direction to another, as happens in pushing the ground with the foot"

(12: 86). The researchers attribute the development in the accuracy of the offensive blocking skill to isolation exercises in addition to the optimal exploitation of the values of biomechanical indicators and the economy of motor performance by overcoming external resistance and obtaining the highest possible height and speed of motor performance to the side and flexion and extension in all joints of the body is what enables the player to block the ball of the attacking player and return it to the field, as the higher the compatibility between the body parts in movement and the correct timing of the attacking player, this contributes to achieving a positive result and blocking the ball and returning it to the opposing team's field, that the biomechanical measurement of the values of the indicators for the player when performing the offensive blocking skill will achieve the main goal at this stage, which is "achieving high speed in approaching so that he can make the best use of the pushing force vertically during the rise phase" (5: 53.(

4:Conclusions and recommendations

1-4:Conclusions

Based on the research results, and the accompanying statistical treatments, discussion and extrapolation within the limits of the research sample and its nature, the researchers were able to reach the following conclusions-:

1:Isolation exercises using the short repetition method with a variable pattern led to the development of the biomotor abilities of young volleyball players

2:Isolation exercises using the short repetition method with a variable pattern led to the development of some biomotor abilities 3- Isolation exercises using the short repetition method with a variable pattern led to the development of the level of accuracy of the offensive blocking skill among the research sample members through the differences that appeared in the results of the post-test and in favor of the experimental group.

2-4:Recommendations -

1:Adopting isolation exercises using the short repetition method with a variable pattern in training curricula, especially for young players.

Conducting similar studies on the basic skills that the study did not address2.

3:Conducting similar studies for other age groups and using other training methods concerned with developing basic and complex skills and knowing the results of these studies. 4- Paying attention to conducting tests and measurements periodically

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