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## **The effect of a corrective curriculum according to a model on some bio-kinematic variables, motor abilities, and the performance of the two jumping skills, opening and closing, on the men's technical gymnastics jump table apparatus: An Experimental research on a sample of students from the third stage of the departments of applied and theoretical sciences of the college of education physical and sports sciences at the University of Misan**

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### **Abstract**

Preparing a corrective educational curriculum for diagnosing jumping performance errors opening and closing through kinetic analysis, which leads us to scientific facts that the coach and educator cannot discover, by relying during the learning process on modern analysis programs that help overcome many of the obstacles of the educational process in order to discover the error and correct it using the model for the youngsters of the Missan national team (14) years by relying on bio-kinetic and kinetic characteristics and indicators of reaction speed and balance and preparing the right ways in drawing the optimal motor path to perform my skill under study, The researchers used the educational curriculum on a sample consisting of (30) third-stage students for the branches of applied and theoretical sciences \ University of Maysan, and it was divided into two experimental groups that used the corrective curriculum for the branch (corrective and kinetic exercises) and a control group that used the traditional curriculum used in the college and by (15) students for each group according to the lottery. And at the rate of (11) educational units, at the rate of one unit per week, as the number of units for jumping included (6) units because of their difficulty, interspersed with corrective exercises (20) exercises, and (5) units for open jumping interspersed with corrective exercises (17) exercises, which range in time. (5-30) seconds and their repetitions range from (3-10) repetitions and rest between one repetition and another from (3-30) seconds. These exercises were repeated in more than one corrective unit. The number of corrective exercises varies for each common mistake (1-4) exercises depending on the type of error. The gradient method was used to repeat the exercise, taking into account the time of implementation and the time of stability of the correction, and the emphasis on the exercises to be interesting, varied, and different, and to keep boredom away from the student. The researchers also took measurements of the legs, shoulders, and arms in order to adjust the distances by preserving safety factors throughout the period of executing the exercises after correcting them. \* Research objectives included the preparation of an electronic curriculum and learning about the impact of the development of variables and differences in the tribal tests and dimensionality of the two groups. \* The research hypotheses As for the research hypotheses, there are statistical differences in some research variables between the two groups and in favor of the experimental group, and the researchers concluded that the exercises prove their efficiency in correcting the motor path. The two researchers recommended emphasizing the instantaneous and continuous correction to open the angles of muscular work in performance through tracking imaging to develop the learning and teaching aspect of the skills of gymnastics equipment.

**Keywords:** Corrective curriculum, bio kinematic variables, motor abilities, artistic gymnastics jump

### **Introduction**

Sports games and events constitute an area of wide and great care in the countries of the world in order to reach the best levels of performance and achieve the best achievements, and that the technological development in the devices and methods used in sports in general and artistic gymnastics in particular had a role in achieving the quality of skillful performance, whether at

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the level Competitions or the educational process, and artistic gymnastics is one of the sports that is distinguished by the diversity of its performance, as it includes many devices, including the jump table device, which represents the first education and training base for it, and this is confirmed by both John and Shannon (John 1995 AD) that (biomechanical analysis studies It aims to solve motor problems and discover important information about skillful performance and compare motor skills with each other). 45) Pre-rolling movements (Tsukuhara) of the nature of front flips, Yamashita, and jumps entering the ruffle to perform a motor sentence that concludes at the end By liberating the player from the jumping platform by flying the second to accomplish an ideal motor duty in the air and then landing on the feet, which is the only part of the body that international law allows this for this device and is known as the motor end, which is one of the special requirements that the International Gymnastics Arbitration Law required to perform and not be considered a failed attempt and be difficult Grade (B). Which differs from the rest of the five devices (\*). The uses of kinetic analysis have a distinct place in all gymnastic movements, as their evaluation depends on the form and accuracy of performance. Through kinetic analysis, it is possible to reach scientific facts that the coach or teacher cannot discover, so the reliance of specialists and teachers in gymnastics during the education process on modern motor analysis devices and programs, which have an effective role in overcoming many problems by discovering the error using the model and adopting the mechanical properties and motor capabilities of the motor path in order to be able to prepare the correct ways and steps to draw the optimal motor path for my skill Under research, when studying the kinetic trajectories of opening and closing in terms of mechanical properties, the model is available to facilitate the first realization. This is due to the errors of the partial and total motor path of the skill, because it accurately shows the points of error in the different motor stages, as this is done in the framework of comparison with the values of the mechanical characteristics characteristic of the two skills model for the purpose of detecting the most accurate defects of skill performance and working to find solutions to correct these errors by developing exercises to correct errors Which is diagnosed and thus the performance of the skills in accordance with the correct motor track. In order to reach the correct performance, the importance of the research came in emphasizing the discovery of the error and its treatment for the performance of the two skills under discussion, through the preparation of corrective exercises that are similar in content to the same direction of the real performance of the two skills. In order to contribute to directing the process of learning and teaching in the right direction, and then the clear economy of time.

### Research problem

Mastering basic gymnastics skills and developing the level of skillful performance is one of the most important goals pursued by the educational process, taking into account the level of learners as teachers in the future and the specified time for learning. The success of the educational process and the acquisition of skills by learners and their mastery according to an action plan to achieve specific behavioral goals through motor analysis programs based on the mechanical foundations for drawing motor paths for the educational institution to bring about effective and influential changes and trends in modern learning processes through learning and training at the same time using all the senses of

the learner's behavior To reach the teaching objectives. Through the work of the researchers in their field of specialization in gymnastics, they noticed that a large number of students did not reach the required level of skillful performance despite the repeated performance, directives, and successive notes from the teacher of the subject, and this is due to the self-esteem and the verbal on which many gymnastics teachers rely on in diagnosing the error in addition Until a large number of them do not pay clear and tangible attention to the biokinetic and kinetic indicators that determine the validity of the motor path and not to research how to employ these indicators in the service of performance, hence the research problem in working to detect the error in the performance of my skill under consideration by relying on that On the sources, references, and opinions of specialized experts, in addition to using motor analysis programs, and then preparing corrective exercises according to the bio-kinematic indicators of the model for both skills, and working to track the motor path for them through intermediate tests in diagnosing the location of the error and implementing corrective exercises, relying on the model as a reference to correct those In order to reach the performance to the optimum level and the best.

### Research objectives

1. Preparing corrective exercises and diagnosing errors according to the biokinetic and kinetic indicators to model the two skills of jumping open and close on the jump table device.
2. To identify the effect of corrective exercises on the performance of the two skills of jumping open and close on the jump table apparatus.
3. To identify the differences in the tracking tests, variables under study, pre and post, for the experimental and control groups, to develop the technical gymnastics of the devices.

### Research hypotheses

1. There are statistically significant differences between the two groups, the experimental and the control, in the pre and post variables and skill test under study for the two groups and in favor of the experimental post variables.
2. There are statistically significant differences between the experimental and control groups in the dimensional variables and the skill test under study for the two groups and in favor of the dimensional experimental variables.
3. There are statistically significant differences in the post-tests between the experimental and control groups, in favor of the post-test for the experimental group.

### Areas of research

- **The human field:** Students of the third stage of the branches of applied and theoretical sciences of the College of Physical Education and Sciences
- Sports \ Missan University.
- **Time range:** 10/25/2022 to 3/1/2023
- **The spatial field:** The indoor hall for gymnastics and computers in the College of Physical Education and Sports Sciences \ University

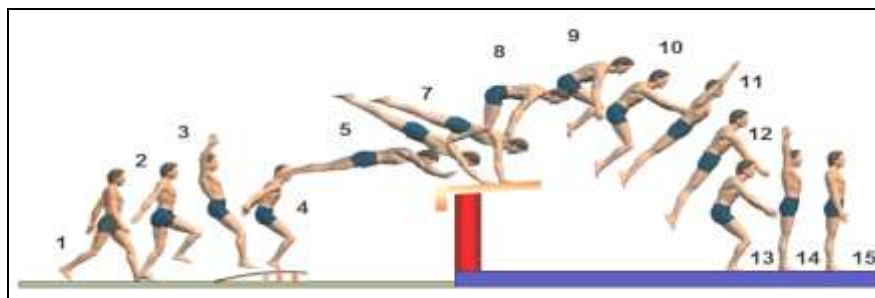
### Maysan. Chapter II

#### Theoretical studies

The biomechanical aspects affecting the performance of the jumping skill, including the jumping platform device:- (1)  
The horse is placed lengthwise at a height of 135 cm and the

rocking jump ladder is 2 feet away from the back end of the horse, and the movement begins with a close run from a distance of 20 meters. Approaching some players at the international level is between (7.6-8.2 m/s), after which the student hits the jump ladder with both feet in the middle of the front half by flexing the hip joint (5-26 d) to take the ascent. The time of the jump ranges from (0.27-0.27). 0.33 sec) and the ascent in the direction of an angle (85 degrees) near the horizontal level with the ground, with the feet thrown back high with the force of the reaction of the jumping device, with the arms raised in front high, as the body rushes forward and upward, and the best angle for the ascent (75-83d) is flying as it is thrown in the direction The horizontal from the vertical in the air, which provides a high flight arc, and the appearance of the vertical vehicle prevailing over the horizontal vehicle due to a difference in the center of gravity of the body for performance and the angle of the body inclination (30 d), and when the body reaches the maximum height and returns to a difference in the amounts of angular change and the angle of departure for the parts of the body and before its arrival To the resting point, the body rotates around the transverse axis with half a turn forward, while the arms continue to be raised high and the body straightens, as it reaches the resting point in a position that allows it to descend, as it lands with outstretched arms and the head between them on a limb above

the middle of the front horse to position the vertical support with the continuation of the movement of the body's rotation forward, and when it reaches Shoulders After the almost vertical level, the two arms push the horse with explosive action force, noting the straightening of the angle of the torso arm to the maximum extent, and as a result of the reaction of the device, where the body rushes and in the shortest possible time, flying again, leaving the device forward and upward. When the body reaches the maximum possible height and before reaching the point of rest, it arches the lumbar region with lifting The arms are high and the head between the arms is perpendicular to the torso. When the body reaches the resting point, all corners of the body are extended to stop the rotational speed (the angle), where the forward rotation movement takes place around the transverse axis of the body in a position that allows it to land. In the final part, the player begins to extend all corners of the body in preparation for landing under The effect of the earth's gravitational force to stand at a distance of approximately (150) cm from the side of the platform, where the feet are joined and followed by a flexion only Leaning in the knee joint for the purpose of absorbing the force of the downward momentum, with swinging the arms in front of the side, then extending the knee joint and pulling the arms down.



**Fig 1:** The technical performance of the open jumping skill and the specifications of the jump table device

Figure (1) the technical performance of the jumping skill As for jumping, the technical aspects of open jumping do not differ greatly, but the difference is in the position of the two legs in the second flight, the player pulls his legs and joins them to the chest after pushing the device with the hands and starting the second flight, and when the body and legs cross over the level of the device, we raise the head and chest to the top and extend The legs to land and when landing, the player makes a slight bend in the knees to absorb the collision with the ground.

**Chapter Three**  
**Research methodology and field procedures**  
**Research methodology**

Choosing the appropriate and most consistent approach with the nature of the problem to be researched is one of the necessities of scientific research, as the researchers used the experimental approach (by designing the two equal groups) due to the suitability of the nature of the research problem, as it aims at (the most accurate and efficient scientific research methodology in reaching accurate results between the independent and dependent variables). (1)

**Research community and sample**

The selection of the sample is one of the important steps and stages of the research, and the nature of the research is what controls the sample. Based on the foregoing, the researchers

chose the community of origin in the intentional way, which is represented by a sample of third-stage students in the College of Physical Education and Sports Sciences for the theoretical (control) and applied (experimental) branches and the adult community Their number is (50) students, and they make up (90%) in two divisions (1, 2). The sample of (32) students was chosen randomly by drawing lots with even numbers in sequence. (5) students were excluded due to absence, and (8) students were used for the reconnaissance experiment. They were excluded in the main experiment to avoid bias. Table No. (1) shows the proportions of the sample size.

**Table 1:** Shows the proportions of the sample size

Research community	The number of sample members	Percentage
Society completed it	50 students	-----
The research sample	32 students	64%
Exploratory experience	8 students	16%
Excluded for absence and injury	5 students	10%
the total	45 students	90%

The sample was statistically equal in each of the variables (height, weight, age). Table No. (2) below shows the arithmetic mean, standard deviations, and the calculated and tabular (t) value between the control and experimental groups in the equivalence test.



**Table 2:** Shows the arithmetic mean, standard deviations, and the calculated and tabular (t) value between the control and experimental groups in the equivalence test

Measurements, kinematics, motor and dexterity test	The control group							
	Measurement	s	± p	s	± p			
the age	month/year	22,9	1,48	23,2	1,29	0,725		non-moral
height	m/cm	161,7	1,84	162,10	1,35	0,698		non-moral
the weight	mass/kg	57,25	0,74	58,35	1,28	1,845		non-moral
The angle of the knee joint at the moment of flight	degree	142	1,387	141	0,867	0,775		non-moral
The angle of the hip joint at the moment of flight	degree	109	0,899	108	1,438	1,105		non-moral
The angle of the wrist joint at the moment of touching the table	degree	71	0,599	70	0,529	0,599		non-moral
Knee angle for second flight and prepare for landing for a snoring jump	degree	77	1,285	75	0,786	1,254		non-moral
The trajectory time of the body's center of gravity	second	2,75	2,699	2,78	2,423	2,000	2,042	non-moral
Contact time with a two-footed jump ladder to the first contact with the platform	one thousand	0,060	0,837	0,062	1,105	1,745		non-moral
Contact time with the table with the arms to the first contact break of the second flight	per second	0,038	0,249	0,037	0,251	0,650		non-moral
reaction speed		2,38	0,018	2,39	0,710	1,090		non-moral
Calendar jump open	one thousand							non-moral
Combined jump calendar	per second	5.8		4,02				non-moral

At the level of significance (0.05) and the degree of freedom (n-2 = 32 - 2 = 30)

**Devices, tools and means of collecting information**

- Arab and foreign sources \* Gymnastics equipment, parallel bar, horizontal bar, low platform, and measuring tape
- A wooden box divided into different heights \* A small multi-storey jumping horse with a height of (50) cm and a low throat
- Divided Jones ruler and medicine balls \* Rubber ropes, sponge mats, and rise plate (glove)
- Stopwatch, questionnaire and performance appraisal form \* Library tools (papers and pens), Burke to plan and chalk
- Measuring tape, yellow and red cards, and (2) indicators \* Manual safety belt and high jumping device
- A rope at a height of (1.40 m), climbing ropes for strengthening, and rubber ropes. \* Various weights and a hanging safety belt (lunga)
- Training cones (4)

**Field research procedures**

**Determination of motor skills**

For the purpose of determining the motor skills under study, it was adopted according to the curriculum for the third stage of the academic year (2021-2022) in the College of Physical Education and Sports Sciences / University of Maysan, where I studied the open jump in the first semester and the combined jump in the second semester.

Determine the most important biomechanical indicators for my skill under study:

- The angle of the knee joint at the moment of first leaving flight from the jump ladder to perform the jump for the two skills.
- It is the angle between the thigh line (from the hip joint to the knee) and the leg line (from the ankle to the knee), measured from the back by Kinovea 0.819 program. (1)
- The angle of the hip joint at the moment of first letting go of the jump ladder in gymnasts to perform the jump for the two skills.
- It is the angle between the torso line (from the shoulder to the belt) and the hip line (from the belt to the ankle of the foot), measured from the front by Kinovea 0.819

program.

- The angle of the wrist joint at the moment of first touching the jump table after flying in gymnastics to perform the jump for the two skills.
- It is the angle confined between the horizontal plane of the jumping table and the connecting line from the point where the palms of the arms meet with the edge of the jumping table device (the pivot) at the moment of first contact with the table device, and it is measured from the back using the Kinovea 0.819(2) program.
- The time of the line of trajectory of the player's body's center of gravity from the moment of approaching and then touching the jump ladder and then touching the table.
- It is the time calculated from the moment of the first touching of the feet on the jumping device, then the first flight and breaking the connection until the first touch of the hands on the jumping table device, measured by the analysis program (Kenova 0.819) in thousand per second. (3)
- The contact time is the moment of touching the jump ladder by the feet to the moment of the first contact break for the first flight.
- It is the time calculated from the moment of the first touching of the feet on the jumping apparatus to the moment of the first breaking of contact after extending the legs and measured by the analysis program (Kenova 0.819) in thousand per second. (4)
- The contact time is the moment of the first touching of the jumping table by hands to the moment of the first breaking of contact for the second flight.
- It is the time calculated from the moment of the first touching of the palms of the arms on the jumping table device and leaning on it to the moment of the first break of contact for the second very short flight and measured by the analysis program (Kenova 0.819) per thousand per second. (5)
- The angle of the knee for the skill of jumping exclusively at the moment of the second flight.

The model of the jumping skills, opening and closing, according to bio-kinematic indicators:

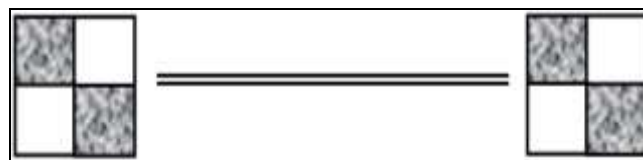
The two researchers took the physical measurements of the Maysan youth team in artistic gymnastics for the purpose of

approving his performance of the skill in question as a model for the skillful performance, and took the physical measurements represented in (age, mass, height, arm length, torso length, leg length, shoulder width. For the purpose of determining the indicators of the model Regarding the skillful performance under study, the young man was filmed using a mobile device (iPhone 11 pro max) made in America (240 photos per second, number 2), the first camera (side facing): - This camera was placed next to facing to the right of the jumping platform device and away from A distance of (9.10 m) and a height of (1.37 m) from the edge of the jump platform's legs to the focus of the lens.

The second camera (side facing): This camera was placed next to the jumping platform to the left of the device, a distance of (9.10 m) and a height of (1.37 m) from the edge of the platform legs to the focus of the lens, as shown in Figure (3) below.

The running distance from the beginning to the upper edge of the jumping device is (25m) and the distance from the camera

to the device is a distance of (6m). Figure (1) below.



(3) attempts were given for each skill, after that the video was shown to three experts in artistic gymnastics, (\*) for the purpose of determining the best performance of the two skills, and then the best attempt was diagnosed for each skill, and the performance was analyzed through the (Kinova) program and in the light of Therefore, the degree of the final indicators of the model was determined, depending on the requirements for the optimal performance of two skills, as well as the principles and mechanical scientific foundations that govern the performance of the two skills, as shown in Table (3)

**Table 3:** The principles and mechanical scientific foundations that govern the performance of the two skills

Section	Biokinematic indicators of my skill in question	Model degree	Measuring unit
Preparatory	1- The angle of the knee joint at the moment of first leaving the flight of the jump ladder to perform the jump for the two skills.	129 °	degree
	2- The angle of the hip joint at the moment of first letting go of the jump ladder in gymnastics to perform the jump for the two skills.	122 °	degree
The main	1- The angle of the wrist joint at the moment of first touching the jump table after flying in gymnastics to perform the jump for the two skills	54 °	degree
	2- The time of the player's body center of gravity trajectory line from the moment of approaching, then touching the jump ladder, then touching the table, and then touching the feet to the ground to land	2,16	second
	3- Reaction speed		
The final	1- The contact time from the moment of touching the jumping ladder by the feet for the first flight to the moment of first touching the jumping platform device	2,05	second
	2- The contact time, from the moment of the first touching of the table by hands, to the moment of the first breaking of contact with the second flight.	0,045	Thousands per second
	3- The angle of the knee at the moment of the second flight and preparation for landing for the skill of jumping exclusively	0,020	Thousands per second

**Determine the variables related to abilities and movement**

The two researchers identified the most important motor variables of physical performance and put them in a questionnaire and then presented them to experts and

specialists, (\*) in tests and measurement, sports training and biomechanics, (\*\*), and the variable that got a percentage of (75% or more) was accepted. 1) The one that has the most impact on the two skills, as shown in Table (4).

**Table 4:** Shows the relative importance of the motor ability experts agreement

T	Physical variables	The number of points	Relative importance
1	agility	40	73%
2	Flexibility	40	73%
3	Streamlined	38	69%
4	reaction speed	52	95%
5	Kinetic accuracy	39	71%
6	Compatibility	40	73%

The researchers chose (reaction speed) because it obtained a percentage of (95%) and as shown in Table No. (4) above, then the researchers prepared a questionnaire form to determine the most important motor test for the chosen characteristic and presented it to experts and specialists, (\*)

and the tests that were accepted were accepted I got a score of (60% or more) and as shown in Table No. (5) Table (5) It shows the relative importance of the tests of the special motor variables, according to the opinion of (5) experts

**Table 5:** Shows the relative importance of the tests of the special motor variables

1	Reaction speed	1	Forward and lateral movements are short-term	1	20%
		2	Total response speed in three directions	1	20%
		3	Nelson motor response test	3	60%

\*Nelson motor response test:- (1)

The aim of the test

Measuring the ability to respond and reaction speed

**Tools used**

A space with a length of (20m) and a width of (2m) free of obstacles, a measuring tape, and a stopwatch. Red and yellow cards, tokens (2).

**Test instructions:** The tester stands at one end of the center line facing the timer, who stands at the other end of the line, holds a stopwatch in one hand, lifts it up, and then quickly moves his arm, either to the left (red card) or right (yellow card) and at the same time He runs the clock, and at that time the tester runs at full speed to the side line indicated by the timer and when he reaches the line that is (6.4m) away, he stops the clock.

**Calculation of scores:** The player records the least time to the right and the least time to the left out of five attempts for each side.

**Determining the variables related to evaluating skillful performance**

**Jumping open and close on a jumping table (platform)**

**The purpose of the test**

Knowing the degree of special requirements and the final degree obtained by the junior from the performance of the movement on the jumping platform device, where each jump begins with an approximate run for a distance of (20 m), then the process of ascending with two rising legs on the jumping device, then the first flight with the weighting of the two legs backwards, then the process of anchoring the arms and opening the legs on the end of the platform To push on them and get a second flight with the body, then get off the legs and land on the ground with their hands folded.

**Test Tools**

Legal platform device, simplest squishy, stopwatch, whistle and skill performance scoring form.

**Test procedures**

At an angle of inclination (10-15) from the vertical line and at an angle of the center of gravity confined between (80-85 degrees) so that the player can achieve a high flight curve with a slight bend in the knee joint, i. Ascension quickly and in the least possible time to maintain the speed gained by the body during the adduction phase with the two legs snatching backwards and higher, and the first flight ends at the moment the hands rest on the surface of the platform with an inclined

object, and when the two legs reach the resting point in their weighting, they open sideways with their weighting down and forward, then stopping them before they stop They reach the level of the end of the platform, that is, the feet reach an opening near the arms, in order to transfer the energy generated from their movement to the trunk, so it rises to the top, in addition to the force of the hands pushing the jump platform, in order to achieve a second high flight. In the final part, the player begins to extend all angles of the body in preparation for landing under the influence of the force of gravity. To stand at a distance of approximately (150) cm from the side of the platform, where the feet are joined, and each laboratory is given three attempts (6). (\*\*)

**Registration:** The skill is evaluated by agreement of the members of the arbitration committee, (\*\*) so that the final score for the technical performance only for the skill is (10) degrees, and the researchers have used an international referee and four first-class referees accredited by the Iraqi Federation of Gymnastics as a committee to evaluate the skill of the students for the group The control and experimental for the pre- and post-test on the platform device by watching the video presentation of the test, and the special evaluation form was used, which contains the degree of the arbitration committees, which is stipulated in the International Arbitration Law for Gymnastics (2020-2021), then the dismissal ruling crosses out the highest and lowest degree, and the two intermediate degrees are combined It is divided by (2) to extract the player's final score, as shown in the equation below.

The sum of the mean of the two middle scores

Student's final grade =--2

**Determine the common mistakes for the skills of jumping open and close**

After looking at the sources and research related to the research, the two researchers prepared a questionnaire that included the most important mistakes of my skill under study, taking into account the biokinetic indicators that were previously agreed upon in Table (3), and then the questionnaire was presented to a group of specialists and experts in training and biomechanics gymnastics to clarify Their opinions on identifying the most common mistakes, numbering (11) experts After sorting the results, (11) errors were adopted, and the researchers adopted the errors that occurred above (75%), as shown in Table (4) below.

Table (4) the relative importance of expert agreement (11) for the common mistakes of my skill under study

**Table 6:** The relative importance of expert agreement (11) for the common mistakes of my skill under study

Section	The error	The number of points	Relative importance	Acceptance of the nomination	
				Yes	no
Preparatory	1- Running on both feet with outstretched and weak arms	20	36,4%		----
	2- Tightening and tilting the torso back while running and not being flexible	49	89%	----	
	3- Not pushing the rising leg to the ground and swinging it to join the other outstretched swing leg, and not bending in the hip joint during the ascent.	50	90%	----	
	4- Inconsistency in swinging the outstretched arms and legs back and down at the moment the feet touch the glove and a large bend in the hip and knee	46	84%	----	
	5- The body does not tilt backwards during the jump in order to convert the horizontal velocity into vertical to achieve the first flight, the hip and knee flexion does not stop and their compatibility with swinging the arms forward high, the body does not tilt forward because the body's center of gravity departs from the effect of the line of	45	81%	----	

	force, and the eccentric propulsion is not achieved.				
	6- Jumping on the jumping apparatus with two outstretched feet without any bending in the knees and with two full feet without the metatarsals only	47	85%	----	
Main section	7- The angle of ascent is small during the first flight, and the legs do not abduct quickly backwards and upwards, so the angle of ascent becomes large, giving a slight flight curve.	43	78%	----	
	8- Lowering the arms quickly during the first flight, not extending them straight with the body, and leaning on the center of the table and not its last quarter.	40	73%		----
	9- Early opening of the two legs to the side when swinging them in front and down and not stopping them before the arms reach the fourth quarter of the platform.	52	95%	----	
	10 - Not opening the feet near the arms resting in the fourth quarter of the platform, which leads to not raising the torso to the top by not converting the energy generated	51	93%	----	
Final section	11 - Bending the arms greatly at the moment of resting on the platform and pushing the shoulders forward, which leads to insufficient push to obtain a second high flight suitable for getting rid of the platform	49	89%	----	
	12- The early joining of the two men in the jumping skill, before the arms rest in the fourth quarter of the platform	53	96%	----	
	13- Not raising the arms, chest and head quickly after the second flight, which leads to the back of the body touching the final edge of the platform and not landing well.	46	84%	----	
	14- Landing after leaving the device with open legs and not bending the knees to absorb the momentum of the collision with the ground.	42	76%	----	

**Exploratory Experiments**

Exploratory experience (the second) of the corrective educational curriculum.

This exploratory experiment was conducted on a sample consisting of (3) players from the research community. The tests were conducted on Tuesday and Wednesday on 10 / 28-29 / 2022 at ten o'clock in the gymnastic hall at the University of Maysan / College of Physical Education before they did their research.

The researchers took into account the following criteria in preparing the corrective exercises:

1. The content of the exercise should achieve the goal of its performance and the type of error to be corrected.
2. To be suitable in terms of difficulty, gradation, and repetition, and to be diverse, interesting, and free from boredom, with the ages of the research sample.
3. Matching the content of the exercise with the structure

and motor structure and emphasizing the safety factors throughout the period of the correction exercises.

4. Use the gradual method to increase the number of exercise repetitions, taking into account its time and stability time.
5. The number of corrective exercises for my skill under study (22 exercises), (\*) in proportion to the errors of performing the two skills.
6. Corrective exercise time from (5-30 seconds) and its repetitions from (3-10) repetitions.
7. The researchers adopted paragraph (6) on the type and difficulty of the exercise.
8. The number of corrective exercises for each error ranged from (1-3) according to the type of error.
9. There are a number of exercises that contributed to correcting more than one error and were repeated in more than one corrective unit.

**Table 7:** Corrective exercises before and after the experts modified my skill under study

My skill is in question			
Section	Exercise number	Suggested exercise before modification	Suggested exercise after modification
Closing	2	The arms stand in front of the support with the hands on the wall ladder, the exchange of raising and bending the knees in front of the top	Arms standing in front, holding hands firmly on the wall ladder, exchanging lifting and bending the knees in front of the top, then returning to the main position
	4	(The arms stand next to the body) bending the elbows at a right angle, exchanging the arms from this position forward and backward).	(Arms standing next to the wall) Bending and extending the elbows at a right angle and exchanging the position of the arms from this position forward and backward with assistance.
The main	12	Placing a divided box at an appropriate distance, by placing a mark on the ground, and from a position of steadiness, the student stands at this line, then jumps and rises on the divided box.	Putting a jumping ladder at a distance to mark the ground, and from a simple trotting position, the student stands at this line, then jumps and rises on the ladder.
	13	A pony is placed at a suitable height, then another pony is placed, slightly higher than the first pony, then a high jumping apparatus is placed at a suitable height, followed by a mattress placed on the ground, then the student starts running and rising and repeats the exercise (10-20 times).	A pony is placed at a suitable height, then another pony is placed, slightly higher than the first pony, then a high jumping device is placed at a suitable height, then his hands are placed on the pony, then the knees are joined on the chest. Another and flying over the high jump beam with the knees on the chest and then landing on the mattress.

**Field Research Procedures**

**Pre-photograph of the research sample**

The researcher conducted a set of standardized motor and skill tests for the movement under discussion and the special

requirements of the platform device (table) on 11-23/22/2022 to be used as an indicator of the competence of the players. The researchers based their use of these tests on the opinions of experts as well as on scientific sources.



**The educational units of the corrective curriculum**

1. The number of corrective educational units reached (11) units, at the rate of one unit for each week.
2. Units for jumping open (7) units and jumping together (4) units.
3. The total number of errors that was determined by the pre-tests among the experimental sample of my skill under study reached (13) errors after opening errors (12) and (a) by virtue of the difference only between the two skills by including the two men. And as shown in Table (4) page (10).
4. The total number of corrective exercises that were used to correct the errors identified in the pre-tests among the experimental sample members during the implementation of the corrective units was about (28) opening and (5) tamping.
5. The number of errors that were corrected in each unit ranged from (2-3) errors according to its difficulty, and the number of corrective exercises for each unit ranged from (5-7) exercises, according to the type of error.
6. The exercises prepared in the educational unit were carried out according to the sequence of sections (preliminary, main, final) and at the beginning of the main section, with a time of (30) minutes, sniffing (10 minutes) explaining mistakes, and (20 minutes) applying corrective exercises from the total time of the main section of (one hour)).

**Dimensional imaging of the research sample**

Post-tests were conducted for the research sample (reaction speed and technical performance of my skill under study), where the skill performance test was conducted in the indoor hall of the College of Physical Education - University of Maysan on Saturday corresponding to 20/2/2023 at ten in the morning, and where the same devices, tools and measures were used The work team is composed of professors of biomechanics and analysis and devices (Mobile Evof 12 Pro \*) photographed by analysis and under the same conditions similar to those of pre-video photography.

**The statistical methods used**

The researcher used the statistical method of the program (SPSS) for statistical equations, version (23), which helped him to process, analyze, interpret and discuss the results of his research.

The fourth chapter

Presentation and analysis of the results of variables and tests under study pre and post, for the experimental and control groups: Schedule (6)

It shows the arithmetic 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 of the research variables.

**Table 8:** Significance of the differences in the pre and post-tests of the experimental and control groups of the research variables

Statistical processors Biokinematic variables, motor ability, and skillful performance, including and opening	Measuring unit	Experimental group16				control group 16				value (T)		Significance of differences		
		Pre-test		Post-test		Pre-test		Post-test		Calculated		Tabular		
		The middle	Average deviation	The middle	Average deviation	The middle	Average deviation	The middle	Average deviation					
		T	z	T	z									
The angle of the knee joint at the moment of flight	degree	141	0,867	135	1,470	142	1,387	138	1,850	3	1,8	2,131	D	Gerdal
The angle of the hip joint at the moment of flight	degree	108	1,438	115	0,224	109	0,899	112	1,799	4	1,7		D	Gerdal
The angle of the wrist joint at the moment of touching the table	degree	70	0,529	62	2,040	71	0,599	68	5,20	4,9	2,2		D	D
Knee angle for second flight and prepare for landing for a snoring jump	degree	75	0,786	68	0,120					4	2		D	Gerdal
The trajectory time of the body's center of gravity	Tha		77	1,285	74	2,179				6	2		D	Gerdal
Contact time with a two-footed jump ladder to the first contact with the platform	Tha	2,78	2,423	2,39	1,069	2,75	2,699	2,69	3,790	5	2		D	D
Contact time with the table with the arms to the first contact break of the second flight	Tha	0,037	0,251	0,029	0,239	0,038	0,249	0,034	3,750	4	1,8		D	non d
reaction speed	Tha	2,39	0,710	2,20	0,435	2,38	0,018	2,33	2,851	5	2		D	non d
Skill calendar opened	degree	4,2	1	8,3	0,450	5,1	1,75	6,8	2,710	6	2		D	non d
Combined skill calendar	degree	3,35	1,020	7,6	1,35	4,61	1,440	5,69	3,280	5	1	D	non d	

At the level of significance (0.05) and the degree of freedom (n-1 = 16 - 1 = 15)



Table No. (6) shows the values of the medians, standard deviations, the calculated and tabular (T) value, and the significant statistical significance in the pre and post-tests of the experimental and control groups for the variables under study, as we find that the mean value of the tribal variable is the angle of the knee joint of the control (142 d) and with an average deviation (1,387), The value of the dimensional mean is (138), with a mean deviation of (1,850). While the experimental value of the tribal mean is (141) with an average deviation of (0.867) and the post-test is (135 d) with an average deviation of (1.470). When calculating the calculated (T) value, we find it (1,950) for the control and (3,897) for the experimental, which is greater than the tabular (2,131) at the level of significance. (0.05) indicates that there are significant differences for the two groups in favor of the post-experimental test. While we find that the mean value of the pre-experimental angle of the hip joint (108 d), with a mean deviation of (1,438), and the value of the dimensional mean (115), with a mean deviation of (0,224). While the control value of the tribal mean is (109) with a standard deviation of (0.899) and the post-test is (112) with a mean deviation of (1.799). Significant for the control and in favor of the post-experimental test, while we find that the value of the pre-experimental mean for the angle of the wrist joint (70 d) with a mean deviation (0.529), and the mean value for the post-test (62 d) with a mean deviation (2,040), while the control value for the pre-experimental mean (71 d) with a standard deviation (0.599) and the value of the dimension (68 d) with an average deviation of (5.225), and when calculating the value of the computed, we find it (2,250) for the control and (04.96) for the experimental, and when compared to the tabular, an indication of the existence of significant differences for the two groups and in favor of the dimension superiority of the experimental, while we find that the value of the tribal median to the knee angle The jumping skill combined (75 d) with an average deviation of (0.786), and the value of the dimensional mean (68 d) and with a mean deviation of (0.120), while the control value of the tribal mean (77 d) and a standard deviation (1.285) and the post-test (74 d) and a mean deviation (2.179), and when calculating The calculated value we find is (2) for the control and (4,986) for the experimental, and when compared to the tabular, it indicates that there are no significant differences for the control and in favor of the post significant for the experimental, while we find that the value of the a priori mean for the time of the trajectory of the body's center of gravity from the moment of jumping to landing for the experimental (2.78) s with an average deviation of (2,423), and the value of the dimensional mean (2.39) s with a mean deviation of (1,069), while the control value of the pretest (2.75) s with a standard deviation (2,699) and the value of the dimensional (2.69) s with an average deviation of (3,790), And when calculating the calculated value, we find it (2,015) for the control and (6,010) for the experimental, and when compared to the tabular, it indicates that there are no significant differences for the control and in favor of the post-experimental, while we find that the value of the a priori mean for the time of the trajectory of the body's center of gravity

from the moment of jumping to landing for the experimental (2.78) sec with a mean deviation of (2,423), and the value of the dimensional mean (2.39) sec with a mean deviation of (1,069), while the control value of the a priori (2.75) sec and with a similar deviation RI (2,699) and the dimensional (2.69) s with an average deviation of (3,790), and when calculating the value of the computed, we find it (2,015) for the control and (6,010) for the experimental, and when compared to the tabular, it indicates that there are no significant differences for the control and in favor of the dimensional for the experimental, while we find that The value of the pre-intermediate contact time with the experimental jump ladder is (0.062) thousandths of a second with an average deviation of (1.105), and the value of the post-media is (0.050) s with an average deviation of (0.109), while the control value is pre-(0.060) second, with a standard deviation of (0.839) and the post-media (0.056). Second, with an average deviation of (2,290), and when calculating the calculated value, we find it (2,005) for the control and (5,110) for the experimental, and when compared to the tabular, an indication of the existence of significant differences for the two groups and in favor of the dimensional superiority of the experimental, while we find that the value of the tribal mean for the time of hand contact with the experimental table device (0.037) thousand seconds with an average deviation of (0.259), and the value of the dimensional mean (0.029) s with an average deviation of (0.239), while the control value of the pre- (0.038) s and with a standard deviation (0.249) and after (0.034) s and with an average deviation of (3.750), and when calculating the calculated value We find that it is (1,950) for the control and (4,654) for the experimental, and when compared to tabular, it indicates that there are no significant differences. In favor of the control and in favor of the post-moral superiority of the experimental, while we find that the value of the pre-test reaction speed test for the experimental is (2.39) second with an average deviation of (0.710), and the value of the post-media is (2.20) second and with an average deviation of (0.435), while the control value Tribal (2.38) s with a standard deviation of (2.33) and after (2.034) s with a mean deviation of (2.851), and when calculating the calculated value, we find it (1,897) for the control and (5,854) for the experimental. The post-test moral superiority of the experimental, while we find that the mean value of the experimental jump test (4.2d) with a mean deviation (1), the mean value of the post-test (8.3) and a mean deviation (0.450), while the control mean value of the pre-test (5.1). (with a standard deviation of (1.75) and the post-test (6.8) and with an average deviation of (2.710), and when calculating the calculated value, we find it (2,015) for the control and (6,590) for the experimental., While we find that the mean value of the jump test combined with the experimental (3.35 d) and with an average deviation of (1.020), and the mean value of the post-test (7.6) with a deviation Average (1,035), while the control value of the mean for the pre-test is (4.61) with a standard deviation of (1,440) and for the post-test (5.69) with a mean deviation of (3,280). Tabular indication of the absence of significant differences for the control and in favor of the post-experimental moral test

**Discussing the results of the differences variables under study for a model and experimental sample**

**Table 9:** Discussing the results of the differences variables under study for a model and experimental sample

Section	Biokinematic indicators and motor test of my skill under study	Model degree	Degree	Model degree
Preparatory	1- The angle of the knee joint at the moment of first leaving the flight of the jump ladder to perform the jump for the two skills.	129 °	135 °	degree
	2- The angle of the hip joint at the moment of first letting go of the jump ladder in gymnastics to perform the jump for the two skills.	122 °	115 °	degree
The main	1- The angle of the wrist joint at the moment of first touching the jump table after flying in gymnastics to perform the jump for the two skills	54 °	62 °	degree
	2- The time of the player's body center of gravity trajectory line from the moment of approaching, then touching the jump ladder, then touching the table, and then touching the feet to the ground to land	2,16	2,39	second
	3- Reaction speed	2,05	2,20	second
The final	1- The contact time from the moment of touching the jumping ladder by the feet for the first flight to the moment of first touching the jumping platform device	0,045	0,050	Thousands per second
	2- The time of contact from the moment of the first touching of the jump table by hands to the moment of the first breaking of contact for the second flight.	0,020	0,029	Thousands per second
	3- The angle of the knee at the moment of the second flight and preparation for landing for the skill of jumping exclusively	61 °	68 °	degree

Through table (7) above, and here we will discuss what happens during pushing the jump ladder, during the first flight, and touching the jump table device. And then the second flight and landing. Where studies have shown that the best technique for landing on the jump ladder is to enter it horizontally, not vertically, because the path of the body's center of gravity is in a better position when entering horizontally and not vertically up or down, and this was confirmed by (Kyu-chan Lim, 2005), (1) and this What happened with the first player, where he worked to enter horizontally, which made him benefit from this entry in the process of kinetic transfer of body parts in order to perform the subsequent skill.



The entry angles of the model player for each of the ankle joint were (80), the knee angle (131), and the pelvic angle (123), while the entry angles of the sample player for each of the ankle joint were (88), the knee angle (141), and the pelvic angle (111). This is evidence that the experimentalist has taken a movement path for the angles of the body greater than required, which made his movement path be vertical to the top, whether in the process of landing on the jump ladder or in the first flight, which made him need more force in order to quickly get rid of the jumping table, while (the model) He worked on landing on the jump ladder at angles less than the experimental one, and this gave him the advantage of storing kinetic energy to benefit from it in the process of kinetic

transfer from the feet to the trunk and then to the arms, and this is what confirmed, (1) "When the players enter at greater angles, whether on the jump ladder or on the horse They make a greater effort to obtain vertical energy in order to perform the skill better." And with a comparison of the angles of entry on the jump ladder for both players, we find that the angle of the ankle joint of the model reached (80), while the experimental one reached (88), and this is evidence of the delay in the center of gravity of the body For the experimental study, the moment of landing on the jumping ladder, as the extension of the body backwards hinders the process of leaving the jumping ladder in less time, as the contact time with the jumping ladder for the second player reached (0.50), while the model was the contact time with the jumping ladder (0.45), and this was confirmed by "that the moment of leaving the jumping ladder It should be used for a shorter period of time Possible time with a quick straightening of the body. (2) Therefore, landing on the jumping apparatus vertically requires greater force to get rid of it, and this gives it an upward flight angle, which hinders the angle of entry on the jumping table.

Therefore, the total angles of the model were better and less than the experimental one, with the exception of the angle of the pelvic joint, which reached (122) in the experimental model, while the experimental one (115). Opening the angle of the pelvic joint, and this is evidence of the delay in the center of gravity of the body to enter the front, and this is consistent, "as he emphasized that the player benefits from good technique when he works to convert the horizontal energy into vertical energy better than the player who enters at a large angle, which requires a lot of energy from him to obtain energy Other verticals. (3)

As for entering the platform, the angle of the arms of the model with the platform reached (54) degrees with a contact time of (0.20). (4) degrees, while the angle was greater for the experimental, it lost (62) degrees with a connection time of (0.29) per thousand per second, and this made the trajectory of the center of gravity of the model's body low compared to the experimental one, which took a vertical position up, which made it enter the table in the form of a fall from top to bottom Which required him to exert a lot of kinetic energy to overcome the angle of entry on the jump table at the moment of fulcrum. Whereas, the required position is a curved transitional movement, so that the body draws parallel paths in a curved manner, which makes it able to benefit from the

kinetic transfer from the lower extremities of the trunk and then to the arms, while saving the energy expended.

As the kinetic flow appears clearly when linking the phases with each other in a successive manner, i.e. the moment of the end of the approaching run is the beginning and escalation of the reaction speed of the second, which was in a superior manner and with the least time of the model (2,05) and the experimental one (2,20), which is the upgrading from on the ascending ladder. And that the development of the response speed in the gymnastic jumps, especially my skill under discussion, is important for the performance of this movement, and that the shorter the performance time, the more rapid kinetic transfer process is used for the speed of response, as "the possibility of developing this characteristic as a result of the development of special strength, as well as the development of the distinctive and explosive force characteristic of speed is one of the auxiliary factors In developing the characteristic of speed, especially the speed of transition and the motor response). Strain energy to get off the table and fall unbalanced to the floor.

The researchers attribute the reason for this to the progress in the development of the skillful performance of the two movements to breathe the device to the use of auxiliary and mechanical means, kinetic exercises, skill-style exercises in the corrective educational curriculum, the use of skill-style exercises on a parallel, a wooden dowry device divided into ground and legal, and through attachment positions on the bar or wooden stairs from During the small number of repetitions through the gradual increase in weights, as it helps the learner to learn the skill in the easiest way and as quickly as possible and in the best way as well as reduces the occurrence of injuries, especially in movements that are characterized by an element of danger, in addition to encouraging the learner psychologically and giving him confidence in applying the technical aspects required by the skill This is what made the performance of the two movements, despite the fact that jumping openly is more difficult than jumping implicitly, better for the experimental group, as "the use of skillful and kinetic exercises and a method similar to skill and preceded by mechanical means and devices that are related to skillful performance. The higher the degree of skillful performance, the higher the level of compatibility between fibers and muscles, and the improvement of distribution The dynamic performance of the optimal motor duty." (5)

### Conclusions

1. The corrective educational curriculum demonstrated the correction of the motor path of angles, distance control, and performance tracking as an indicator of the improvement of all biokinematic indicators in all sections (preparatory, main, and final for the experimental sample.)
2. The jumping skill is considered easier than the experimental jumping due to the difficulty of joining the knees above the device after the second flight.
3. The sequence and gradation of the exercises in a manner consistent with the order of errors by means of analysis plays a significant role in positively improving performance.
4. The control group that used the traditional approach achieved a slight improvement in some research variables.
5. It was found through the field experience of the experimental group that was taught using the educational means and devices, it has excelled over the control group

that was taught with the traditional curriculum in the skill and motor side except for the physical side.

### Recommendations

1. Emphasis on the real-time correction of the angles of muscular action according to the mechanical foundations of tracking exercises.
2. Emphasizing the need for players and students to apply the variables under study in the corrective educational curriculum because of their positive impact on developing the skillful performance of the two skills under study.
3. Conducting tracking tests and motion analysis to identify the level of performance progress and help reduce errors to track imaging.
4. Adopting the form prepared by the two researchers to evaluate the performance of the students in the two skills under study.

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**Accessory (1):** Explains the names of the gentlemen specialists and experts in training and learning gymnastics who presented the specialized corrective curriculum and the suitability of mechanical means for the research sample

T	The name of the specialist	Jurisdiction	Workplace
1-	a. Dr. Abdul Razzaq Kazem	Your gymnastics training	College of Physical Education/ University of Baghdad/ Al-Jadriya
2-	Prof. Dr. Fatima Abdel Malik	Learn your gymnastics	College of Physical Education/ Al-Waziriya/University of Baghdad
3-	Prof. Dr. Abdel-Jabbar Abdel-Zaq	Training / gymnastics	College of Physical Education/ Department of Sports, University of Mosul
4-	Prof. Dr. Aida Ali Al-Bayati	Learn your gymnastics	College of Physical Education/ Al-Jadriya
5-	A. Dafra Abdul Hassan	Training / gymnastics	College of Physical Education / University of Basra

**Accessory (2):** It clarifies the names of the gentlemen specialists and experts by identifying the biokinematic variables of Harti under study

T	The name of the specialist	Jurisdiction
1	Prof. Sareeh Al-Fadhli	 <p>College of Physical Education/Baghdad/Bayo Square and Square</p>
2	Prof. Dr. Basman Abdel Wahab	College of Physical Education / University of Dublin Scotland / Biogymnastics
3	Prof. Dr. Yasser Najah	College of Physical Education / University of Baghdad / Biogymnastics
4	Prof. Dr. Ismail Ibrahim Mohamed	College of Physical Education / University of Baghdad / Biogymnastics
5	Prof. Dr. Osama Abdel Moneim El Salhi	College of Physical Education / University of Babylon / Biogymnastics
6	Prof. Bushra Kazem Abdel-Reda	College of Physical Education / Al-Waziriyah / University of Baghdad / Biogymnastics
7	Prof. Dr. Abdul Sattar Jassim	College of Physical Education / University of Diyala / Bio Gymnastics
8	Prof. Yarub Khayoun	College of Physical Education / University of Baghdad / Learn your gymnastics
9	Prof. Dr. Ali Jawad Al-Amari	College of Physical Education / University of Babylon / Bio Gymnastics
10	Prof. Dr. Ramez Al-Bakry	College of Physical Education / University of Mosul / Bio Gymnastics
11	Prof. Dr. Hussein Mardan	College of Physical Education / Diwanayah University / Bio Gymnastics





**Appendix No. (1):** Pictures of biokinematic variables under research and the devices and tools used Movement exercises and skill method curriculum

Appendix No. (1) skill-style exercises Through body mechanics in the corrective educational program

First: exercises to strengthen the shoulder joint. It includes resistance exercises for the shoulder blade from the prone position 1- Raising / lowering. 2- Expulsion / annexation. 3 - Rotate up / down. The first exercise: shoulder extension (from prone). We take a prone position with the face facing the ground, with the arms placed to the side. A dumbbell with a weight (1 pound = 1/2 kg) is placed in each hand. Figure (1) The arms are raised up to a distance of (15-20 cm) With the thumbs pointing down, maintain this position for (5 seconds) and then slowly lower the arms down.

The second exercise: (bending the shoulder) and taking a prone position with the face facing the ground, with the arms placed above the head at an angle (30°) above the head, a weight of (1 pound = half a kilogram) is placed in each hand (the arms are raised up a distance of (15-20 cm) with Thumb pointing up.

The third exercise: (prone down from the bird) lying on the face with the arms set to the side with the thumb pointing upwards and placing a weight of (1/2 kg) in each hand, raising the arms by (15-20 cm) and maintaining this position for (5 seconds), then Lower the arms down slowly.

The fourth exercise:- And another series of exercises with a movable round board (it looks like a disk, as it rises from the middle in order to move in a circular motion. It is called the (rotating board). Hands are placed on it to rotate it once clockwise and again counterclockwise, while maintaining its straightness. articulated attachment). The movement starts from the shoulder joint and performs the exercise in each direction (clockwise and counterclockwise.)

The fifth exercise: (rotating the plank from a sitting position on the knees). From a sitting position on the knees, balance the upper part of the body on the turntable so that the shoulder joint, elbow and wrist are straight over the turntable, and the opening of the hands is equal to shoulder width, then start rotating the board by the shoulders clockwise and then

counterclockwise, making sure that The circular edge of the board touches the ground while rotating.

The sixth exercise: (rotating the board and exercising the pressure of the hands - Shinaw by raising the legs) from the front support position above the circular board (Shennaw) with the legs placed on a high shape (balancing the upper body of the body on the rotating board while also making the shoulder, elbow and wrist joints straight and the arms wide open Shoulder The exercise is performed by flexing and extending the arms, while maintaining the position of the leg.

The seventh exercise: After the shoulder, elbow and wrist joints are straight above the turning board, the board is rotated by the shoulders clockwise and counterclockwise, making sure that the board touches the ground during the turning process and the opening between the arms is shoulder width.

Eighth exercise: (Handstand on the turntable) takes a standing position on the hands with the body balanced over the turnboard, shoulder joint, elbow and wrist straightened and above the turnboard and the opening between the arms is equal to or slightly greater than shoulder width (rotating the board by the shoulders clockwise and counterclockwise Hour hand).

The ninth exercise: (Equal pelvis exercise with one leg raised to a distance of 5.2 cm. The exercise begins with bending the knee joint and extending the leg so that the foot is raised by (5.2 cm) off the ground and maintaining this position for (5 seconds), and the exercise is repeated with the other leg. With the ribs pulled inward while the vertebrae of the rib cage are pressed towards the ground and the arms aside, then the scapula rotates upward, with the arms and shoulder pressed towards the ground.

Tenth exercise: Standing on the hands on a ladder of gradual heights from 8-20 cm, with help, and then moving away little by little. Go down the stairs by standing on the hands.

Appendix No. (2) corrective exercises for each of the common mistakes identified by experts for my skill under discussion according to the sequence of the section

T	Common errors	Notes
Section	Preparatory	
The error	A- The arms are outstretched with a weak weight.	
Corrective exercises	1- The arms stand in front of the support with the hands on the wall ladder, alternating the lifting and bending of the knees in front of the top	
	2- From a standing position, extend the arms next to the body, swing them, and stay in the side position for a period of (10 seconds).	
	3- Perform the first exercise without support	
The error	B- The torso leans backwards during running.	
Corrective exercises	4- (The arms stand beside the body) bending the elbows at a right angle, exchanging the arms from this position forward and backward).	
	5- Stand facing the wall The legs are open forward and backward, exchanging flexion and extension of the arms by pressing on the wall	
The error	C - Tightness in the torso and inflexibility.	
Corrective exercises	6- From the position of prostration, the arms extended on the ground with the palms of the forearms, with all the joints of the body extended	
	7- Draw a line on the ground with correct running performance without spasm on this line and gradient in running speed.	
	Correct running performance in the form of different distances.	
Section	the main	
The error	A- The incompatibility of the weighting of the arms with the weighting of the two legs, at the moment of ascending on the jumping apparatus	
Corrective exercises	1- Putting the jumping ladder at an appropriate distance, by placing a mark on the ground, and from the position of stability, the player stands at this line, then jumps and climbs on the ladder.	
	2- Perform the same exercise as before, taking two or three steps before the marked mark on the ground.	
	3- Running from the appropriate distance for the student while performing the same second exercise.	
The error	B- Not hitting the feet together, the front of the toes, and the upper edge of the jumping device, and not bending the knees	
Corrective exercises	4- A rope is placed in front of the student at an appropriate height and he crosses it with one of the two legs. He is asked to skip the rope with one of the two legs. During the jump, we find that the foot that finally pushes the ground is considered the foot of the ascent.	
	5- By completing the previous exercise Making the leading foot or the one with which the adductive step begins is the take-off foot.	
	6- Running and lifting with a straight jump up with a Swedish seat that is placed in front of the ladder.	
	Stand facing the wall ladder with the support in front of the hands and then jump high with the extension of the body in this position	
	Perform a front roll from standing from the jump and placing the hands as far as possible.	
	Putting a jumping horse (pony), the learner starts running, rising and flying with extending the body and jumping over the pony, then performing the front roll on the mattresses placed after the pony.	
	11- A pony is placed at a suitable height, then another pony is placed after it, slightly higher than the first pony, then a high jumping apparatus is placed at an appropriate height, followed by a mattress placed on the ground, then the player starts to run and rise, then puts his hands on the pony, then joins the knees on the chest from this Situation The player starts by straightening his body and flying forward to put his hands on the pony, then straightening the body again and flying over it with the high jump beam with the knees on the chest and then landing on the mattress.	
Section	Final	
The error	C - The jump for the first flight is very high with the joining of the jumping together and the opening of the legs to jump open early and the bending of the arms at the stage of leaning and the lack of sufficient push to obtain a second flight, which leads to a fall and landing not good.	
Corrective exercises	1- Facing oblique supination) pushing the ground with the hands from this position with clapping the hands, then returning to the initial position	
	2- Facing inclined prone with the legs open, the female colleague standing between the two men, holding the knees of the student, and raising the two legs off the ground. The player tries to walk forward with one hand behind the other (pushing the cart).	
	3- Putting a low-rise horse, then the student starts from standing on the ground, then puts the hands on the horse, then the legs open, then pushes with the hands and feet, and joins the legs to stand on the horse. You can replace the horse with sponge mats.	
	4- The player stands on the platform with a rope placed at an appropriate distance behind the platform, the player is fixed with the feet with the knees on the chest, crossing the rope and landing to jump together.	
	5- Run and rise while crossing the platform and landing the player at an appropriate distance from the platform device	
	6- From the position (arms standing next to the body, the knees bent), jumping high with the body straightened and swinging the arms from the bottom to reach a higher inclined position, then return to the initial position.	

The sample



Form




**Appendix No. 3:** The stages of extracting the biokinetic variables between the sample and the model

Educational unit: the first + the second \* For general educational objectives: correcting the errors of my skills of jumping open and clasping \* Date: week: first \* Special educational objectives: - The feeling of closeness with jumping with the inclination of the torso in front of the top \* Unit time: 90 Method: educational models (mechanical and audio means optics, gymnastics, and perfect model)

**Accessory 3:** A model for a corrective experimental teaching unit

Unit sections	The time	Activities and motor skills	Activities and movement activities			Plastic side	Notes
First: the preparatory section	10 d	* Standing in a straight line, registering attendance and performing the salutation - from standing, it begins with the usual walk in the form of two parallel lines, walking on the combs with the arms raised in front - walking on the heels with the arms raised to the side - the usual jog - jogging with the arms rotated in front high. Doing agility, flexibility and coordination exercises					* Emphasis on performing the sports salute with enthusiasm. * Emphasis on the accuracy of performing motor exercises * Emphasis on correcting the wrong exercises. * Emphasis on weighting the arms in front and behind the shoulders through the angular support and not bending the arms. * Learn how to evaluate performance by the student by comparing his video performance with the ideal model for a young player to identify and correct the errors of his motor paths * Emphasis on the first lift with the ideal angle between the torso and the shoulders when the body's center of gravity is high at the end of the back swing. * Emphasis on the non-high rise of the hip above the device to ensure proper opening and exit of the two legs for the purpose of leaving the device and landing.
Second: the main section	70 d	Show the skill in question video * Addressing some cognitive aspects. * Applying skill to an ideal model for a young player in the national team * Going to the computer room to compare the students' model with the ideal youngster to observe the movement paths required for the body.					
A- educational activity	30 d	* The application of the skill by the sample members on a device of different heights, next to which there are high sponge rollers, for safety from injury and fear.	Error type	error number	exercise number		
B- Applied activity	40 Dr	*What was explained in the educational section is applied by the sample members. * The arms are outstretched with a strong swing. * Using rubber ropes hanging under the feet to give weighted strength to the body from the shoulders. * The incompatibility of the weighting of	subscribe r	a	2 3		
			MG 1	3	6 7 8		
			mg2	4	9 10		

		<p>the arms with the weighting of the legs at the moment of ascending on the jumping apparatus.</p> <ul style="list-style-type: none"> <li>* The educator and one of the students stand on the right and left sides of the platform of different heights by placing the left arm on the back of the performer and the right arm on his chest to help him raise the body higher than the two stages of the device and to provide safety and security for the student</li> <li>* Emphasis on hitting the feet together, at the front of the fingers, and at the edge of the upper jumping device, and not bending the knees greatly.</li> <li>* Emphasis on leaning the shoulder behind when hitting the glove with swinging the arms down high to help in the first flight</li> </ul> <p>The upright ** Repeating what was explained by the teacher for the cognitive side</p>		<p>Monitoring or observing the performance of the student performer.</p> <ul style="list-style-type: none"> <li>* Comparing and correcting the work with the ideal video presentation standard for a young player.</li> <li>* Giving corrective reinforcement feedback.</li> <li>* Exchanging roles among the experimental sample members</li> </ul>
<p>Third: the concluding section</p>	<p>10 d</p>	<p>Recreational game close to my skill exercises two search devices</p>		