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Dr. Haider sabih Najm Al-Tamimi

Assistant Professor, Department of Applied Sciences, College of Physical Education and Sport Sciences, University of Misan, Iraq

The effect of training curriculum using assisting tools on some bio-kinematic variables and the physical and motor abilities of the front hand jump skill on the ground device in the technical gymnastics for men (An experimental research on a sample of the Misan junior team in artistic gymnastics for men (10-13) years)

Dr. Haider sabih Najm Al-Tamimi

Abstract

The importance of the study is the preparation of special exercises associated with aids related to the mechanical foundations of the angles of muscular action related to increasing the effectiveness of the special muscle strength of the upper and lower limbs and the torso, represented by the strength speed in performance for the purpose of identifying the extent of their impact on the biomechanical variables that control the ideal motor performance. For the skill, which is one of the special requirements for ground movements, developments in the digital data of their performance and to the bio-kinematic, physical and motor indicators and the technical side of the skill. The researcher used the training curriculum was based on a sample of (6) juniors from the Missan gymnastics team, and it was divided into two experimental groups (3) juniors and (3) females with a control group of ages (10-13) years. Since the sample is small, the researcher took the best (3) attempts for each player out of (6) attempts according to international law, so that the number in each group became (9) attempts to make the results accurate and logical, as Special exercises were used in the curriculum accompanied by auxiliary means and devices such as weight belts and iron weights representing 50% of a third of the body weight once and the body itself again and the two methods of training The low- and high-intensity period, giving the exercises sequentially and taking into account the individual differences between the youngsters, and the curriculum continued for a period of (10) weeks and at the rate of (30) training units. The research included highlighting the role that depends on the available mechanical means and the extent of integration between training and motor analysis to deliver information to the youth in the shortest time, the least effort and the greatest benefit. The research objectives included preparing physical exercises by mechanical means and identifying their impact on the development of the variables under research and the differences in the pre and posttests of the two groups. As for the research hypotheses helped have a positive effect on the experimental group through the significant differences in the variables, and the researcher concluded that the use of training exercises and auxiliary fluids has contributed to the development of the mechanical paths of the experimental by returning information about the skills and presenting them for a number of repetitions several times. The researcher recommended paying attention to this physical and kinetic aspect with modern technology to provide an opportunity for the young person to repeat and repeat to develop the research variables and develop their cognitive ability to reach the development of the skill side in the gymnastics equipment.

Keywords: Training curriculum, auxiliary means, variables, physical and motor abilities, artistic gymnastics

Introduction

The researcher touched on the scientific and technical development and its importance in conducting proper planning and for scientists and researchers to follow scientific plans in the field of sports, especially in the effectiveness of gymnastics, which is the mainstay of all private individual sports through the development of special physical and motor capabilities for the purpose of reaching the higher levels chosen by the individual. And because the gymnastics game is interesting, it is characterized by the difficulty of its movements,

Corresponding Author:

Dr. Haider sabih Najm Al-Tamimi

Assistant Professor, Department of Applied Sciences, College of Physical Education and Sport Sciences, University of Misan, Iraq

especially on the ground apparatus, as it is characterized by the nature of the movements that lead to it in terms of fluidity, flexibility, and neuromuscular compatibility, as well as from several positions, in the preparation of junior teams who have sufficient physical, psychological and cognitive abilities to practice this activity. For officials to rely on personal experience and superficial observation to achieve an integrated development, but to rely on standardized observation, field experimentation, tests and measurements for different age groups and young ages. The gymnastics game is one of the games that is distinguished by its many motor and skill requirements and duties that young people should learn. Mastery and familiarity with its technical and scientific aspects, and this always requires modern methods and new technologies to develop mastery of artistic performance. Skills depending on learning and teaching in order to reduce training times to perform these skills and exploit the principle of transmission of the effect of training between similar skills track. And it is considered analysis kinetic from most important tools curriculum Scientific One Training tools and programmes for the boss to discover road the performance artistic Proper by identifying the discovery of wrong paths in skillful performance and methods of correcting them through the analysis programs of the correct motor path, and identify the differences in performance skills similar and put programs And roads educational Occasion she has and this is What he confirms (1995, Hull) indicates that "biomechanical analysis is" one of the most important sciences concerned with studying the movement of living organisms according to what this movement requires of mechanical laws commensurate with its nature in order to be able to give clear scientific explanations about performance and its nature, "(1) and is considered ground device from devices Your gymnastics men and women that Characterized the performance kinetic on him by continuity And variety movements and their interconnectedness in appearance Collecting between Direct jumps by getting up and flying, swings, flips of all kinds, and rotations with winding, which concludes in the end A proper landing of the player On the ground with two feet to accomplish duty kinetic. Hence the importance of research in preparing educational exercises emanating from the motor curriculum of the International Federation of Gymnastics effective and influential through an effective environment that adopts modern methods of teaching using the latest multimedia methods for the skill under research and immediate evaluation and reinforcement according to scientific, biokinetic and motor methods that affect the technical performance of the learner, which It contains programmed materials that the learner exercises on his own, step by step, in proportion to his abilities, tendencies, and desires to reach the learner's level, Acceptable in performance through actual evaluation of learning the required skill.

Research problem

Count skill jump two hands front page in sports the group technician Who Basic skills which Adopt on it most skills hard Both in device table jump or The carpet of movements terrestrial. And who through work The researcher being a teacher and academic in domain sports the group Notice There is short in some variables kinematics, physical and kinetics perform skill jump two hands The front for the youth team of Maysan as it Who movements introductory which contribute mastering it to integral movements acrobatics Where you describe this skill of difficulty (A) by the law of

your gymnastics devices, The researcher found that many of the young people, due to their exposure to some injuries, as a result of the large number of errors in their performance, which is characterized by difficulty, whose motor performance requires mastery of learning to achieve the physical, kinetic and biokinematic requirements and variables in order to reach the maximum suitable height for the body's center of gravity to perform the forward body cycle, which is characterized by strength, speed, accuracy and balance, which In turn, the speed of its performance reaches high levels, so that it constitutes a difficulty for any coach, whatever his experience, from observing and monitoring the performance with the naked eye, but rather requires the use of fast-moving cinematography and video cameras, hence the research problem through the use of special and similar exercises related to the movement and accompanying some mechanical means Helping to develop many of the variables under discussion and affecting the performance of the skill to be analyzed in order to develop the performance and reach the correct motor path for the body, to perform complex, fast and difficult movements during the stages of resting, rising, flying, turning and landing. Overcoming fear, anxiety and hesitation and increasing the effectiveness of the impact of these variables, which control the performance of the hand jump Front on the floor movement mat device b Artistic gymnastics for young people.

Research aims

1. Preparing exercises with auxiliary means in some biokinematic, kinetic and physical variables for the skill of the front hands jump on the ground machine in the artistic gymnastics for men.
2. To identify the effect of exercises with auxiliary means and their impact on some bio-kinematic, motor and physical variables of the skill under discussion in artistic gymnastics.
3. To identify the differences in the pre and post-discipline variables under study for the experimental and control groups to improve the skill of the front hands jumping on the ground apparatus in the technical gymnastics of the apparatus.

Research assumes

1. Exercises by means of assistance in improving some biokinematics and kinesthetics and their impact on the skill under study of the experimental group.
2. There are statistically significant differences between the experimental and control groups in the pre and post research variables of the two groups in favor of the experimental post variables.
3. There are statistically significant differences in the dimensional variables under study between the experimental and control groups, in favor of the dimensional variables of the experimental group.

Research areas

The human field: Juniors of the Maysan artistic gymnastics team for ages (10-13) years

Time range: 8/25/2021 to 1/1/2022

Spatial field: The specialized center for gymnastics in Maysan Governorate.

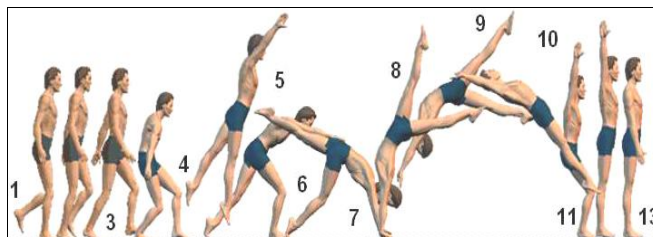
Literature review

Sides biomechanics influencer in performance

The technical performance of the skill under study is determined by a number of biomechanical variables from the kinematics side In terms of the descriptive engineering aspect of the movement and the Kentucky side in terms of the force that produces and causes the movement to occur, as the technical motor performance requires a high horizontal speed of movement in the approach jog to obtain a great acceleration to complete the requirements of the skill under discussion and at the moment of upgrading the push with both arms the push force decomposes into two vehicles One of them is vertical, resulting from the descent of the hands on the ground, and the other is horizontal, resulting from the horizontal speed of the player. The horizontal force must not overcome the vertical, because the descent of the hands on the ground represents an action force, while the reaction force will be in the upward direction and on one line of action according to Newton’s third law (for every action there is A reaction that is equal in magnitude and opposite in direction), that is, when the horizontal force overcomes the vertical force, it will overcome the reaction force, and the height of the center of gravity of the emergent is low, through the shoulders perpendicular to the hands and reducing the angle of the shoulders, and thus leads to a hunching in the back, so when it is Pushing the arms to the ground must be the result of these two forces towards the front and the top, as Ibrahim Shehata points out, “The sudden movement of the leg to snatch and stop the snatch leads to raising the center of gravity of the body It gives an additional angular impulse, which allows the completion of the rotation in the moderate position, as well as using the sudden movement of the leg to provide the player with compensation for the excess inertia when the body is straight, and achieves the adjustment of the direction and rotation of the skill.” (1)

The player's body becomes projected into the air after leaving the carpet for ground movements and for a short period of time, which is confined between the moment of leaving the carpet and the moment of touching it again (the flight period), which is in which the body is in a state of arc due to a simple back by bringing the centers of gravity of the body's members towards the axis of rotation, where He points out, "The closer the centers of gravity of the body's members are towards the center of gravity of the body, the speed of rotation increases." (2) And that the average angular and circumferential velocity of the centers of gravity of the body (from the moment of descent to the moment of rising) are directly proportional to each other and affected by the difference in the radius of rotation, which is inversely proportional to The angular velocity is proportional to the circumferential velocity (sm =

sg x r) and therefore the youngster must take advantage of the relationships to obtain the highest angular velocity and thus the circumferential velocity to benefit from in the later stages.



Research methodology and field procedures

Research methodology: The researcher used the basic experimental design called (two equal groups design) with a pre and post-test due to the suitability of the problem (Experimental). (Research As the experimental research aims to bring about "a deliberate and controlled change in the specific conditions of an event, while observing the actual changes in that event and its interpretation and analysis." (3)

The research community and its sample: The research community was determined by the young people of the Maysan national team, who represented the entire community of origin, and their number was (6) young people, who were chosen in the deliberate way. As shown in Table No. (1) below, which shows the number of members of the two groups, the training units, and the percentage of each group compared to the research community. As for the players (2), they were chosen for the reconnaissance experiment of the same community, and for the small sample, (3) attempts were chosen from (6) attempts according to The law becomes (18) sample members, with (9) for each group. Table (10) Shows the number of members of the experimental and control groups and the number of training units per week with the percentage

Then the researcher conducted a pretest (T) test for the two samples to detect the equivalence of the two groups before implementing the curriculum in order to proceed from one line, as the results of the calculated and tabular (T) value for all under research that was used is smaller than the tabular (T) value of (2,101) under Degree of freedom (22) and a level of significance (0.05), and therefore the results are non-significant and random, and this indicates the equivalence of the research sample in the variables and the skill performance evaluation test as shown in Table No. (2) below. schedule (2)

It shows the equivalence of the research sample for the two groups (experimental and control) in all research variables and the value of (T) calculated and tabulated for the pre-tests and the statistical significance

Table 1: The educational method used

T	Totals	The educational method used	The number of group members	percentage
1	Experimental	Three training units per week, to which exercises are applied to the angles of muscular, physical, kinetic and similar performance	9	50%
2	female officer	The traditional training curriculum followed by the trainer	9	50%
		the total:	18	100%
	Research community and sample	The number of sample members		percentage
1	research community	6		
2	Experimental	3		50%
3	control	3		50%
4	main sample	6		100%
5	survey sample	2		33%

Table 2: Statistical processors Variables Biomechanical, physical and kinetic and skillful performance

Variables	Statistical processors Variables Biomechanical, physical and kinetic and skillful performance	Measuring unit	Pre-tests				Calculated	Tabular	Indication statistic Sig	
			The control group							
			s	± p	s	± p				
kinematics	The angle of rise at the moment the palms of the arms first leave the ground	Degree	71,84	0,928	70,55	1,333	0,556	2,120	Random 0,471	
	The time for holding hands from the moment of touching the ground to the moment of the first letting go	One thousand							Random 0,371	
	The angle of the knee joint at the moment of first touching the rug to land on the ground	Degree	139	1,243	138	0,938			1,069	Random 0,305
	The highest height of the body's center of gravity in flight	cm/m	1,09	0,012	1,10	0,013			0,667	Random 0,524
The explosive power of the arms	Throwing a medical ball weighing (3 kg) over the head to stand	cm/m	279,33	1,581	281	2,432	1,260	Random		
The explosive power of the two men	Long jump from stability with weighted arms	cm/m	1,70	0,015	1,80	0,014	1,206			
reaction speed kinetic	Nelson motor response test	Second	2,39	0,018	2,40	0,010	1,732	Random		
Skill calendar	Front hands jump on the ground device	Degree	4,5	1,414	4	1,165	0,770	0,123		

At the sample size (n-2) (18-2 = 16) and at the level of significance (0.05)

Means of collecting information, equipment and tools used
Means of collecting information

- Arabic and foreign sources. * International Information Network (Internet).
- Program (SPSS) for statistical equations, version (23), the Arbitration and Statistical Processing Committee.
- *Expert feedback questionnaire on a selection of biomechanical variables and their extraction from Kenova for kinetic analysis

(40 cm), the horizontal bar device, the ground ring device and the small pony device.

- 5 kg weight, iron dumbbells, semi-cylindrical box, wooden stairs. And (4) rubber ropes. Medicine ball weighing (3 kg).
- Mastaba. Whistle, Measurement of heart rate. Weight 5 kg. RAM (32) GB. A wooden pony divided into several panels.

Personal interviews

Equipment and tools used

Japanese -made Casio video cameras, with a frequency of 300 images / sec. Indicators Number (2)

- Barrier (4), markers (chalk, paper, adhesive tape), stopwatch, sponge mat, lines with width (5-7 cm)
- Sponge mat number (4). Two small parallel bars to stand on hands and control them. (5) yellow and red cards
- The legal ground device and the ground parallel device

How to implement the search

Determine the variables related to physical and motor abilities The researcher identified the most important variables of strength related to physical performance and put them in a questionnaire and then presented them to experts and specialists, (***) in tests and measurement, sports training and gymnastics training, (***), and the variable that got a percentage of (65% or so) was accepted above (1) as shown in Table (3):

Table 3: Hows the relative importance of expert agreement on the special force

T	physical variables	The number of points	Relative importance
1	extreme powers	21	42%
2	The explosive power of the two men	45	90%
3	The explosive power of the arms	40	80%
4	reaction speed	42	84%

The researcher excluded the adjective (maximum strength) because it obtained a percentage less than (65%) and as shown in Table No. (3). Experts and specialists (****) and the

tests that obtained a score of (60% or more) were accepted, as indicated in Table No. (4).

Table 4: Shows the relative importance of tests related to physical and motor variables, according to the opinion of (5) experts

T	Own physical characteristic	T	Candidate tests	Number of experts	Percentage
1	The explosive power of the arms	1	Vertical jump up from a standstill	1	20%
		2	Throwing a medicine ball (3 kg) over the head with both hands	3	60%
		3	Broad jump from stability without the use of arms	1	20%
3	The explosive power of the two men	1	Sergeant vertical jump	1	20%
		2	Jumping up from a stand without using your arms	0	0%
		3	Long jump from stability with weighted arms	4	80%
4	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%

1. The test of throwing a medical ball weighing (3) kg with the hands from standing over the head. (1)

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

$$\text{Arms explosive force index} = \frac{\text{km} \times \text{m}}{(\text{n})^2}$$

$$= \text{_____ kg. m/s}^2 = \text{Newton (tha)}^2$$

Long jump test of stability with swinging arms: - (2)

The aim of the test: - Measuring the explosive power (capacity) of the two men.

Tools used

Flat ground that does not expose the individual to slip, a tape measure (fittah) and a starting line is drawn on the ground

Test instructions: The tester stands behind the starting line with the feet slightly apart and the arms high, the arms swing in front of the lower back with the knees bent in half and the torso leans in front until it reaches what resembles the starting position for swimming, then the arms swing strongly in front with the extension of the legs along the torso and then push the ground with the feet strongly by jumping ahead as far as possible.

Test conditions: The tester is given an independent attempt at the beginning of the test as a performance training, and the tester is given two consecutive attempts.

Calculation of scores The score for each attempt is the distance between the front edge of the instep and the closest point you place the heels of the feet on the ground, and the test score is the score for the best of the two attempts.

Nelson motor response test (1)

1. The aim of the test
2. 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, then quickly moves his arm, either to the left (red card) or right (yellow card) and at the same time turns on the clock 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.

Score calculation

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

Determine the variables for evaluating skillful performance:

Front hands jump on the ground machine

The aim of the test

Knowing the degree of special requirements and the final degree obtained by the junior from the performance of the kinetic chain on the ground device, where each jump begins with an approximate run, then a partridge operation with a rising leg, then placing the hands away from the rising leg, then a kidnapping operation with the leading leg, and leaning on the outstretched arms to stand on them and push to get the body flying Then lower the legs to the ground.

Test Tools

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

Test procedures

After the hopscotch, the player starts with a raised leg and bends the body towards the ground to touch it with the hands and puts a standing position on them with the two legs joined, and the jump begins from the first step or leap that the player performs. To perform a front somersault and a very short flight with the arching of the back and its direction to the ground, then it ends with a descent towards the ground with the extension of the legs and the body straight with the arms raised high to finish the skill and return to the main position, and each laboratory is given three attempts (6). (*)

Register

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 researcher has 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 juniors of the control and experimental groups for the pre and post test On the ground device by watching the video presentation of the test, and I used the special evaluation form, which contains the degree of the arbitration committees, which is stipulated in the International Arbitration Law for Gymnastics (2013-2016), then the dismissal rule crosses out the highest and lowest degree, and the two intermediate degrees are combined and 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

1. Final player score-2
2. Exploratory experiments

The (first) exploratory experiment for physical and motor variables

This exploratory experiment was conducted on a sample of (3) players from the research community, and the tests were conducted on Saturday and Friday on 6-7 / 8 / 2021 at exactly (5) in the afternoon in the gymnasium hall of the Architecture Youth Forum Center in Maysan, before he undertook the main experiment. The purpose of conducting it is to find out the difficulties and obstacles before conducting the main tests and try to avoid them. The experiment was repeated on the players after (7) days.

Exploratory experience (the second) of the proposed curriculum.

Exploratory experiment was conducted on the same sample consisting of (3) players from the research community, and the tests were conducted on Saturday, 8/14/2021, at six o'clock in the afternoon, in the gymnasium hall of the Architecture Youth Forum Center in Maysan, before conducting his research.

Field research procedures

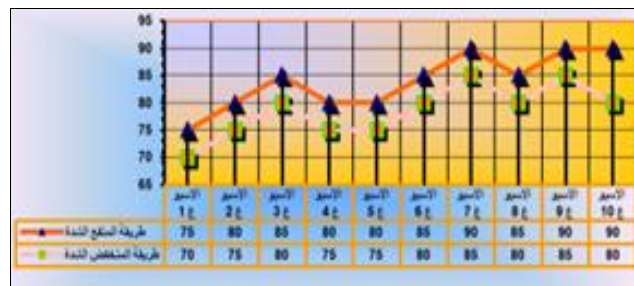
Pre-tests for the research sample

The researcher conducted a set of standardized physical, kinetic and skill tests for the movement under study and the special requirements of the ground device on 8-21/8/2021 to be used as an indicator of the competence of the players. The researcher based his use of these tests on the opinions of experts (*) as well as on scientific sources (**).

Suggested training curriculum

The first training unit was conducted on Thursday, 9/2/2021, immediately after the pre-exams. The researcher prepared a training curriculum for the special force and skill-style exercises for the movement under study on the ground device. The total training unit time for the trainer is (120) minutes for the training unit. The application of the curriculum took (10) weeks, at a rate of (3) training units per week (Saturday, Monday, Wednesday). The time of each training unit is between (25-35) minutes, and the total training units during two and a half months are (30) training units, the total time of which is (915) minutes for special strength and skill-style exercises, taking into account the age, gender and training age, using the opinions of experts and presenting it to them in the science of training And the gymnastics who were mentioned previously, and the Arab and foreign sources, (*) The researcher used the method of low and high-intensity interval training in the exercises, relying on a third of the body weight of the young person while performing the skill training in question. Where double exercises were used for special strength and skill method on the devices, and focus was placed on the gradient in intensity, where the ratio was (1:2), ie two units of high intensity, followed by a training unit of medium intensity, taking into account the gradual increase in the number of repetitions, the duration of rest, and the duration of the effect. The curriculum was used in a special preparation period, and the maximum training volume of 75% was started in the first week, consisting of three units, in a wavy way of ascending and descending, reaching (90%) high, and the intensity of training (the fourth week) was reduced to (80%) for the purpose of recovery and adaptation

of the body of the young person as In Figure (3) below, most of the training units were given in the main section, where the training of explosive strength of the arms and legs, skill style exercises and reaction speed begins at the beginning of the middle of the main section after the skill numbers of the trainer.



Training intensity is included

Dimensional video imaging of the research sample

Posttests were conducted for the research sample (explosive strength of the arms and legs, reaction speed, and skillful technical performance), where the skillful performance test was conducted in the inner hall of the College of Physical Education - University of Maysan on Saturday, 12/18/2021 at eleven in the morning, and where the devices were used And the same tools and measurements and the work team of professors of biomechanics and analysis and the camera imaging device (Konica) for the analysis and the same conditions similar to the conditions of the pre-video photography, as for the special muscular ability tests, as they were conducted in the Forum of the Specialized Center for Gymnastics - Maysan on Sunday 12/19/2021 at Four o'clock in the afternoon, where the camera type (Sony) and its requirements were used.

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.

Biomechanical research variables and methods of extracting them

Biokinematic research variables have been selected which are compatible with the objective set for it

The angle of getting up at the moment the arms first leave the ground: It is the angle confined between the horizontal plane and the connecting line from the point where the palms of the arms meet the ground to the point of the body's center of gravity in the last image of the arms leaving the ground and measured from the front by the motion analysis program (Kinovea 0.819). (1)



Fig 1: A picture of the angle of rise of the arm

Time based on the moment of first touching the hands of the arms to the first moment they left the ground: The time taken from the moment of the first contact of the palms of the arms to the ground until they first left the ground towards rising in the air for short flight, measured by the analysis program (Kinovea 0.819).

Knee angle at the moment the feet first touch the ground after flying: It is the angle confined between the thigh line (from the point of the hip to the knee) and the line of the leg (from the point of the knee joint to the heel of the feet on the ground) and at the end of the skill and measured from the back by the analysis program (Kinovea 0.819)



The highest height of the hip (m.s.c.) above the ground: It is the line of the vertical distance between the maximum height at the zero point of the center of gravity of the body (hip) for the player and the ground as a hypothetical point, where his height was extracted from the ground in the air by the scale within the analytical program (Kinovea). 0.819).

The statistical methods used

The researcher used statistical methods (SPSS) version (23), which helped him to process and analyze the results of his

research.

Presentation, analysis and discussion of the results

Presentation and analysis of the results of the tests under study for the experimental and control groups: table (5) It shows the arithmetic mean, the mean deviation, the calculated and tabular T value, and the significance of the differences in the pre and posttests of the experimental and control groups of the research variables.

Table 5: Presentation and analysis of the results of the tests under study for the experimental and control groups

Statistical processors Bio kinematic variables, physical and motor abilities, and skillful performance	Measuring unit	Experimental group 9		Control group 9		calculated						Tz	
		Pre-test	Post-test	Pretest	Post-test								
The angle of advancement of the arms	Degree	71,84	0,928	75	1,470	70,55	1,33	72,2	1,85	5	1,9	2,306	Gerdal
The time from the moment of touching the arms to the moment of leaving the ground	Tha	0,015	0,231	0,011	0,228	0,017	0,229	0,015	1,75	4	1,8		Gerdal
Knee angle at the moment of first touching the ground	Degree	138	0,938	153					degree	138	0,938		D
Highest hip height in the air	m/cm	1,09	0,013	1,16	0,100								Gerdal
The explosive power of the arms		1,10	0,012	1,12	0,175	5	2,1						D
The explosive power of the two men	m/cm	279,33	1,581	286,13	3,669	280	2,432	283	2,10	6	2,3		D
reaction speed	m/cm	1,80	0,014	2,08	0,041	1,70	0,015	1,80	0,090	5	2,4		non d
Skill calendar	second	2,40	0,010	2,19	0,230	2,39	0,018	2,31	0,750	6	1,9		non d

Hit value Tabular (N-1 = 9-1 = 8) under the level of significance of 0.05 and with a sample size (N1 9, N2 9)

Table No. (5) shows the mean values, average 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 arithmetic mean value of the pre-test for the angle of rise

of the control is (70.55) and with an average deviation (1,330.), and the mean value of the post-test (72.20), with a mean deviation (1,850). While the experimental value of the mean for the pre-test is (71.84) with an average deviation of (0.928) and for the post-test (75 d) with an average deviation

of (1.470). When calculating the calculated (T) value, we find it (1.91) for the control and (5.20) for the experimental, which is greater for the experimental. It was smaller for the control than the tabular (5) at the level of significance (0.05), indicating the existence of significant differences and in favor of the post-experimental test. While we find that the arithmetic mean value of the pre-test for the time the arms rest on the ground for the control group is (0.017) with a mean deviation of (0.229), and the mean value of the post-test is (0.015) with a mean deviation of (1.750). While the experimental value of the mean for the pre-test is (0.015) with an average deviation of (0.223) and for the post-test (0.011) with an average deviation of (0.228). When calculating the calculated (T) value, we find it (1.83) for the control and (4.35) for the experimental, which is greater for the experimental and smaller for the control. From the tabular (5) at the level of significance (0.05), indicating the existence of significant differences and in favor of the post-experimental test. While we find that the arithmetic mean value of the pre-test of the knee angle at the moment of touching the ground for landing for the control group (139 d) with an average deviation of (0.243), and the mean value of the post-test (141.2 d) with a mean deviation of (8.900). While the experimental value of the mean for the pre-test is (138 d) with an average deviation of (0.938) and for the post-test (153.1) with an average deviation of (7.230). When calculating the calculated (T) value, we find it (2.315) for the control and (4.95) for the experimental, which is the largest tabular one (5). (At the level of significance (0.05), indicating the existence of significant differences for the two groups and in favor of the post-test of the experimental. While we find that the arithmetic mean value for the pre-test of the highest hip height of the control group (1.10) with a mean deviation (0.125), and the mean value for the post-test (1.12) with a mean deviation (0.175). While the experimental value of the mean for the pre-test is (1.09) with an average deviation of (0.013) and for the post-test (1.16) with an average deviation of (0.100). When calculating the calculated (T) value, we find it (2.100) for the control and (5.35) for the experimental, which is greater for the experimental. It is smaller for the control than the tabular (5) at the level of significance (0.05), indicating the presence of significant differences and in favor of the post-test of the experimental, while we find that the value of the arithmetic mean of the pre-test of the explosive arms of the control (280) with a mean deviation (2,432), and the mean value of the post-test (283) And an average deviation (2,100). While the experimental value of the mean for the pre-test is (279.3) with an average deviation of (1,582) and for the post-test (286.1) with an average deviation of (3.669). When calculating the calculated (T) value, we find it (2,310) for the control and (6.25) for the experimental, which is the largest tabular (5) At the level of significance (0.05), indicating the presence of significant differences for the two groups and in favor of the post-test of the experimental, while we find that the arithmetic mean value of the pre-test of the explosiveness of the two legs of the control group (1.70) with a mean deviation (0.015), and the mean value of the post-test (1.80 m.) with an average deviation of (0.090). While the experimental value of the mean for the pre-test is (1.80) with an average deviation of (0.014) and for the post-test (2.08) with an average deviation of (0.041). When calculating the calculated (T) value, we find it (2.405) for the control and (5.75) for the experimental, which is the largest tabular (5) At the level of significance (0.05) indicating the presence of significant differences for the two groups and in favor of the

post-test of the experimental, while we find that the value of the arithmetic mean of the pre-test of the reaction speed of the control (2.39) with a mean deviation (0.018), and the mean value of the post-test (2, 31) with an average deviation of (0.750). While the experimental value of the mean for the pre-test is (2.40) with an average deviation of (0.010) and the post-test is (2.19) with an average deviation of (0.230). When calculating the calculated (T) value, we find it (1.90) for the control and (6.05) for the experimental, which is Larger for the experimental and smaller for the control than the tabular (5) at the level of significance (0.05) indicating the existence of significant differences in favor of the post-experimental test, while we find that the median value of the pre-test skill of the control (5.8) and with a spring deviation (1,750), and the median value of the post-test (7) With a spring deviation (0.750), while the experimental value of the median for the pre-test is (4.3), with a standard deviation (1.625) and for the post-test (9) and with a spring deviation (1.375), while we find that the value of the median for the skill test of the pre-gripping horse requirements of the control group (5.5) And with a spring deviation (1,750), and the median value for the post-test (7), and with a spring deviation (0.710), while the empirical value of the median for the pre-test is (4.2), with a standard deviation (1), for the post-test (8.6), with a spring deviation (0.450), and when calculating the value of (T) calculated, we find it (1.98) for the control and (7) for the experimental, which is greater for the experimental and smaller for the control than the tabular (5) at the level of significance (0.05) indicating the presence of significant differences in favor of the test post experimental, Discussion of the results of the pretest and posttests under study for the experimental and control groups:

Significant differences appeared between the results of the pre and post tests, which were shown in Table (5) for the variables and tests under study. The researcher attributes the reason for this development to the effectiveness of the proposed approach, including exercises in the angles of muscular work and exercises in skill style and the development of special muscle strength for the muscles of the arms and shoulders and the actual response, which has proven its impact positive through the obtained results. As the exercises of the angles of muscular work contributed to the development of the angle of advancement of the body with the experimental arms and thus increasing the angle of departure, depending on their capabilities and capabilities to transfer the largest amount of energy to the vehicle of the speed closest to the vertical and to obtain a very simple height. And their ability to transfer the largest amount of energy to the speed vehicle closest to the vertical and to obtain a very simple height, and the lack of morale of the control because of the fall of the center of gravity of the body forward. (1)

The researcher attributes the reason for the rush and suspense to perform the special exercises to the player's ability to control the speed of his body, which is related to the time of running and leaning on the ground, where he agrees, "The higher the horizontal speed, the less time, the greater the propulsion process, and the production of a large starting speed and force, which increases the chance of acceleration with horizontal speed and energy." The movement and thus the performance time is reduced and the center of gravity of the body rises to the maximum height to perform other requirements by rolling." (2) Likewise, the improvement of the angle of the hip and knee joints is a result of the rapid abduction of the feet, because what is required here is to

reduce the period of performing the front hand jump to serve the main goal of the movement as it is considered a stage Preparatory for pneumatic flips when the leg retains approximately the same amount of strength when bending the knee at an angle ° ranging between (130 and 164 d) and it was also noted that the angle when it is less than (130) decreases with the strength. The curriculum includes exercises that increase the ability of the muscle to stimulate the largest number of working muscle fibers, including auxiliary means such as the parallelepiped, medical balls, dumbbells, leather belts, skill-style exercises and work angles. And since (the greater the participation of the largest number of muscle fibers, the greater the explosive power that the muscle can

produce) and in favor of the experimental group at the expense of the control group. (1) In addition to strengthening the opinion, developing the speed of reaction (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, among the factors that help in developing the speed characteristic, especially the speed of transition and motor response) (2) Schedule (7)

It shows the mean, mean deviation, coefficient of difference, evolution ratios, calculated and tabular (T) value, and the significance of the differences in the post-tests of the experimental and control groups of the research variables.

Table 6: Shows the mean, mean deviation, coefficient of difference, evolution ratios, calculated and tabular (T) value, and the significance of the differences in the post-tests of the experimental and control groups of the research variables

Statistical processors Bio kinematics, physical, motor and skill performance	Measuring unit	Experimental group9				Control group9				Value (T)*		Significance of differences
		Post-test				Post-test				Calculated	Tabular	
		The middle	Average deviation	Coefficient of difference	Evolution ratios	The middle	Average deviation	Coefficient of variation *	Evolution ratios			
The angle of advancement of the arms	Staircase	75	1,470	1,96	4,2	72,	1,95	2,71	2,28	8,5	2,120	D
The time from the moment of touching the arms to the moment of leaving the ground	Staircase	0,011	0,228	2,07	26	0,015	1,75	11.6	11.6	1,99		non d
Knee angle at the moment of first touching the ground	Staircase	153	7,23	4,72	25	141,2	8,90	6,30	7	5,6		D
Highest hip height in the air	m/cm	,1	0,100	8,70	6,3	1,12	0,175	17	1,79	4		D
The explosive power of the arms	Degree	1,16	3,669	4,15	1,2	283	2,10	10	0,74	3,5		D
The explosive power of the two men	Degree	286,13	0,041	1,97	8	1,80	0,090	5	5,56	3,8		D
reaction speed	Tha	2,08	0,230	10,5	15,5	2,31	0,750	32,4	3,34	2,90		D
Skill calendar	degree	2,19	0,450	5,22	8,7	7	0,710	10,14	21,42	3,80		D

At a degree of freedom ($n-2 = 18 - 2 = 16$) and a level of significance (0.05)

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