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The percentage of the contribution of the most important visual and bio-kinetic abilities in the performance of pushing the weight for students of the Faculty of Physical Education and Sports Sciences at the University of Kufa

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Abstract

The purpose of this paper is to identifying the most important visual and bio-kinetic capabilities of the students' performance in the weight-pushing event, identifying the relationship of the most important visual and bio-kinetic abilities to the performance of female students pushing the weight, and identify the percentage of the contribution of the most important visual and bio-kinetic abilities in the performance of pushing weight for female students. The descriptive approach was adopted using the correlational relations method. The study population was determined by the students of the second stage in the College of Physical Education and Sports Sciences at the University of Kufa for the academic year (2022/2023), with a total number of (17) students, all of whom were selected .One of the most important results reached by the researcher is that: Fixed visual ability is associated with the performance of pushing weight for female students with a high positive relationship, the fixed visual ability contributes to the weight-pushing performance of the students of the College of Physical Education and Sports Sciences, and affects this performance positively, and it is possible to predict this performance in terms of this visual ability ,and ability to perceive the horizontal depth is associated with the performance of pushing the weight of the female students with a high positive relationship. One of the most important recommendations recommended by the researchers is that : It is necessary to rely on tests of the most important visual abilities in arena and field lessons for female students in the College of Physical Education and Sports Sciences ,and it is necessary to take into account the characteristics of female students in the College of Physical Education and Sports Sciences when designing tests for them.

Introduction:

The field of tests in physical education and sports sciences has many horizons that extend to the fields of training, teaching, and the sciences auxiliary to them, as well as achievement or competitions its investment is focused on the academic side to add accuracy and objectivity on the results of studies and research that take measurement as a way to solve its problems, and in light of that comprehensiveness and multiplicity of extension of these horizons, the principle of specialization in measurement imposes determinants that must be adhered to in order to achieve the demands or goals of applying tests. The effectiveness of

pushing the weight for female students of the College of Physical Education and Sports Sciences is one of the achievement activities that are determined by the distance travelled by the weight, and thus it depends on the characteristics of the student leading to achieve the farthest distance, except the objectives of teaching effectiveness in this college seek to enable them to master their performance in line with the need for the outputs of this college, which calls for the necessity of providing support to those in charge of the teaching process on the most important visual and bio-kinetic variables that participate in the performance of pushing weight by female students, and this cannot be predicted or diligent Unless it is expressed in a digital language, the application of testing and measurement depends on the accepted scientific conditions, so that the teaching process is academically supported by an organized methodology that takes clear and sequential steps in scientific research as a path for it to reach the achievement of the planned goals in the college, so that the theoretical importance of this study is that its results The envisioned may benefit those in charge of teaching the effectiveness of pushing the weight of the students by increasing their knowledge of what is related, contributing and affecting raising the level of performance of their students in this activity in order to give importance to all the predictions made by scientific facts that are one of the goals of science. As for the applied importance of this study, it may benefit those in charge To teach the effectiveness of pushing the weight to the students by including the improvement of the factors involved in improving the performance of the effectiveness of pushing the weight when teaching them, and the student Learners have become interested in improving the most important of these factors.

Research problem:

Through the researchers' observation of most of the mathematical tests approved in the process of teaching arena and field activities, especially in the effectiveness of pushing weight, they noticed the need for those in charge of teaching them in the college to address the measurement of the most important thing involved in raising the level of performance and not measuring the level of achievement as in training and competitions despite the known commonalities of reflection proper performance positively at the level of mathematical achievement, and thus the problem of the study lies in an attempt by the researchers to answer the following questions:

- Which visual and bio-kinetic abilities are the most important for the student's performance in pushing the weight?
- Are the most essential visual and bio-kinetic abilities related to the female students' weight-pushing performance?
- Do the most important visual and bio-kinetic abilities contribute and affect the performance of female students pushing the weight?

Research objective:

- Identifying the most important visual and bio-kinetic capabilities of the students' performance in the weight-pushing event.
- Identifying the relationship of the most important visual and bio-kinetic abilities to the performance of female students pushing the weight.

- identify the percentage of the contribution of the most important visual and bio-kinetic abilities in the performance of pushing weight for female students.

Research Hypotheses:

- There is a significant relationship for the most important visual and biokinetic abilities with the results of the female students' weight-pushing performance test.
- The most important visual and biokinetic abilities contribute and affect the results of the weight-pushing performance test for female students.

Research fields:

- Human field: Female students of the second stage in the College of Physical Education and Sports Sciences at the University of Kufa for the academic year (2022-2023).
- Time field: (1/7/2022) to (22/11/2022)
- Spatial field: Playgrounds and throwing sector in the arena and field in the College of Physical Education and Sports Sciences at the University of Kufa.

Research methodology and field procedures:

Research Methodology:

The descriptive approach was adopted using the correlational relations method, which is defined as " Research that attempts to determine the relationship between two or more measurable variables" .

Community and sample research:

The study population was determined by the students of the second stage in the College of Physical Education and Sports Sciences at the University of Kufa for the academic year (2022/2023), with a total number of (17) students, all of whom were selected.

Scientific research tools, devices and means used:

The researchers adopted the following from them:

Scientific research tools:

- Arabic and foreign sources.
- Resolution
- Measurements and tests.

Devices used:

- Two (2) Chinese-made electronic stopwatches (Sport timer).
- One (1) Chinese-made scientific manual calculator (GJTY).
- A video camera (Z5) for recording long and short films, consisting of a recording cassette, a processor, and a temporary and permanent storage memory, with a fixed document, type (1 Japanese-made Sony).
- (1) Chinese-made (Lenovo) laptop computer.
- Daytime running lights (LED) or Korean-made LED strips with a thickness of (3) mm.

Methods used:

- Compact laser discs (CD) to store the video imaging of the weight-push performance tests.
- Legal throw sector.
- A flat square yard free of obstacles measuring (10 x 10) meters.
- Women's legal iron weight ball number (5).
- Medicine ball weighing (3) kg, number (5).
- Wooden chair with backrest number (5).
- Non-rubber leather strap (5).
- (1) Tennis balls.
- (1) Wooden box with a base size of (1 x 1) meter and a height of (20) cm.
- Conical plastic cones with a base of (15) cm in diameter and (20) cm in height, numbered (1-10), number (10).
- A smooth wall with a height of (400) cm, marked with a vertical jump scale.
- Pieces of chalk (Manira).
- (5) Metric leather tape measure (50) meters long.
- A rubber rope with a length of (1) meters.
- Sports whistle number (1).

Field research procedures:

Identifying the tests for the variables of the study: The tests were chosen as shown in Table (1):

Table (1) shows the results of relative importance for determining the most important visual and bio-kinetic abilities

variables main study		No.	Name of the nomination abilities	Arithmetic mean	Relative importance	Acceptance of the nomination
visual abilities		1	Fixed visual ability	4.667	93.333	chosen
		2	Kinetic visual ability	4.267	85.333	chosen
		3	Horizontal depth perception ability	4.6	92	chosen
bio-kinetic abilities	Physical abilities	1	explosive ability of the legs	4.267	85.333	chosen
		2	explosive ability of the arms	4.667	93.333	chosen
		3	Kinetic speed of the legs	4.4	88	chosen
	abilities	1	agility	4.467	89.333	chosen
		2	Compatibility	4.067	81.333	chosen

			between eyes and arms			
		3	Balance	4.467	89.333	chosen

Visual tests:

1- Testing the fixed visual accuracy of the female students in the effectiveness of pushing the weight.

- Name of the test: Testing the fixed visual accuracy of the students in the effectiveness of pushing the weight.
- Objective of the test: measuring the fixed visual accuracy of the second-stage female students in the College of Physical Education and Sports Sciences in the effectiveness of pushing the weight.
- Tools: a legal throwing sector, a legal women's weight ball (5), a whistle, colored sticky tape with a width of (5) cm, and a paper registration form.
- Procedures and conditions:
  - A circle with a diameter of (5) meters is drawn with adhesive tape on a flat ground. This circle is at a distance of (1) meter from the throwing line and contains within it (5) circles, one inside the other and smaller in the area on a regular basis, i.e. the perimeter of each is (50) cm away from the perimeter of the other. , so that the radius of the largest circle from its center to its circumference is (2.5) meters, and the circles are numbered from smallest to largest in the area (1-5), as shown in Figure (1).
  - The tested student stands inside the throwing sector circle, and pushes the weight to target the circle (1) whose circumference is (3) meters away from the throwing line, which represents the most accurate area, then the attempts are repeated to push the remaining weight balls.
  - The experimental student is given the freedom to choose the preferred arm to push the weight.
  - The tested student is given five consecutive attempts without stopping.
- Registration:
  - If the weight ball falls within Zone No. (5), the tested student will be given (1) one point.
  - If the weight ball falls within Zone No. (4), the tested student will be given (2) two marks.
  - If the weight ball falls within Zone No. (3), the tested student will be given (3) three degrees.
  - If the weight ball falls within Zone No. (2), the tested student will be given (4) four marks.

- If the weight ball falls within Zone No. (1), the tested student will be given (5) five marks.
- If the weight ball falls on the line between two regions, the tested student is given the score of the lowest region.
- If a ball falls outside the test area, or if the attempt is incorrect, the tested student is given (zero), and the attempt is not repeated.
- The maximum score for the test in the five correct attempts is (25) marks.

- Unit of measurement: (degree).

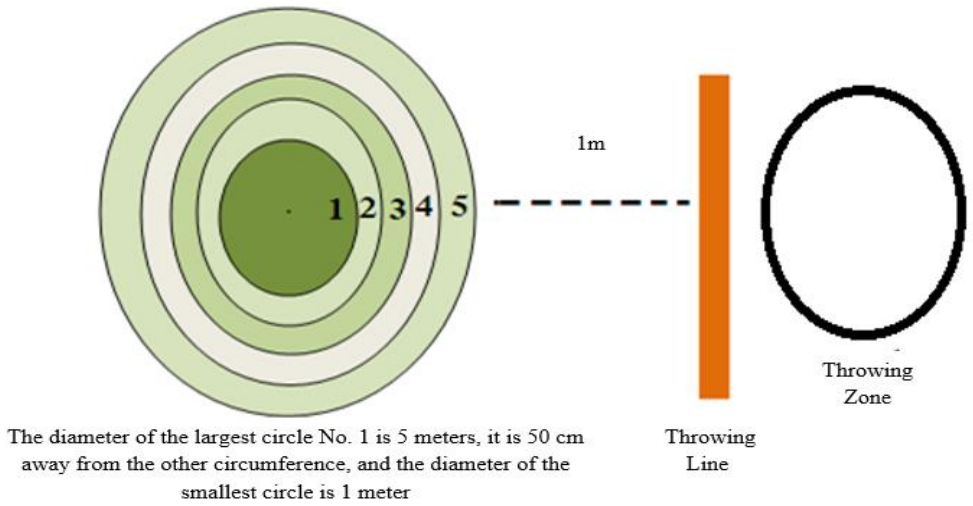

Figure (1) an illustrative scheme to test the students' fixed visual accuracy in the effectiveness of pushing the weight

2- Testing the moving visual accuracy of the female students in the effectiveness of pushing the weight:

- Name of the test: Testing the moving visual accuracy of the students in the effectiveness of pushing the weight.
- Objective of the test: measure the visual accuracy of movement of the students of the second stage in the College of Physical Education and Sports Sciences in the effectiveness of pushing the weight.
- Devices and tools: a legal throwing sector, a legal women's weight ball, number (5), daytime floor LED strips (LED) or regular lighting with a thickness of (3) mm by remote control, as shown in Figure (2), a paper registration form.
- Procedures and conditions:

- Drawn with daytime running lights (LED) strips on flat ground (5) circles, each of them with a diameter of (50) cm, arranged together at a distance of one from the other with a line of length (50) cm. These five circles are parallel to the throwing line and are at a distance of (3) from it meters, as these LEDs are characterized by the availability of safety and security factors, do not constitute an obstacle and are not affected by the occurrence of weight on them, and the exchange of lighting for the circuits is controlled remotely.
- The tested student stands within the circle of the throwing sector and pushes the weight to target the circle that is lit by the control of the tester by means of the remote control, which represents the instruction to start the push for each attempt, not on the appointment to change the place of spatial accuracy alternately between one attempt and another to repeat attempts to push the remaining weight balls, as shown in Figure (3).
- The tested student has the freedom to choose the preferred arm to push the weight.
- The tested student is given five consecutive attempts without stopping.

- Registration:
  - If the weight ball falls within the area specified by the lighting, the tested student will be given (3) three degrees.
  - If the weight ball falls on the line between one of the two circles specified by the lighting, the tested student will be given (2) two degrees.
  - If the weight ball falls at a distance of (50) cm from the circle specified by the lighting, and outside the interlining lines, the tested student will be given (1) one point.
  - If a ball falls outside the test area or in an incorrect attempt, the tested student is given (zero).
  - The maximum score for the test in the five correct attempts is (15) marks.
- Unit of measurement: (degree).

Figure (2) shows the image of the daytime running lights with the remote control

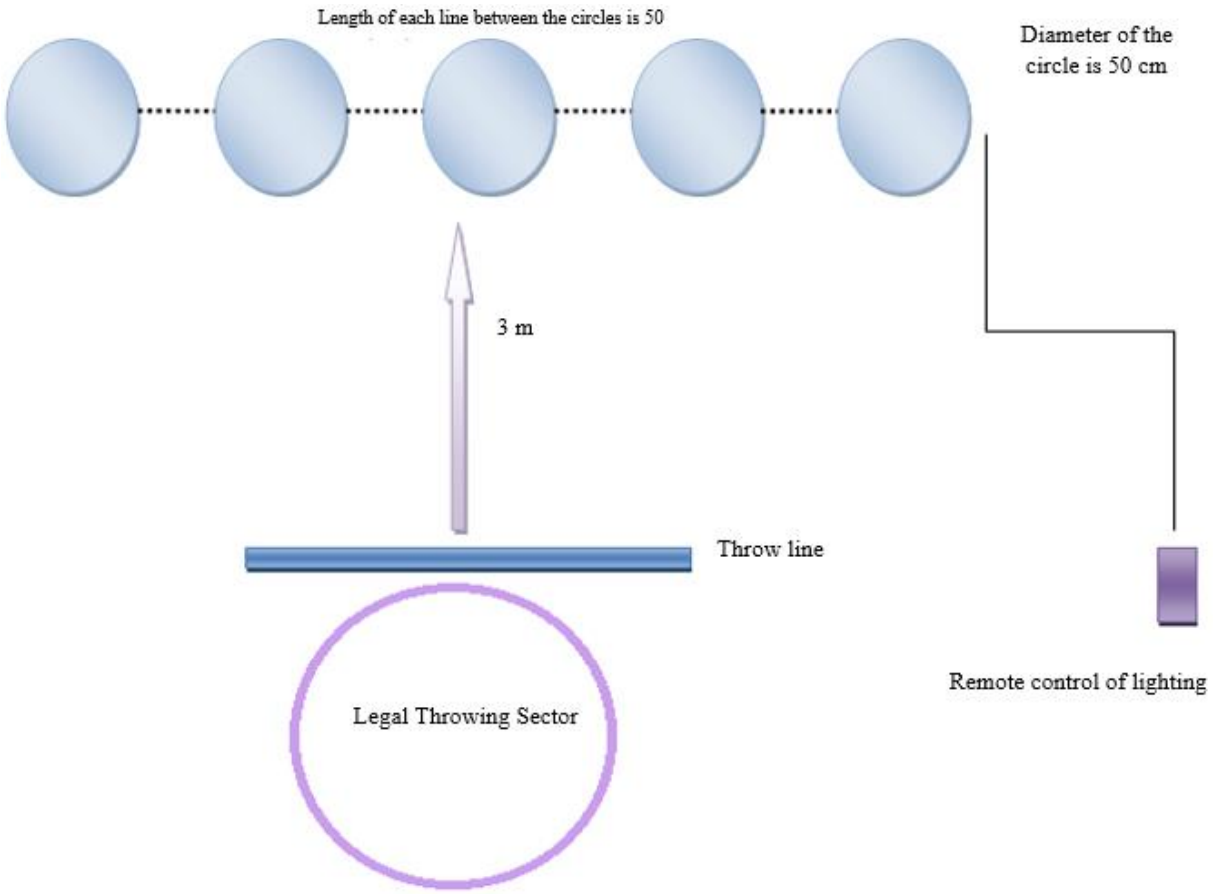

Figure (3) an illustrative scheme for testing the visual motion accuracy of the students in the effectiveness of pushing the weight

3- A test of the students' horizontal depth perception in the effectiveness of pushing the weight:

- Name of the test: A test of the students' horizontal depth perception of the effectiveness of pushing the weight.
- Objective of the test: measure the horizontal depth perception of the second-stage female students in the College of Physical Education and Sports Sciences in the effectiveness of pushing the weight.
- Tools: a legal throwing sector, a legal women's weight ball (5), a whistle, colored sticky tape with a width of (5) cm, and a paper registration form.
- Procedures and conditions:
  - The colored sticky tape is drawn on a flat ground, a rectangle with a length of (5) meters and a width of (50) cm, divided into (5) areas measuring (50 x 100) cm, numbered from (1-5) in sequence. The rectangle is 1.5 meters away from the throwing line and opposite it longitudinally, as shown in Figure (4).

- The tested student stands within the circle of the throwing sector, and pushes the weight to target any specific area (the numbered square) with her freedom, provided that she mentions his number to the test-taker before performing the attempt, to repeat the attempts to push the remaining balls
- Each attempt has one specific area for the tested student to choose and (do not repeat this area) in subsequent attempts.
- The tested student is free to choose the preferred arm to push the weight.
- The tested student is granted one trial attempt only; her score in the test is not counted.
- The tested student is given five consecutive attempts without stopping.

- Registration:
  - If the weight ball falls within the area specified by the tested student, it is given (2) two marks.
  - If the weight ball falls on any of the lines of the area determined by the student being tested, she is given (1) one point.
  - If a ball falls outside the test rectangle or in the incorrect attempt, the tested student will be given (zero).
  - The maximum score for the test in the five correct attempts (10) marks.
- Unit of measurement: (degree).

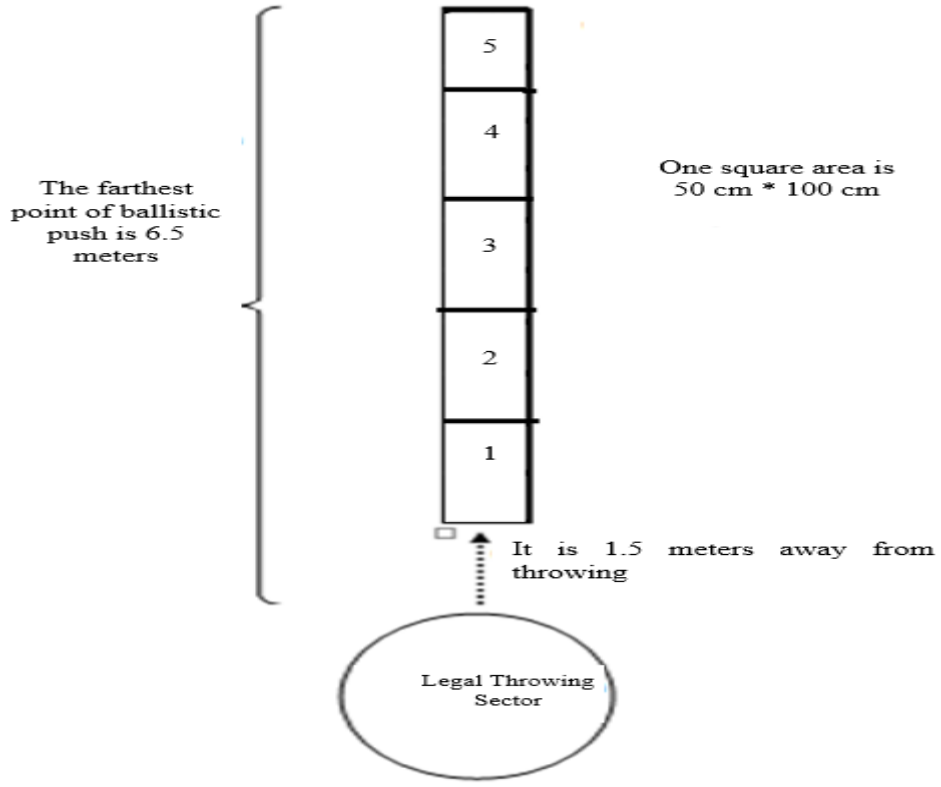

Figure (4) an illustrative scheme to test the perception of the horizontal depth of the female students in the effectiveness of pushing the weight (prepared by the two researchers)

Bio-kinetic tests:

1- Testing the explosive ability of the arms (Farahat. 2001):

- Name of the test: Throwing a medicine ball weighing (3) kg with the hands over the head from a sitting position on a chair.
- Objective of the test: Measuring the explosive power of the muscles of the arms and shoulders.
- Tools: a flat surface area, a leather belt, a chair, a medicine ball weighing (3) kg, and a measuring tape.
- Procedures and conditions:
  - The tested student sits on the chair holding the medicine ball with her hands above the head, provided that the torso is adjacent to the edge of the chair, and the leather belt is placed around the chest and held from behind by a tight fit for the purpose of preventing the tested student from moving forward while throwing the ball with the hands, as the process of throwing the ball is done using the hands only (without using the stem).
  - Each student has three attempts.
  - The tested student is granted only one trial attempt for the purpose of training, her score is not counted in the test.
  - When the chair vibrates or moves during the performance, the score is not counted and he is given another attempt instead.
- Registration: The tested student is considered the best distance in attempts to throw the ball from the chair as far as possible
- Unit of measurement: (cm).

2- explosive ability test for the muscles of the two legs: - (Syed. 2022)

- Name of the test: Vertical jump test.
- Objective of the test: measuring the explosive power of the muscles of the legs.
- Tools: smooth wall graded to (400) cm, gypsum powder (Manneria), a piece of cloth to wipe the marks.
- Procedures and conditions:
  - The experimental student dips the tips of the fingers of the hands in gypsum powder (Maniriya), then stands facing the wall at a distance of (15) cm, and raises the arm at its full length to make a mark with the fingers on the wall without pushing weight the heels from the ground, and the number that was made is recorded. Putting the mark in front of him, then the experimenter jumps vertically in place to reach the highest point possible to make a finger mark on the wall.
  - Each student in the laboratory has three attempts, and the best one is recorded for her.
- Registration: The difference distance between the first mark and the second mark is how much the tested student enjoys from the explosive power of the two men.
- Unit of measurement: (cm).

3- kinetic speed test for the legs:- (Youssef. 2000**)**

- Test name: Running in-place test for (10) seconds.
- Objective of the test: measuring the kinetic speed of the muscles of the legs.
- Tools: playground, stopwatch, 1-meter rubber rope, whistle.
- Procedures and conditions:
    - The experimental student takes a standing position in front of the rubber rope fixed on both sides by the assisting work team at the height of raising the thigh from the hip joint and bending the knee joint at right angles, as shown in Figure (9).
    - The experimental student takes a half-standing position.
    - The starting signal is given to the tested student who runs in the same place, starting with the right leg at full speed, in which she is required to touch the rubber rope with her knees (alternately) in all stages of running in the same place.
    - The tested student continues to repeat this performance the maximum number of times for a period of (10) seconds, quickly performing the performance.
- Registration:
    - One count is counted for each time the tested student touches the ground with her right foot.
    - The number recorded by the tested student is announced to the next student to ensure the competition factor.
    - Record the correct number of times within (10) seconds.
- Unit of measure: (number of times).

4- Agility test (zigzag running by Barrow method) (Hassanein. 2004):

- Objective of the test: measuring the total agility of the body during its transitional movement.
- Tools: a rectangular jogging field built on solid ground, 4.75 m long and 3 m wide, an electronic stopwatch, five high jump lists or corner flags such as those used in football, noting that the length is not less than The pillar or flag is about (30) cm, as shown in Figure (10).
- Procedures and conditions:
    - The tested student takes the position of readiness from the high start behind the starting line, and when she is given a signal at the start, she proceeds to run staggering between the five lists three times in a row.
    - The tested student is given one attempt only.
- Registration: The time taken by the tested student to cut the rectangle three times in a row is recorded to the nearest (1/10) of a second, starting from the moment the starting signal is given until she crosses the finish line.
- Unit of measurement: (second) and its parts.

5- Trunk kinetic flexibility test (Al-Tarfi. 2013):

- Name of the test: Test of kinetic flexibility of the trunk.

- Objective of the test: measuring the kinetic flexibility of the trunk (flexion, extension and rotation of the spine).
- Equipment and tools: stopwatch, wall, chalk for marking.
- Procedures and conditions:
    - A sign (X) is drawn on two points, the first on the floor between the feet of the tested student, and the second on the wall behind her back (in the middle). Hearing the start signal, the tested student bends her torso forward downward to touch the ground with her fingertips at the (X) mark between the feet, then extends her torso high while turning to the left to touch the (X) mark behind her back with her fingertips, then turns her torso and bends it downward To touch the (X) mark between the feet a second time, then extend its torso while rotating to the right to touch the (X) mark behind the back. This action is repeated as many times as possible for a period of (20) seconds, as shown in Figure (11).
    - The mark behind the back must be touched once on the left side and once on the right side.
    - The feet must not be moved during the performance.
    - The specified sequence of touching must be followed according to what was mentioned in the specifications.
    - The knees should not be bent during the performance.
    - The tested student is given only one attempt.
- Recording: The student is recorded for the number of touches she made on the two marks within a period of (20) seconds.
- Unit of measurement: (number of times).

6- Test throwing and receiving balls on the wall (Al-Hakim. 2004):

- Objective of the test: measuring the kinetic coordination between the eyes and the arms.
- Tools: tennis ball, wall, colored masking tape.
- Procedures and conditions: The student being tested stands in front of the wall at a distance of (5) meters from it, and behind the line drawn on the ground with the colored sticky tape, as shown in Figure (12), for the test to take place according to the following sequence:
    - Throwing the tennis ball five times in a row with the right hand, provided that the tested student receives the ball after it bounces off the wall with the same hand.
    - Throwing the tennis ball five times in a row with the left hand, provided that the tested student receives the ball after it bounces off the wall with the same hand.
    - Throwing the tennis ball five times in a row with the right hand, provided that the tested student receives its bounce from the wall with the left hand.
- Registration:
    - For each correct attempt, one (1) mark is calculated for the tested student.

- The maximum score for the test in the fifteen (15) correct attempts.

- Unit of measurement: (degree).

7- Balance test (Rahman and Morsi. 2001):

- Name of the test: Modified (Pass) test for kinetic balance.
- Objective of the test: measuring balance during and after movement.
- Equipment and tools: electronic stopwatch, tape measure, (11) markers.
- Procedures and conditions: The tested student stands in a position of complete rest on the starting line with the right foot, then stands on the mark (1) with the instep of the left foot (it is noted that the mark is covered by the foot) and tries to remain stable in this position, then deliberately jumps to the mark (2) to stand on it. The instep of the right foot... And so on until you reach the last mark in the same manner in every jump, the distance between The starting line and the first mark (1) meter.
- Registration:
  - The tested student is awarded (5) five marks for each successful landing directly above the mark.
  - One (1) point is added for every second the student stands in the correct balance position.
  - Each laboratory student is given two attempts and the best of them is calculated.
  - The maximum score for the test represents the sum of the scores for one attempt (10) for each correct jump and steadiness.
- Unit of measurement: (degree).

Specifications of the weight-push performance evaluation test:

The two researchers decided to adopt a form for evaluating the performance of female students in the effectiveness of pushing the weight in arena and field lessons in the college. This form contained three sections with evaluation grades distributed tThe preparatory section (2) two marks, the main section (5) five marks, and the final section (3) three marks) with a total score ranging from (0-10) marks.

Application of the main experiment:

After completing the procedures for preparing, building and selecting the study tests for the different abilities, the researchers proceeded to conduct the main experiment by applying them to the main study sample for the application, which is specific to the second-stage female students in the College of Physical Education and Sports Sciences at the University of Kufa.

Statistical methods: The search data was processed through the Statistical Package for the Social Sciences (SPSS) (V26).

Results and discussion:

Presentation and analysis of the results of the percentage of the contribution of visual capabilities to the performance of pushing weight:

Table (2) shows the results of the descriptive statistical parameter values for the results of the tests of visual abilities and weight-pushing performance

Tests		Measuring unit	Number of sample	maximum value for the test	Mean	Std. Deviations	Skewness
weight-pushing performance	Fixed visual ability	Degree	82	25	20.49	2.358	-0.838
	Kinetic visual ability	Degree	82	15	10.61	1.844	0.088
	Horizontal depth perception ability	Degree	82	10	7.3	0.977	-0.489

It can be seen from the results of Table (2) that the scores in the three visual abilities tests are distributed moderately, and thus are ready to start linear regression. In order to estimate the relationship of the results of each of the visual abilities tests with the results of the weight-pushing performance test for female students, the researchers presented it in Table (3):

Table (3) shows the results of the values of the simple correlation coefficient, linear regression, contribution ratio, and standard error of estimation for the results of each of the visual abilities tests with the results of the weight-bearing performance test

Impact test	affected test	simple correlation coefficient (R)	Linear regression coefficient $(R)^2$ The coefficient of determination	Contribution percentage	Standard error of the estimate
Fixed visual ability	weight-pushing performance	0.915*	0.837	0.835	0.531
Kinetic visual ability	weight-pushing perform	0.954*	0.91	0.909	0.395

	ance				
Horizontal depth perception ability	weight-pushing performance	0.919*	0.845	0.843	0.518

In order to examine the quality of the fit of each linear regression model for each of the correlations and contribution ratios of the results of each of the visual abilities tests with the results of the weight-push performance test, the researchers present the results in Table (4):

Table (4) shows the results of the (F) test to check the quality of the linear regression model reconciling the results of the visual abilities test with the results of the weight-push performance test

Impact test	test	variance	sum of squares	Degree of freedom	mean of squares	F value calculated	Level Sig	Type Sig
Fixed visual ability Kinetic visual ability	weight-pushing performance weight-pushing performance	Regression	115.815	1	115.815	410.193	0.000	Sig
		errors	22.587	15	0.282			
Horizontal depth perception ability Impact test	weight-pushing performance affected test	Regression	125.932	1	125.932	807.895	0.000	Sig
		errors	12.47	15	0.156			

Fixed visual ability	weight-pushing performance	Regression	116.965	1	116.965	436.483	0.000	Sig
		errors	21.438	15	0.268			

* Significance level (0.05) n = 15 (F) value is significant if the value of (Sig) score > (0.05)

It is clear from the results of Table (4) that the value of (F) for examining the quality of reconciling the simple linear regression model for the results of each of the visual abilities tests with the results of the weight-push performance test were all statistically significant, and the researchers presented the values of the estimates of the fixed limit and tendency (effect) and their standard errors and the level of their real and significant significance in Table (5).

Table (5) shows the values of the estimations of the fixed limit and the inclination (the effect) of the results of the visual abilities test on the results of the weight and morale performance test

Impact test	Variables	β	standard error	T value calculated	Level Sig	Type Sig
weight-pushing performance	fixed limit	-2.473	0.516	4.791	0.000	Sig
	Fixed visual ability	0.507	0.025	20.253	0.000	Sig
weight-pushing performance	fixed limit	0.742	0.256	2.896	0.005	Sig
	Moving visual ability	0.676	0.024	28.423	0.000	Sig
weight-pushing performance	fixed limit	-1.067	0.434	2.459	0.016	Sig
	Frontal horizontal depth perception ability	1.229	0.059	20.892	0.000	Sig

The results of Table (5) show that the calculated (T) values were all statistically significant, and thus the numerical values of the weight-pushing performance test for female students can be inferred in terms of the numerical values of the visual abilities tests. My agencies:

Predicting the female students' weight-pushing performance in terms of fixed visual ability = regression constant + ((slope (effect) x arithmetic mean of the fixed visual ability test))

Prediction of female students' weight-pushing performance in terms of visual mobile ability = regression constant + ((slope (effect) x arithmetic mean of visual mobile ability test))

Prediction of female students' weight-pushing performance in terms of horizontal depth perception ability = slope constant + ((slope (effect) x arithmetic mean of the frontal horizontal depth perception ability test))

The researchers attribute these results, according to each ability, to the following: Fixed visual ability: The percentage of the contribution of this ability to the performance of the weight push was (0.835), while the rest of the contribution is attributed to random factors that are not researched. Accurately and objectively what matches the scientific facts that confirm the importance of this ability, especially in the effectiveness of pushing the weight, which is needed by the students at the beginning of the performance in the throwing sector to obtain information that they understand about the nature of the tasks required to complete the skillful performance of this activity, on the basis of which experience is built and what is necessary, It has to do to interact with this educational environment and invest its influences to study it in support of correct performance to pay the weight.

Ahmed Mohamed believes that "visual perception is among the types of perception and as an active process that includes multiple activities (such as attention - sensation - awareness - memory), as he confirms that attention is the key to perception." (Abdel-Khalek. 2002).

Wajih Mahjoub states, "The kinetic characteristics, sensation, thinking, and visualization processes that differ from one learner to another, and that flow into special methods that differ from one performance to another. Certainly, the levels of motives and emotions differ from one individual to another and from one case to another. These individual factors must be understood and taken into account." when setting up programmers. (Mahgoub. 2001)

Mohsen Ali mentions that "organized and scientifically studied exercise has a great impact on the results of the tests." (Nassif. 2000).

As for the moving visual ability: the percentage of the contribution of this ability to the performance of pushing the weight was (0.909), while the rest of the contribution is attributed to random unresearched factors. And the conditions of the test, which move the desired area in the specified light, are not required to achieve a response in the unit of time, but rather in determining the accuracy of the place, and this helps the students in determining the neuromuscular work for the performance required for each specific distance or point, and this is what the sound methodology of construction that the researchers followed helped. In conformity with the scientific perspective of the moving visual ability and its role in enabling the student to perceive information about the changing environment in the lesson, although the effectiveness of pushing the weight is characterized as one of the closed skills in which the periphery of the performance is established, its teaching and the positions that the student takes in the lesson are variable and require it Adapting with the continuous change in its

movement in the educational environment and directing attention, focus and awareness towards what is related to this Performance of estimates of distances with specific spatial accuracy.

Mustafa Hussein believes that "the link between manifestations of attention and reaction is one of the basic requirements in performance, especially since kinetic performance is associated with intensity and unity of attention, which results in a good reaction and a correct kinetic response." (Bahi. 2002)

And Sami Muhammad Ali asserts, "The re-presentation of the stimulus leads to arousing attention, and therefore innovation is necessary to avoid boredom, and the stimulus must be attractive, in terms of its nature and spatial location, and it must be changed to attract attention, in addition to the intensity and novelty of this stimulus in order to have importance." applied in many scientific fields. (Melhem. 2016)

Nidal Mahmoud believes that "the ability to activate the requirements of visual and sensory perception increases the effectiveness of the processes that play a role in imparting meanings to our sense of various sports movements and is an important part of the information processing system, i.e. analysis and understanding of sensory information coming from the surrounding environment." (Shahrour. 2004)

As for the ability to perceive the horizontal depth: the percentage of the contribution of this ability to the performance of throwing the weight was (0.843), while the rest of the contribution is attributed to random factors that are not researched. Proper performance leads to achievement by pushing the weight to the farthest distance that the learner student determines in her imagination, as this test was built to simulate the actual reality of the effectiveness, although the sample is of female students and not within the training environment, but the type of activity is one of the activities that depend on achievement as a measure of excellence in it, which The researchers took this into account in order to be similar to the performance or as close as possible to the performance, and this was shown by the results of the effect of the ability to perceive the horizontal depth in improving the performance of the effectiveness of pushing the weight.

And that the totality of the three visual abilities, the results of which were derived from the tests that the researchers intended to build, helped to reach a scientific fact in the possibility of predicting the level of performance in terms of the numerical values that derive from their application, which gives an indication of their importance in teaching this activity and employing exercises in the lesson to improve the level of students in it. Because of its clear role in raising the level of this performance.

Parkin, points out "visual perception consists of a wide range of inferential processes, which use the hints presented to them by placing the two-dimensional foundation on the retina, which creates a realistic perception of the three dimensions." (Parkin, A.J. 2013)

Al-Fadli and Alwan mention, "In order to identify the distinctive characteristics of skill and succession in the forms of movement that can be observed, and the possible mistakes and instructions that are given to the learner, it is natural that he should focus on them by

directing attention to specific parts of the skill or specific parts of the body during the performance." .(al-Fadhli and Alwan. 2010)

And Amer Jabbar points out that "the athlete's perception develops through repetition, practice, personal experience, and the individual's adequacy and ability. The more the athlete practices the movement or the skill, the more he develops the characteristic of awareness in relation to this skill." (Al-Saadi. 2002)

Adnan Youssef believes that "visual perception constitutes the bulk of the information in the perception process in general, which the individual practices daily, to identify and organize the various sensory stimuli, and previous experience plays a role in understanding them." (Al-Atoum. 2004)

Presentation and analysis of the results of the percentage of the contribution of bio-kinetic capabilities in the performance of pushing weight:

The researchers presented the values of the descriptive statistical parameters of the results of the bio-kinetic abilities tests, the weight-pushing performance test, according to the requirements of simple linear regression between each of them, as shown in Table (6):

Table (6) shows the results of the values of the descriptive statistical parameters of the results of the tests of bio-kinetic abilities and weight-pushing performance

Tests		Measuring unit	Mean	Std. Deviations	Skewness
weight-pushing performance	explosive ability of the legs	cm	377.74	11.004	0.46
	explosive ability of the arms	cm	36.67	2.672	-0.628
	Kinetic speed of the legs	number of times	19.7	1.89	-0.165
	agility	second	15.94	1.68	-0.366
	Movement flexibility of the trunk	number of times	6.23	1.046	0.115
	Compatibility between eyes and arms	Degree	8.4	1.246	0.091
	Balance	Degree	7.05	.942	-0.736

Skewness values are set between (±1)

It is noted from the results of Table (6) that the scores in the seven bio-kinetic abilities tests are distributed moderately, and thus they are clear to initiate a linear regression, and to estimate the relationship of the results of each of the bio-kinetic abilities tests to the results of the weight-pushing performance test for female students, the researchers presented that in Table (7):

Table (7) shows the results of the values of the simple correlation coefficient, linear regression, contribution ratio, and standard error of estimation for the results of each of the bio-kinetic abilities tests with the results of the weight-pushing performance test

Impact test	affected test	simple correlation coefficient (R)	Linear regression coefficient $(R)^2$ The coefficient of determination	Contribution percentage	Standard error of the estimate
explosive ability of the legs	weight-pushing performance	0.922*	0.85	0.848	0.509
explosive ability of the arms	weight-pushing performance	0.883*	0.779	0.776	0.618
Kinetic speed of the legs	weight-pushing performance	0.934*	0.872	0.87	0.471
Agility	weight-pushing performance	0.941*	0.886	0.884	0.445
Movement flexibility of the trunk	weight-pushing performance	0.936*	0.876	0.874	0.464
Compatibility	weight-pushing	0.923*	0.853	0.851	0.505

between eyes and arms	performance				
Balance	weight-pushing performance	0.916*	0.84	0.838	0.527

To examine the quality of the model's reconciliation of each linear regression for each of the correlations and the contribution ratios of the results of each of the bio-kinetic abilities tests with the results of the weight-pushing performance test, the researchers present the results in Table (8):

Table (8) shows the results of the (F) test to check the quality of the linear regression model reconciling the results of the bio-kinetic abilities tests with the results of the weight-pushing performance test.

Impact test	test	variance	sum of squares	Degree of freedom	mean of squares	F value calculated	Level Sig
explosive ability of the arms	weight-pushing performance	Regression	117.656	117.656	453.68	0.000	Sig
		errors	20.747	0.259			
explosive ability of the legs	weight-pushing performance	Regression	107.847	107.847	282.369	0.000	Sig
		errors	30.555	0.382			
Kinetic speed of the legs	weight-pushing performance	Regression	120.669	120.669	544.354	0.000	Sig
		errors	17.734	0.222			
Agility	weight-pushing performance	Regression	122.573	122.573	619.448	0.000	Sig
		errors	15.83	0.198			

Movement flexibility of the trunk	weight-pushing performance	Regression	121.194	121.194	563.423	0.000	Sig
		errors	17.208	0.215			
Compatibility between eyes and arms	weight-pushing performance	Regression	118.036	118.036	463.643	0.000	Sig
		errors	20.367	.255			
Balance	weight-pushing performance	Regression	116.194	116.194	418.548	0.000	Sig
		errors	22.209	0.278			

The results of Table (8) show that the value of (F) for examining the quality of fit of the simple linear regression model for the results of each test of bio-kinetic abilities the results of the weight-push performance test were all statistically significant, and the researchers presented the values of the estimates of the fixed limit and inclination (effect) and their standard errors and the level of their real and significant significance in Table (9):

Table (9) shows the values of the estimations of the fixed limit and the inclination (effect) of the results of the bio-kinetic abilities test on the results of the performance test of weight and morale

Impact test	Variables	β	standard error	T value calculated	Level Sig	Type Sig
weight-pushing performance	fixed limit	-33.459	1.943	17.218	0.000	Sig
	explosive ability of the arms	0.11	0.005	21.3	0.000	Sig
weight-pushing performance	fixed limit	-7.924	0.945	8.385	0.000	Sig
	explosive ability of the legs	0.432	0.026	16.804	0.000	Sig
weight-pushing performance	fixed limit	-4.803	0.548	8.772	0.000	Sig
	Kinetic speed of the legs	0.646	0.028	23.331	0.000	Sig
weight-pushing	fixed limit	19.584	0.471	41.543	0.000	Sig
	Agility	-0.732	0.029	24.889	0.000	Sig

performance						
weight-pushing performance	fixed limit	0.626	0.311	2.011	0.048	Sig
	Movement flexibility of the trunk	1.17	0.049	23.737	0.000	Sig
weight-pushing performance	fixed limit	-0.227	0.382	0.594	0.554	Sig غير
	Compatibility between eyes and arms	0.969	0.045	21.532	0.000	Sig
weight-pushing performance	fixed limit	-1.052	0.442	2.379	0.020	Sig
	Balance	1.272	0.062	20.458	0.000	Sig

The results of Table (9) show that the calculated (T) values were statistically significant in all of them, except for the compatibility ability between the eyes and the arms, whose contribution the results showed, but it is not possible to predict through them the weight-pushing performance of the female students, and thus the numerical values of the female students' weight-pushing performance test can be inferred in terms of numerical values other bio-kinetic abilities tests examined are as follows:

Predicting the female students' weight-pushing performance in terms of the explosive force capacity of the arms = slope constant + ((slope (effect) x the arithmetic mean of the explosive force test of the arms))

Predicting the female students' weight-pushing performance in terms of the explosive power of the two men = the slope constant + ((the slope (effect) x the arithmetic mean of the explosive force of the two men))

Predicting the female students' weight-pushing performance in terms of the kinetic speed of the two legs = the slope constant + ((the slope (effect) x the arithmetic mean of the kinetic speed of the two legs))

Prediction of female students' weight-pushing performance in terms of agility ability = slope constant + ((slope (effect) x arithmetic mean of agility test))

Prediction of female students' weight-pushing performance in terms of the compatibility ability between the eyes and the arms = regression constant + ((slope (effect) x the arithmetic mean of the compatibility test between the eyes and the arms))

Predicting the female students' weight-pushing performance in terms of the ability of the moving balance = slope constant + ((slope (effect) x the arithmetic mean of the moving balance test))

Discussion of the results of the percentage of the contribution of bio-kinetic capabilities in the performance of pushing weight:

The researchers attribute these results, according to each ability, to the following: The two explosive capacities: the percentage of the contribution of the explosive ability of the arms to the performance of the weight push was (0.848), while the rest of the contribution is attributed to random unresearch factors. The percentage of the contribution of the explosive ability of the arms to the performance of the weight push was (0.776), while the rest of the contribution It is attributed to random unresearched factors, and the researchers attribute the appearance of these two results to the good selection and determination of these two important capabilities in performance, especially with the movement of pushing the weight ball towards the field, and the movement of the two men in the slide after being balled in the throwing circle to push the weight, to confirm the numerical values of each of these two tests with the possibility Predicting the performance of this activity with its significance, to support the teaching process to teach students the need to adopt means and resistances within the lesson to raise their levels because of their role confirmed by the results of this study as a complement to the applications of scientific facts in their importance to the effectiveness of pushing weight.As Qasim Lazam asserts, "The special strength development exercises (explosive force) make the player better able to deal with the requirements of the specialized game." (Saber. 2010), (Steven) mentions that the use of muscle strength in kinetic skills is the basis for developing kinetic and transitional speed. (Plisk. 2001).

(Michael & Other) asserts that "muscle strength plays the main role in improving performance and preventing sports injuries, as the information was available not long ago. Muscular strength is the rule the basic and important requirement for almost all sports." (Michael Yessis & Frederick C. 2007)

Baechle & Earle mentions, "The arrival of the individual athlete is affected by the development of muscular strength, which is one of the most important elements of physical fitness, as well as the development of other physical attributes such as speed, endurance and agility." (Baechle, T. R. and Earle, R. W. 2000)

Jamal Sabry believes that "gravity works (ropes, weights, discs, and dumbbells) or hydraulic and rubber resistances against muscle contraction, and it is possible to train muscle strength without weights that impede the movement of the hands through ligaments and free weights exercises." (Farag. 2012)

The ability of the kinetic speed of the two men: the percentage of the contribution of this bio-kinetic ability to the performance of pushing weight was (0.87), while the rest of the contribution is attributed to random unexamined factors. That speed is an inherited ability, but it can be improved in teaching and training, in relation to muscular strength training, and the technical performance needs to push the weight to a high level of the speed of the movement of the two men in the throwing circle in order to increase the movement momentum of the two men and then the body of the student when pushing the weight ball, and this is the result It provides support to those in charge of teaching the event by the need to pay attention to this

ability because of its positive returns the level of performance can be predicted by adopting its numerical values for each student.

Muhammed and Ehab indicate, "the increase in speed requires an increase in the amount of force produced in order to ensure stability or increase skill, and speed can be viewed as the guiding force with skill." (Bariqea and Ehab Fawzy. 2005).

(Sell, et al) states that it is necessary to have the opportunity for learners to modify and correct their concepts if course, these concepts need modern teaching methods and strategies in order to acquire them. Learning is the result of the interaction between what one learns and their current ideas and concepts, and therefore their structure in it determines their learning process. (Sell, K, et al. 2006)

Agility ability: - The percentage of the contribution of this biokinetic ability to the performance of pushing weight was (0.884), while the rest of the contribution is attributed to random unexplored factors. In movement without this ability, except that in the effectiveness of pushing the weight and the sections of this skillful performance, agility has a role in increasing the control of the body's positions in the apparent void in the transitions from a standing position to rolling, sliding and throwing to perform the push for the weight ball, and thus gives the performance the characteristic of good kinetic control, to progress The results of the tests are important due to the need to pay a lot of attention to this biokinetic ability.

Warda Ali Abbas believes that "in order to reach a high level of performance, the player must possess a high degree of agility in order to meet the requirements of the game, especially in the match that takes a long time, as the high agility helps to invest the player's skillful and tactical capabilities in the right direction." (Abbas. 2003) , Makram Saeed Al-Sadoun states, "The individual's possession of a high level of agility helps him to successfully practice many sports activities to participate in the development and upgrading of kinetic skills." (Al-Sadoun. 2002)

The ability of the kinetic flexibility of the torso: the percentage of the contribution of this bio-kinetic ability to the performance of pushing weight was (0.874), while the rest of the contribution is attributed to random unexamined factors. Throwing This is to obtain the rotational torque that produces a driving force in muscular synergy with the rest of the muscles of the body and the movement of the head towards the shoulder that causes this curling and also includes a contraction of the two legs in the knee joint so that the body is taut during the rotation to push at full speed, which confirms the importance of the kinetic flexibility of the trunk to provide an indication for predicting the performance of a kick Weight by adopting numerical values for this test, so that this is included in the service of teaching female students this performance in scientific lessons in the arena and field in the college under study, and it is necessary to work on improving them for them because of this positive impact. Mohammed Reda points out, "Flexibility is one of the important characteristics in activities that require a wide range of motion to perform sports skills, and the availability of this characteristic guarantees the success of skillful performance in a large way." (Al-Madamgha. 2008)

Amin Anwar al-Khouli and Diaa al-Din Muhammad al-Arab mention that “a good training method must be economical and appropriate to the nature of the training duties at the same time to develop physical qualities such as strength, endurance, lengthening and flexibility, as the ropes are characterized by tensile resistance and therefore they can be used for pulling and pushing purposes, but they are very flexible and cannot resist compression and as a result, It cannot be used for payment or similar compression applications. (Al-Khouli and Al-Arab. 2009).

Amin Anwar al-Khouli and Diaa al-Din Muhammad al-Arab point out that "rubber ropes are a good and economical training method that fits the nature of training duties at the same time to develop physical qualities such as strength, endurance, elongation and flexibility, as the ropes are characterized by tensile resistance." (Al-Khouli and Al-Arab. 2009)

The ability of compatibility between the eyes and the arms: The percentage of the contribution of this bio-kinetic ability to the performance of pushing weight was (0.851), while the rest of the contribution is due to random research factors. The researchers concluded that the nature of the momentum of the rotational movement depends on muscle synergy to increase the torque more than it depends on the coordination between the eyes and the arms, one of which is supporting the weight ball next to the neck, the tilt of the head on it and the movement of the other to increase that rotation, which means that the performance depends on the participation of the rest of the body parts More than relying on this ability despite its relationship and contribution shown by the results of its test with the performance test to push the weight. Muhammad Hassan and Abu Ola Ahmed confirm that "the compatibility within the muscle includes the number of working units, the rate of frequency of nerve signals, their speed, and the reciprocal temporal relationship between the work of the kinetic units." (Allawi and Abul Ela Ahmed Abdel Fattah. 2000), (Abdullah Hussein Al-Lami points out that "compatibility requires high efficiency of the nervous and muscular system, as it depends on the integrity of the muscles and nerves, and their connection in one action together." (Abdullah Hussein Al-Lami. 2004)

And Kamal Jamil Astates, "The diversity in giving exercises for one sport avoids intellectual confusion and works to increase the desire for training, just as the experience in the diversity of sports performance gives the player various physical qualities and abilities as well." (Al-Rabadi. 2001)

Essam believes that graduating with the training load means "adding new requirements at intervals of time that allow for the occurrence and development of adaptation processes." (Abdel-Khalek. 2003)

Luay Ghanem and et al. mention, "The compatibility between the eye, the hand, and the leg is the most important factor for sports performance, as during the performance there is a transmission of nerve signals between the nervous and muscular systems, and therefore all the movements that the player makes, whether they are the normal daily movements or the movements that are related to the field of sports performance And what requires a degree of compatibility between the nervous system and the muscular system. (Al-Sumaidai et al.. 2002)

The ability of mobile balance: The percentage of the contribution of this bio-kinetic ability to the performance of the weight push was (0.838), while the rest of the contribution is attributed to random unsearched factors. The stages of body movements inside the throwing circle and until the weight is left after pushing, which contribute to preserving the conditions of performance by not leaving this circle as a kind of legal technique for performing this activity, and its testing provided an emphasis on its importance as a result of rapid movement with muscular strength that includes the muscles of the body by contraction and movement, which is for rotation The most demanding of this bio-kinetic ability, to complement the necessity of adopting its tests to provide support and assistance in the lesson of physical education in the college under discussion.

(Arthur) points out that "it is necessary to take care of the rules of the player's balance, whether in performance or stability, and to support the improvement of balance by relying on increasing the activation of the work of the diffuse muscle sensors, because the vestibular system does not develop through training because it is like a helm that tells the brain about the body's positions without it It issues orders, and this confirms that the vestibular system is a informant and not a controller, as some imagine (Arthur T. Johnson. 2012)

And Mohamed Ibrahim states, "The sense of sight plays a major role in maintaining balance, by reducing and raising the base of the support, by fixing the player's gaze on a fixed target, so the head is fixed, and thus the line of the body's center of gravity is fixed on the base of the support." (Shehata. 2007).

According to John and Hall, "the balance and support of the body towards gravity is responsible for the retinal and vestibular nuclei in the brainstem that are of two types: the pontine retinal nuclei and the bulbar retinal nuclei.

These two are oppositely towards each other; Where the pontine nuclei, which are distinguished by their high excitation, excite the antigravity muscles. As for the bulbar nuclei, their action is inhibitory, and the goal of both is to secure the muscle contractions necessary to stand against gravity. But what distinguishes the vestibular nuclei is the selective control of excitatory signals going to the various anti-gravity muscles aimed at maintaining balance in response to signals coming from the vestibular system. (Al-Hakim. 2004)

believes that “training to strengthen the muscles of the body in different positions increases balance through repetition of these positions and equalizing the moving moments.” (El-Sayed Farahat. 2001), and "a good skillful and tactical performance can only appear through raising the level of physical fitness elements." (Abdel-Khalek. 2002), and “muscular balance on both sides of the body is the actual basis for a good figure, and it also adjusts the shape of the body from the current position it is in to the ideal position that it should be.” (Mahjoub. 2001)

Conclusions and Recommendations:

Conclusions:

According to the procedures and results, the researchers reached the following conclusions:

- Fixed visual ability is associated with the performance of pushing weight for female students with a high positive relationship.
- The fixed visual ability contributes to the weight-pushing performance of the students of the College of Physical Education and Sports Sciences, and affects this performance positively, and it is possible to predict this performance in terms of this visual ability.
- Ability to perceive the horizontal depth is associated with the performance of pushing the weight of the female students with a high positive relationship.
- The ability to perceive the horizontal depth contributes to the weight-pushing performance of the students of the Faculty of Physical Education and Sports Sciences, and affects this performance positively, and it is possible to predict this performance in terms of this visual ability.
- Bio-kinetic abilities (explosive power of the arms, explosive power of the legs, kinetic speed of the legs, agility, and kinetic flexibility of the torso, coordination between the eyes and arms, and mobile balance) are associated with the female students' weight-pushing performance with a high positive relationship.

Recommendations:

According to conclusions reached by the researchers, a number of the following recommendations were made:

- It is necessary to rely on tests of the most important visual abilities in arena and field lessons for female students in the College of Physical Education and Sports Sciences.
- It is necessary to take into account the characteristics of female students in the College of Physical Education and Sports Sciences when designing tests for them.
- It is necessary to follow the systematic, organized and sequential steps according to measurement and evaluation in the sciences of physical education when constructing or preparing tests for female students in the College of Physical Education and Sports Sciences.

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