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The effect of special exercises in developing the values of some bio kinematics variables and physical abilities of the accuracy of the crushing transmission skill in volleyball (Misan players 20-25 years old)

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Abstract

The importance of research is reflected in the preparation of strength exercises according to scientific and objective foundations that contribute to improving the level of technical performance of the skill of overwhelming transmission in volleyball by upgrading the values bio kinematics and physical variables, which ultimately constitute the general form of the skill and thus reach the best performance in the game of volleyball. Reaching the higher levels is one of the important matters that requires knowledge of the most important mechanical foundations for the angles of muscular work, which contribute to mastering the skill by relying on kinetic analysis as a logical means by which the phenomenon is evaluated objectively to determine the most important areas of strength and weakness for the level of performance of applicants, Missan Governorate. As for the research problem, it lies in not using modern scientific training methods to develop the skill of overwhelming transmission through the process of linking the physical and mechanical side to improve the motor path of the skill, which led to a decline in the level of technical performance of the skill of overwhelming transmission in volleyball, so the use of special strength exercises according to a correct scientific approach It has a great benefit because it is moving towards the correct motor path, thus developing the physical, mechanical, skill and cognitive aspects alike. It is to identify the effect of the explosive The explosive power of the arms and the speed characteristic of the legs on the values of some bio kinematic and physical variables and the accuracy of the performance of the skill of overwhelming transmission in volleyball for the applicants of Missan. As for the researcher's hypothesis: There are significant differences in the values of some bio kinematics and physical variables and the accuracy of the performance of the crushing transmission skill between the control and experimental groups and in favor of the experimental group. A training unit at a rate of (3) training units per week, as the researcher chose his research community in a deliberate way, and they are the applicants of Maysan Governorate in volleyball for the 2022/2023 season, numbering (15) players, which constitutes (80%) of the original community divided into an experimental group (6) And a control group (6) players, and (3) players a reconnaissance experiment, and (6) attempts were given to all members of the sample, and the attempts were photographed by a US-made mobile device iPhone 11 pro max (240) images per second, number (3), And RAM 4 GB. The researcher also used the Kenova program to analyze the attempts and extract the values of the bio kinematics variables. The researcher concluded: that special strength exercises have developed from the values of bio kinematics and physical variables in the post-test of the experimental group as a result of using exercises similar to the motor path of the skill of crushing serve. Field tests procedures for the special physical abilities of explosive, great and maximum ability, in addition to conducting experiments on other offensive skills for the same specialized effectiveness.

Keywords: Bio kinematics variables, physical abilities, accuracy, category, advanced, Missan

Introduction

The importance of the research is evident in the use of special strength exercises represented by the strength distinguished by the speed of the arms and legs according to the scientific and objective foundations, which contribute to the development of the level of technical performance of this skill by upgrading the values of the biokinematic variables, which ultimately form the general form of the skill, thus reaching the best performance in the game of volleyball And reaching the higher levels is one of the important things that require knowledge of the most important mechanical variables that contribute to mastering the skill.

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Therefore, kinetic analysis is a logical means by which the phenomenon is evaluated objectively to identify the most important areas of strength and weakness for the level of performance of the players.

Research problem

Through the follow-up of the researcher being a teaching and academic and his observation of most of the local league matches and the training of the volleyball club teams, he noticed a weakness in the technical performance of this skill due to a weakness in the physical aspect, especially in the ability represented by the strength of the speed of performance on which the success of most of the offensive skills in the game of volleyball depends, as well. The failure to use methods and training methods with the correct scientific means to develop the crushing serve skill through the process of linking the physical and mechanical aspect to improve the motor path of the skill led to a decline in the level of technical performance of this influential skill, so the use of exercises randomly and traditionally does not achieve the desired goal, so he decided The researcher identified the role played by the exercises of the experimental method, represented by the distinctive strength, speed of the legs, and the explosive ability of the arms, and by using the two methods of high-intensity and repetitive training, which must be of a special nature that is consistent with the requirements of the skillful performance of this game, which contributes to the development of the values of the biokinematic variables based on a correct scientific approach and foundations for it. Great benefit because it goes towards the right motor path and therefore It is developed in terms of both physical, mechanical and skill aspects.

Research aims

1. To identify the effect of special strength exercises on the values of some bio-kinematic and physical variables for the skill of crushing serve accuracy in volleyball for applicants.
2. Identifying the values of some bio-kinematic and physical variables for the skill of crushing accuracy in volleyball for the applicants of the control and experimental groups in the pre and post-tests.
3. Identifying the differences in the values of some bio-kinematic and physical variables of the skill of crushing serve accuracy in volleyball for applicants in the pre-post-test of the control and experimental groups.
4. Identifying the differences in the values of some bio-kinematic and physical variables of the skill of crushing accuracy in volleyball for applicants between the control and experimental groups in the post-test.

Research hypotheses

1. There are statistically significant differences in the values of some bio-kinematic and physical variables of the skill of crushing transmission in youth volleyball for the experimental group in the pre-post- test and in favor

of the post test.

2. There are statistically significant differences in the values of some bio-kinematic and physical variables for the skill of crushing transmission in volleyball for youth between the two groups in the post-test and in favor of the experimental group.
3. Special strength exercises have a positive effect on the values of some bio-kinematic and physical variables of the crushing serve skill in volleyball for Maysan applicants in the post-test and in favor of the experimental group.

Research hypotheses

1. The human field: the advanced players of Maysan Province, volleyball, for the 2022/2023 season.
2. Time range: from 1/10/2022 to 10/2/2023
3. The spatial area: the sports hall of the martyr Luaibi / Maysan Governorate.

Research methodology and field procedures

Research Methodology

The researcher used the experimental approach with two groups, the control and the experimental group, due to its suitability to the nature of the problem. Experimental research is the most accurate type of scientific research that can affect the relationship between the independent variable and the dependent variable in the experiment) (1)

Research sample

The researcher chose his research community by the intentional method, and they are the applicants of Maysan volleyball for the 2022/2023 season, whose number is (15) players, which constitute (80%) of the original community.) players for each group, and the experimental variable was introduced using special strength exercises on the experimental group, and the control group was trained in the usual manner followed by the trainer, and before starting to give the exercises of the prepared curriculum with special strength, homogeneity and equivalence between the two groups were calculated in measurements and tests as follows:

Homogeneity and equivalence of the sample

Sample Homogeneity

For the purpose of homogeneity of the two research groups, the researcher homogenized the anthropometric measurements of the two research groups, and the table below No. (1) shows the homogeneity of the research sample members for the coefficient of torsion, and indicates that “the more the resulting degrees confined (± 3) to the normal distribution curve indicates the degrees are naturally distributed with the presence of homogeneity in the sample The chosen one. (2) And the value of the coefficient of variation for the anthropometric variables is (22.28%), which is less than (25%), which indicates the homogeneity of the advanced research sample.

Table 1: It shows the homogeneity of the two research groups in anthropometric variables

Wizards Statistical	Advanced shooters unit of measure	Advanced shooters unit of measure			Advanced shooters unit of measure	Advanced shooters unit of measure
		x	$\pm p$	median		
Variants	Year	18,40	0,784	18,21	0,731	4,26
	Year	6,7	0,710	6,50	0,855-	10,59
The age	Kg	71,32	1,035	71,15	0,716	1,45
Training age	Cm/m	183	2,419	184	1,201-	1,32
Body mass	Cm/m	239,5	3,422	239,5	0,170-	1,42

Sample Equivalence

For the purpose of knowing the reality of the biokinematic and physical variables under study in the experimental and control groups, the researcher measured these 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 below, This is what qualifies the researcher to do his research and apply special strength exercises.

Table 2: It shows the equivalence of the values of the arithmetic mean, standard deviations, and the computed and tabulated (t) value of the values of the bio-kinematic and physical variables of the pre-test of the control and experimental groups in overwhelming transmission

Biokinematic variables		Smash Serve (T-Reg)		Smash Serve (pre-experimental)		The calculated value	Significance level	Result
		S	P	S	P			
1	approach speed	3.51	0.25	3.54	0.12	0.98	0.05	Random
2	Maximum flexion of the knee joint at the moment of flexion	128.4	1.87	125.74	2.13	1.24		Random
3	Advance angle	84.65	0.82	85.58	0.89	1.94		Random
4	The player's flight speed	3.30	0.23	3.32	0.75	1.55		Random
5	Circumferential velocity of the striking arm	7.40	1.37	7.34	1.13	1.74		Random
6	The height of the hip joint at the moment of hitting the ball	2.64	3.77	2.62	2.83	0.56		Random
7	The ball's flight speed	14.68	1.30	14.72	1.28	1.48		Random
8	skill precision	12.3	1.34	12.5	1.33	1.38		Random
9	medicine ball throw 3 (kg)	2.580	1.021	2.599	1.025	1.22		Random
10	Three hops for the largest distance for both men together	4,60	0,340	4,75	0,470	0,89		Random

*Tabular value (1.81)

Table (2) shows that all calculated (t) values are less than the tabular value of (1.81) under the level of significance (0.05) and the degree of freedom (12-2 = 10), which indicates the equivalence of the control and experimental groups in the indicators under consideration. search.

- Tools, means and devices used in the research:
- Scientific research tools:
- Arabic and foreign sources and references.
- Personal interviews
- Accuracy registration form for the skill of crushing serve in volleyball, Appendix (2).
- Tests and measurements used in the research.
- Methods and devices used in the research
- Mobile device (iPhone 11 pro max) made in USA (240 images per second, number (2).
- Japanese-made (CASIO) manual calculator.
- DEEL INSPIRON 501 laptop computer.
- Kenova program for kinetic analysis.

- Scale drawing (length 1 m).
- Metal tape measure.
- Adhesive tape with a width of (5) cm and stationery.
- A device for measuring length and mass.
- A legal volleyball court, and (6) legal volleyballs.
- Volleyball net with a height of (2.43 m).
- Casio electronic stopwatch.
- □ And 9 barriers of different heights.
- 6 medicine balls weighing (3 kg).

Tests used in the research

Skill Performance Test (1)

The accuracy of the transmission is the front facing from the top

- The purpose of the test: measuring the accuracy of the forward facing transmission from the top.
- Equipment used: a seated volleyball court, (6) balls, and a net.

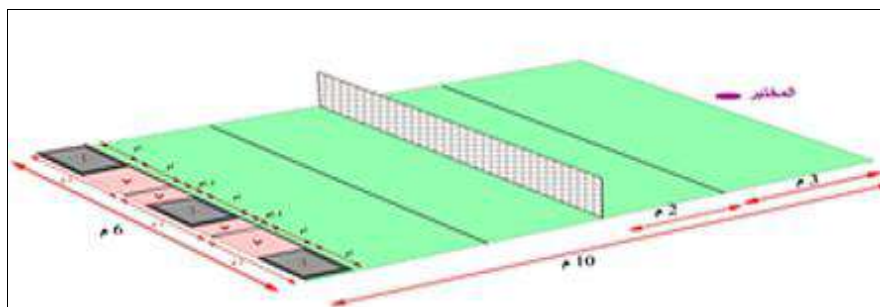


Fig 1: Testing the accuracy of the front smash transmission from the top

Figure (1) shows the accuracy of the forward high diagonal crushing serve

Performance specifications: dividing an area with the width of the serving area, i.e. the recipient, into three areas with a length of (1) m, inside the stadium, so that the area of each area is (2 x 1) m, and in each area (2 x 1) m, an area within it will be (1 x 1) m, to be Three areas called (A), and an area

(2 x 1) m called B), the tester sits in the transmitter area and performs the transmission to the specified area (A), (B) the first two attempts, and also sends to the specified area A), (B) the second two attempts With the same performance, he sends the ball to the third region (A), (B) with two attempts, as shown in Figure (5).

Registration: Each laboratory has (6) attempts, and they are calculated as follows.

- (3) Points if the ball falls in the area (a).
- (2) Points if the ball falls in the area (B).
- A point if the ball falls across the court.
- (zero) for a failed serve or a violation of the rules of the game.

The maximum score is (18) points.

Physical exams

Throwing a medicine ball weighing (3) kg with two hands from standing over the head. (2)

- **The aim of the test:** Measuring the explosive force of the arms.
- **Tools used:** A flat ground on which the starting line is drawn for the laboratory to stand, medical balls weighing (3) kg, a measuring tape, and a number of signs or signs (signals).
- **Test instructions:** The throwing place is planned with parallel lines and the distance between each line is (5) cm, or the measuring tape is fixed on the starting line from zero degrees to a few meters towards the throwing area.
- The tester stands behind the starting line, facing the throwing area, holding the medicine ball with both hands above the head, and then throws it with a slight swing of the arms back.
- **Test conditions:** The player must throw the ball, not push it. The ball should be thrown towards the throwing area, and each laboratory has two attempts to calculate the best of them and record the attempt for the closest distance to the starting line.
- **Calculating scores:** A recorder calls the testers and records the results. Two (2) observers determine the place where the medicine ball falls, measure the distance, and monitor performance. One of them is at the starting line and the other is inside the throwing area. He records the measurement of the first place where the medicine ball falls

$$\begin{aligned} \text{Arms explosive force index} &= \frac{\text{Km} \times \text{m}}{(\text{n})^2} \\ &= \frac{\text{kg} \times \text{m}}{(\text{tha})^2} \text{kg. m/s}^2 = \text{Newton} \end{aligned}$$

The first reconnaissance experience

The researcher conducted a preliminary exploratory experiment on Thursday 9/22/2022 on (3) players from outside the research sample, but from within the research community itself, but they were excluded in the main experiment, in order to standardize the tests and ensure the scientific transactions of the tests.

Videotaping of the pre-test of crushing hitting skill

The researcher conducted a pre-imaging of the research sample on 10/3/2022 at the indoor games hall in Al-Shahid Luaibi in order to extract the accuracy and values of the biokinematic variables of the skill of the forward high crushing serve. The number of attempts was (30) attempts, the share of each player was (5) attempts, and the attempt

was photographed It is best to use a former male iPhone mobile device, and the mobile phone has been placed at a height of (1.56) meters, measured from the ground to the lens of the camera, and at a distance of (7.40) meters from the place where the players perform, to ensure that the player appears from the start of the movement until the stage of landing. The camera in the iPhone is at a vertical angle and on the right side of the player while he is performing the crushing serve, and then the special strength tests are conducted on 10/4/2022.

3-8 Biokinematic variables: (Yasser, 2015)

- **Approach speed:** It is the approach distance traveled per unit of time and its unit of measurement is (m / sec), which is the ratio between the approach distance represented by the beginning of the movement of the feet from his movement on the ground to before leaving the ground to rise for the purpose of hitting the ball to the opponent's square over time This distance traveled by the analysis program Kinovea 0. 0.710).
- **Bending the knee joint at the moment of preparation for the jump:** It is the angle calculated between the thigh line (from the hip to the knee) and the leg line (from the knee to the ankle, measured from the inside by the analysis program Kinovea 0.710).
- **The angle of rise:** It is the angle confined between the horizontal plane of the ground and the line connecting from the point where the feet meet the ground (the fulcrum) to the point of the body's center of gravity at the moment the player gets up at the completion of the progress between the feet and its direction is counterclockwise and measured from the front by the analysis program Kinovea 0.710).
- **The player's flight speed:** It is measured by the distance traveled at the moment of the body's launch from the area behind the starting line of the landing perimeter in the back area of the sender area on its time and its unit of measurement (m / s). It is measured by the analytical program Kinovea 0.710).
- **The peripheral velocity of the striking arm:** It is the product of multiplying the angular (rotational) velocity of the arm from behind and then higher in front towards the opponent's court multiplied by the radius (radius) (the distance from the right shoulder to the left shoulder) and its unit of measurement is m / s and is proportional to Both angle and radius are inversely proportional.

$$(\text{cm} = \text{x g} \times \text{r} \text{ (each player's shoulder height)}) \tag{1}$$

$$SM = \frac{\text{The angle cut in degrees}}{\text{Movement time each player}} \times N \text{ (each player's shoulder length)} \tag{2}$$

The output of the fourth equation is a unit of measurement (d/sec/m), and then the output is converted to the radial estimation (the value of each sector of the circle), which is equivalent to (57.33) degrees in radians, i.e. dividing the output by the value of the sector in constant degrees.

$$\text{The final output of (m)} = \frac{\text{The result of the fourth equation d / sec / m}}{\text{Sector value (57.3) degrees}} = \text{m / s} \tag{3}$$

Sector value (57.3) degrees

It was extracted by the analytical program Kinovea 0.710).

- **The height of the hip point (m.th.g) at the moment the ball is sent to the opponent:** It is the line of vertical distance between the maximum height at the zero point of the center of gravity of the body (hip) of the player and the ground as a hypothetical point, as its height was extracted from the ground in the air by means of a scale Graphic analytical program Kinovea 0.710).
- **The speed of the ball flying towards the opponent's court:** It can be measured by the distance traveled by the center of mass of the tool from the moment the tool (volleyball) is hit with the palm of the striking arm until after its launch from the palm of the striking arm and by dividing the starting distance from the first image to The fourth picture shows the launch time and its unit of measurement is (m/s), and it was measured by the program (Kinovea 0.710) and measured from the side in front of the right of the player. (3)

Computer analysis

The Kinova program is one of the programs on which many international laboratories specialized in biomechanical analysis rely Where the scale is determined first, and the program extracts the real distance directly. Once two points are selected, the program will compare the required distance with the drawing scale and show the result directly in known units of measurement (meter and its parts). Calculation and extraction of biokinematic variables adopted for this study. (3)

Special rapid strength training vocabulary

The implementation of the exercises took (8) weeks, at the rate of (24) training units, at a rate of (3) training units per week. The researcher took into account when setting up the exercises the specified time for each training unit and the number of training units per week, as strength exercises were carried out with speed for the legs and explosiveness for the arms within the advanced team exercises Maysan volleyball, taking into account the general capabilities and capabilities of the players, as well as the availability of equipment and tools during training, as the researcher was keen to ensure that the vocabulary of the exercises are consistent with the previously scheduled and prepared exercises for the team. A summary of the vocabulary of the training curriculum

1. The application of special strength exercises lasted for two months (8 weeks) and included (24) training units, three training units per week. The training load included (1:2), that is, two loads, high and then low.
2. The duration of the training unit ranged from (90) minutes, as one training unit included (5) various exercises. The training units were implemented at the beginning of the middle of the main section of the trainer's curriculum.

3. The time for muscular strength exercises at the beginning of the middle of the main section ranges between (25-40) minutes.
4. The exercises for the special strength were carried out at the beginning of the middle of the main section immediately after the warm-up, i.e. at the beginning, because the players were not exposed to fatigue and stress at the beginning of the unit.
5. The researcher took into account the individual differences between the players, as the arithmetic mean of the sample was adopted in determining the maximum repetition that the player can perform and repeat according to his ability and the relief of pregnancy in the third week (80%).
6. The intensity ranged between (75-100%) for the high-intensity and repetitive ones, and the intensity was calculated by using the maximum repetition that the player can perform when applying the various exercises according to the following equation:

The number of maximum repetitions x the required intensity
Intensity= 100

Post smash test

The researcher conducted the post test for the skill of the overwhelming serve on 7/12/2022 at four o'clock in the afternoon and in the indoor games hall of the martyr Luaibi in Maysan / Al-Amarah.

Telephoto videography

The researcher carried out a dimensional imaging of the research sample on 10/12/2022 in the indoor games hall in Al-Shatrah in order to extract the values of the biokinematic variables for the skill of overwhelming transmission. 11 pro max) American made (240) images per second, and the camera was placed at a height of (1.56) meters, measured from the ground to the lens of the camera, and at a distance of (7.40) meters from the place where the players performed, to ensure that the player appeared since The start of the movement until the stage of landing, and the camera was placed at a vertical angle and on the right side of the player during his performance of the crushing serve. After that, the researcher conducted a computer analysis of those attempts to extract the values of the biokinematic variables under study, and then conducted on 11/12/2022 special strength tests.

Statistical means

Data were processed statistically through the spss21 program.

Presentation, analysis and discussion of results

Displaying the values of the biokinematic and physical variables for the control and experimental groups in the pre-post-test of the skill of the forward high smash serve in volleyball.

Table 3: It shows the mean, the mean deviation, the calculated and tabular (T) value, and the significance of the differences in the pre and post-tests of the experimental and control groups for the variables under research

Statistical processors Tests physical and performance skillful	Measuring unit	The control group				Experimental group				Value (T)		Significance of differences	
		Post-test		Pretest		Post-test		Pretest		T calculated	Tabular	Workout	Officer
		Middle account	Average deviation	Middle account	Average deviation	Middle account	Average deviation	Middle account	Average deviation				
Explosive capacity	cm/m	3.599	1.025	4,900	1,077	3.599	1.025	3,995	1,101	7,20	3,95	D	D
Distinguished by speed	cm/m	4,75	0,470	5,65	0,109	4,60	0,340	5,10	0,320	4,80	3,42	D	D
approach speed	m / s	3.54	0.12	4.18	0.18	3.51	0.25	3.61	0.27	5.20	0.98	D	non d
Maximum flexion of the knee joint at the moment of flexion	degree	125.74	2.13	122.01	1.42	128.4	1.87	126.6	1.88	1,74	1,24	non d	non d
Advance angle	degree	85.58	0.89	83.27	0.88	84.65	0.82	86.4 5	0.84	4,53	0,92	D	non d
The player's flight speed	m/cm	3.34	0.30	3.98	3.34	3.32	0.23	3.35	0.21	4.05	1.36	D	non d
Circumferential velocity of the striking arm	m/cm	7.34	1.13	9.04	0.67	7.40	1.37	7.4 3	1.43	2.99	1.51	D	non d
The height of the hip joint at the moment of hitting the ball	m/cm	2.62	2.83	2.88	0.479	2.64	3.77	2.61	3.77	3.39	1.94	D	non d
The starting speed of the ball at the moment of first breaking contact with the racket	m/cm	14.72	1.28	17.76	3.23	14.68	1.30	14.75	1.31	7.65	1.45	D	non d
skill precision	degree	12.5	1.33	16.1	1.79	12.3	1.34	13.1	1.43	9.21	2.10	D	non d

The tabular T value was (2,571) under the significance level (0.05) with a sample size (6-1 = 5).

Discussing the differences in the values of the bio-kinematic and physical variables in the post-test of the control and experimental groups for the skill under study:

In the light of the data extracted from the research sample, Table (4) shows the differences in the values of the

biokinematic and physical variables between the control and experimental groups in the post-test of the skill of the forward crushing serve in volleyball. The foregoing results were presented as follows:

Table 7: It shows the differences in the values of the biokinematic and physical variables between the control and experimental groups in the post-post test of the skill of the front high crushing serve in volleyball for the applicants

T	Variants	Dimensional control group		Post experimental group		Calculated (v) value	Result
		Arithmetic mean	standard deviation	Arithmetic mean	standard deviation		
1	The explosive power of the arms	3,995	1,101	4,900	1,077	5.1	Moral
2	The distinctive strength of the speed of the two men	5,10	0,320	5,65	0,109	3,75	Moral
3	approach speed	3.61	0.27	4.18	0.18	6.4	Moral
4	Maximum flexion of the knee joint at the moment of thrust	126.6	1.88	122.01	1.42	6.10	Moral
5	The angle of advancing the moment of the first break the connection of a lagging man	86.4 5	0.84	83.27	0.88	4.65	Moral
6	The body's flight speed is upward	3.35	0.21	3.98	3.34	8.4	Moral
7	The maximum height of the hip joint at the moment of hitting the ball	2.61	3.77	2.88	0.479	8.11	Moral
8	Circumferential velocity of the arm striking the ball	7.43	1.43	9.04	0.67	5.9 4	Moral
9	Ball launch speed	14.75	1.31	17.76	3.23	4.98	Moral
10	Overwhelming transmission accuracy	13.1	1.43	16.1	1.79	9.24	Moral

The tabular T value was (2,228) under the level of significance (0.05), with a sample size of (12-2 = 10).

Table (4) shows that there are significant differences in the muscular ability variables of the arms and legs, in favor of the experimental group, and the reason for this is due to the special strength exercises. And dumbbells and exercises in a

skillful way, and since (the greater the participation of the largest number of muscle fibers, the more it leads to an increase in the explosive capacity of the limbs that the muscle can produce). (4) The researcher attributes the

morale of the distinguished speed of the two men, the reason for that development to the exercises programmed in the prescribed curriculum, which is characterized by the rapid nature and motor performance and exercises in the style of skill and jumping using the weight of one's own body as resistance and a large trampoline and through the increase in intensity, and this was confirmed by (Abdul Rahman) "the process of upgrading the level of strength Distinctive speed requires work by using weights or by using the weight of the body weight ", (5), the presence of significant differences in the variable approach speed between the control and experimental groups in the post-test and in favor of the experimental group, and the researcher attributes this to the acquisition of the members of the experimental group the special rapid strength required as a result of the exercises that have been developed The values of the approach speed and the reduction of the time of performing the approach steps in the distance test, as these exercises have a clear effect in developing the ability to stretch in the muscles, which thus contribute to increasing the speed of motor performance during the approach stage, as well as their positive impact on the work of the nervous system, and since the strength distinguished by the motor speed depends on Its work on the effectiveness of the nervous system, which explains the reason for the existence of a positive relationship between special strength exercises and speed Kinesthetic (6), either the variable of maximum flexion of the knee joint at the moment of the push, we note that there is a significant difference between the control and experimental groups in the post-test and in favor of the experimental group, and the researcher attributes the reason for this to the strength exercises distinguished by the speed that had an effective effect in stimulating the muscle groups that led to the development of strength The rapid movement of the muscles of the article and the second of the two legs, which led to the development and improvement of the angle of the knee joint in the post-test among the members of the experimental group, as well as the similarity of the exercises (special strength) used with the motor path of the crushing serve skill, and the improvement of the angle of the knee joint enables the player to invest the strength gained from the steps The approximation to obtain a suitable height for the movement of the center of the body during the rise-up phase (rise-up angle), which requires that the body be in a perpendicular position to the line of influence of the force, because the vertical position qualifies it for a better achievement. The knee joint, and this leads to the direction of the position of the body being downward, so the reaction of the ground is less than the weight of the body, and thus the force is less, and this is due to the weakness in the strength of the knee. The article and second muscles of the two legs, as for the angle of rise variable, Table (4) shows the existence of significant differences between the two tests in this variable, as the process of coordination between speed and angle of rise is one of the very important factors, as that angle must be proportional to the horizontal speed in order to maintain motor momentum acquired through approximate steps n and based on the law of propulsion in activities that require speed in its performance such as the crushing serve (the rise should take place in a short period of time so that the amount of the final movement is greater than the amount of the first movement and therefore the effect of the force used is greater to obtain a better result), (8) This is what we find in the value of the angle of rise in

the post-test of the experimental group, where the researcher emphasized the importance of flexion in the joints of the two legs during the performance of special fast strength exercises. Performing the exercises prepared for the experimental group for jumping, but in the control group, the players try to rise at a greater angle to compensate for the decrease in the approximate speed due to the weakness of the Special rapid strength in the legs and it is mentioned (that the higher the values of the angle of rise, the higher the values of the center of gravity of the body), either the variable flight speed of the player Table (7) shows the presence of significant differences in the values of the variable flight speed of the player between the control and experimental groups post-test and in favor of the experimental group and sees The researcher said that the development of the force characteristic of the speed of the two legs enhances the angular velocity of it, which affects the increase in the linear velocity of the center of gravity of the body, given that the angular velocity has a direct relationship with the peripheral velocity, which thus achieves an increase in the player's flight speed, as the kinetic speed increases through the increase in muscle strength, and this is what It is included in strength exercises characterized by speed, and the development of flight speed values is considered one of the most important factors that help achieve a better height for the hip joint, and this is one of the important factors that the player in volleyball seeks to achieve. The variable depends on the amount of linear momentum that the player possesses during the approach stage, which was relatively weak due to the weakness in the player's own rapid strength (9), As for the variable of the maximum height of the hip joint at the moment of hitting the ball, Table (4) shows that there are significant differences between the control and experimental groups in the post test and in favor of the experimental group, as the researcher believes that the experimental approach prepared led to the development of the values of the biokinematic variables of the experimental group in the post test as a result of special strength exercises Especially jumping exercises, which have the effect of stimulating the working muscle groups, which led to improved performance in an economical manner and in a shorter time. As a result, strength developed in the muscles. Article and the second for the legs and in the vertical direction, as whenever there is an increase in strength, it leads to an increase in the recruitment of motor units participating in muscular work. Participation in muscle contraction as a result of strength training, and thus the resulting muscle strength increases) Either the value of this variable in the control group in the post-test was relatively low because it does not enhance the muscle load for the increased lengthening loads, as the increased load works to develop the sufficiency of the tide loop - the shortening of the muscle in the lengthening stage Decentralization of muscle contraction The largest amount of elastic energy is stored inside the muscle, and this energy is used in the next central contraction phase, which leads to an increase in the strength of the working muscle. and experimental and in favor of the experimental group in the post-test, as the special abilities exercises used in the training units had an effect In developing the special rapid strength of the muscles of the arms and performance at the same time, as long as the exercises included movement paths similar to the paths of the crushing beating movement, and the use of iron bar exercises and positions similar to the

positions of the striking arm requires high efficiency in the strength of the muscles working in the performance, which include the muscles of the arms, shoulder and trunk, including It allows the player to achieve a better performance by performing the fastest muscle contraction in the shortest possible time, as (medicine ball exercises lead to the development of muscle strength that surrounds the shoulder joint and elbows and also works to improve the flexibility of the shoulder joint, and this means an increase in the peripheral speed of the striking arm, so the faster the speed The peripheral arm of the striker, the greater the force acting on the ball, and this is done by transferring speed to the ball at the moment of impact. In addition, the special fast strength exercises, especially jumping exercises and Al-Dabani exercises, which enhanced the height values of the hip joint at the moment of hitting the ball, helped to hit the ball at the highest level And that the jumping force achieved by the experimental group in the distance test was a result of the special rapid strength exercises that achieved for the player a good vertical displacement and A good vertical force helped the player to hit the ball downwards and with a sharp starting angle, and this makes the player's body mass at the top of the ball (10). As for the value of the ball speed variable in the remote test for the control group, it was less than it was in the experimental group as a result of the weakness of the muscles of the arms and the low value of the variable The height of the body's center of gravity at the moment of hitting, either the variable of accuracy. It appears from Table (4) that there are significant differences in the variable of accuracy between the control and experimental groups in the post-test and in favor of the experimental group, as the special rapid strength exercises work to develop the adequacy of the nervous-muscular system, which leads to an increase in Compatibility and the ability to perform the skill at the appropriate time, and then an increase in the accuracy of directing the ball towards the required place, as Muhammad Subhi Hassanein indicates that the accuracy is related to the adequacy of the neuromuscular system (12), and the researcher also attributes to the difference in the accuracy variable between the two groups and the development of performance in the post-test of the group Experimentalism is due to the nature of strength exercises, which are characterized by speed, which contributed to the development of biokinematic variables, which ultimately constitute our society as the final form of performance. The special speed of the muscles working in the performance gives the player the opportunity to prolong the time of the jump and thus direct the ball in the areas of accuracy specified in the test. With speed in a relatively large way, since all offensive skills (crushing hit) depend largely on the characteristic of fast power, provided that it is given according to a correct scientific method that helps in developing the special physical and mechanical capabilities that enable the player to perform the crushing serve better, and by returning to the tables (5,6,7) We note that the third objective was achieved through the values of the biokinematic variables in the post-test and in favor of the experimental group compared to the control group, where the values of the biokinematic variables developed in favor of the experimental group, and this appeared largely through the values of the biokinetic variables such as the speed of approach and the height of the hip joint And the speed of the striking arm, the speed of the ball, and the variable of accuracy, and this is due to the special rapid

strength exercises that developed the skillful performance of the players of Group A Experimental in the post-test in the overwhelming serve skill.

Conclusions

1. It appeared that there were differences in all the values of the biokinematic variables, except for the variable of maximum flexion of the knee joint at the moment of pushing, between the pre and posttests of the experimental sample and in favor of the post test.
2. There were no differences in all the values of the biokinematic variables, except for the physical variables, between the pre and post-tests of the control sample, in favor of the post test.
3. It appeared that there was a difference in all the values of the biochemical and physical variables under study between the control and experimental groups and in favor of the experimental group.
4. The emergence of an indicator of the development of the values of the biokinematic variables when applying special strength exercises through the results of the pre and post tests and in favor of the experimental group.

Recommendations

1. Emphasis on the use of special strength exercises to develop the values of the bio-kinematic and physical variables of the skill of crushing serve in volleyball for applicants.
2. Emphasis on the mechanical principles when choosing the appropriate exercises to train the skill of crushing serves in volleyball for applicants.

Margins

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Appendices

Sample training unit

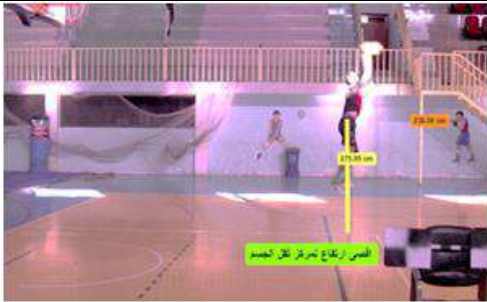



Intensity: 85 Unit: First

Main section time: 30.38 minutes

Objective: Developing the special strength of the arms and legs and the skill side (hands front jump, push back with a ladder, front roll on the ground) week: first

T	The name of the exercise	Repetition	totals	Rest between repetitions	Rest between groups	The time of the exercise	working time	total exercise time
1	Jumping with both feet, then performing the transmission skill	4	3	30sec	90sec	11 s	132 sec	6.18 d
2	Rebound medicine ball push					9 s	108 sec	8.20 d
3	Performing the crushing hitting skill with rubber ropes					10 sec	120 sec	8 d
4	Deep jump on the boxes and then perform a smash					8 s	96 sec	8 d

Appendices (2)

	
The highest height of the center of gravity of the body	Maximum knee flexion
	
The ball's flight speed	The angle of rise at the moment of the jump