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The Effect of Palladium Training on Some of the Kinematic Variables of the Stage of Improvement and Achievement of Long Jump Effectiveness

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Abstract--- *The research aims to prepare plyometric exercises and identify the level of some of the kinematic variables for the stage of upgrading for the members of the research sample and identify the level of achievement among the members of the research sample and identify the impact of plyometric exercises for some kinematic variables. As for the research hypotheses, there was a statistically significant effect of plaque-leaving exercises on some kinematic variables. As for the research fields, the human field included the Maysan governorate team for the youth category in the long jump, while the temporal field was taken for the period from 10/3/2018 to 20/5/2018 while the spatial field was the playground of the Scout Camp for the Education of Maysan. The research methodology and its field procedures included as the experimental method was used for its suitability with the nature of the research, the research sample reached (10) jumpers representing the Maysan team for the youth category in the long jump.*

Keywords--- *Effect of Palladium, Jump Effectiveness, Achievement of Long.*

Results have been presented, analyzed and discussed,

The most important conclusions

1. *The exercises used had an effect on the development of the advancement angle variable.*
2. *The training used has an effect on developing the angle of flight of the members of the research sample.*

As for the most important recommendations, they were as follows:

1. *The necessity of evaluating the technical performance on the basis of the careful observation obtained through biomechanical analysis via the computer to detect the accompanying errors and the extent of their development.*
2. *Carry out similar research and studies for the rest of the sports and sporting activities*

I. INTRODUCTION AND THE IMPORTANCE OF RESEARCH

The development of the sports training process leads to improving the results achieved by athletes that lead to improving records by developing physical capabilities in their various dimensions in order to detonate what lies

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within the human in the direction of the goal through a process of scientific analysis and research for the various sciences associated with sports training As it shows many sciences, different philosophies, and different directions, in addition to mathematical experiences and practices, these in all lead to an increase in the effectiveness of scientific training.

The continuation of the sports training process leads to some physiological responses to the body's tremendous ability to respond specifically to the stimuli of regular training, which increases the ability of the athlete to withstand the training requirements thus to ensure continuity and upgrading and progress as a result of adaptations that occur in the various body systems. One of these exercises is the plyometric exercises, where these exercises work to make some changes in some of the mechanical variables that contribute to upgrading the high mathematical level to develop these variables, and quite a few specialists are constantly looking for new problems that contribute by adding a new link to the scientific development chain to raise the level of performance Players are outnumbered by their true capabilities and making them outperform their rivals other than increasing sizes and training doses.

Where researchers interested in the sports field unite today on the importance of kinematic variables in sports, where their insufficiency negatively affects the level of mastery and development of motor performance and achievement of these activities as well as it enters a basic element in the formation and formulation of a sample of physical characteristics specific to the motor performance and related to achievement and among these activities Long jump event whose performance requires the development of kinematic variables or that in order to raise the level of this effectiveness in order to add what is new to the sports training process.

Research problem

The long jump event is one of the athletics activities in which we note the low level of achievement in Iraq when compared to the Arab, Asian and international levels, which prompted the researchers to study, investigate and search for the reasons for this decline, so the researchers resorted to using plaque leaves exercises and their purpose was to develop some of the kinematic variables of upgrading The level of accomplishment of this event in order to solve a problem that our trainers are experiencing, which is the low level of achievement of this event.

Research aims

1. Preparing plyometric exercises.
2. Knowing the level of some of the kinematic variables for the stage of development for the individuals in the research sample.
3. Knowing the level of achievement of the individuals in the research sample.
4. Knowing the effect of the plyometric exercises on some kinematic variables and achievement.

Research hypotheses

1- There is a statistically significant effect of plaque-leaving exercises on some kinematic variables

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Research fields

The human sphere: Maysan Governorate team players for the youth category, with the effectiveness of the long jump for the sports year 2018.

Time domain: for the period from 3/3/2018 to 20/5/2018.

Spatial field: Athletic scout camp stadium for the breeding of Maysan.

II. RESEARCH METHODOLOGY AND FIELD PROCEDURES

Research Methodology

That experimentation "is a deliberate and controlled change to the specific conditions of an accident and observation of the resulting changes in the incident itself and its interpretation" (Wajih Mahjoub: 2002, p. 27) using the pre and post group one method to suit it with the research problem.

Society and research sample

The process of selecting a sample is closely related to the nature of the society from which the sample was taken because it is "the part that represents the original community or the model that the researcher conducts his entire work on" (Wajih Mahjoub: 2001, p. 163). Therefore, the research community was chosen in the deliberate way that represented the players of the Maysan governorate team For the youth category for the effectiveness of the long jump for the sports year 2018, which numbered (10), the number of the research sample was (8) players, and two players were excluded due to conducting the reconnaissance experiment on them, and they formed (80%) of the original community.

Means of collecting information

- Tests and measurements.
- Computer applications and software
- Arab and foreign scientific references.

Devices and tools used in the research

- Japanese-made video camera (Sony) with a frequency of 300 pictures / second, count (1).
- Tripod (1)
- The scale of the drawing is 1 meter long.
- Height and weight measuring device
- Wooden terraces and multi-height barriers.
- Short iron sticks (weights) and the different medical balls in their weights.
- Weight throw (2 kg)
- Metal tape measure.
- Stopwatch handy.

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Training curriculum used

The researchers used the training method in the Pleometric method, and the period of the training curriculum used for a period of (8) weeks by (2) alone on Sunday and Wednesday of each week, and the time of the main department in the one training unit of (40 - 45) minutes, and in the case of the high-intensity and iterative pattern.

Kinematic variables

1. The average horizontal speed.
2. The angle of flight.
3. The height of the center of gravity.

The horizontal distance

Exploratory experience

The reconnaissance experiment was conducted on Saturday 10/3/2018 four o'clock in the afternoon on a sample consisting of two players and the aim of the reconnaissance experiment was.

1. Checking the validity of the tools used in the field experiment.
2. Ensuring that the tests are easy to perform and implement.
3. Knowing the time to perform the experiment.
4. Observing the extent of the testers' response to performing the tests.
5. Checking after the camera.

Tribal tests

Tribal tests were conducted on Sunday 11/3/2018 on all members of the research sample and on the scout camp stadium at four in the afternoon and in the presence of all members of the research sample, and through that all the search variables under study were obtained.

Post-test

The main experiment was conducted on Saturday, 14/14/2018 on the playground of the scout camp. The researchers took into consideration the same conditions in which the pre-test was conducted and at the same time where the long jump test was conducted for the members of the research sample and the International Federation law was applied in all aspects of the test. The individuals of the research sample were photographed, and through this the search variables were obtained. The researchers analyzed those variables through the Kinovea program.

Statistical means

The researchers used the SPSS to extract the following values:

Arithmetic mean.

Standard deviation.

Calculated value (T) of the corresponding samples.

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Presentation, analysis and discussion of results

The results of the research sample tests and the horizontal velocity average variable during the last three steps are presented, analyzed and discussed

Table 1: Shows the mean, standard deviations, and calculated value (T) for the horizontal velocity average variable test with the last three steps

indication	Calculated T value	After		Before		measuring unit	variable
		A	*C*-	A	*C*-		
moral	5.42	moral	6.95	1.05	5.90	M/ s	Horizontal speed
The value of the tabular T is (2.36) at the degree of freedom (7) and under the significance level(0.05)							

Table (1) shows that the mean for the pre-test is (5.90) and a standard deviation (1.05), while the mean for the post-test (6,95) and a standard deviation (0.60), and the calculated value (T) to know the differences between the pre and posttests reached (5.42) It is a value greater than the tabular value of (2.36) at the degree of freedom (7) and under the significance level (0.05) This indicates that there are significant differences between the pre-test and the post-test and in favor of the post-test.

We note that there are statistically significant differences between the results of the pre and post tests and in favor of the post test. The researchers attribute the reason for obtaining this result to that any exercise can have a positive return in the level of skill performance, especially if the nature of the training exercises tend to develop performance and this is what happened with Individualization of the research sample that was exposed to the training curriculum, and the response of the research sample to the vocabulary of this approach has given a positive result in developing the speed trait in general and the speed of approach in particular "where this trait is important in controlling the final speed of the jump or upgrading through proportionality with the goal of free performance J of effectiveness and its path "(Talha Hossam El-Din: 1994, p. 296). The researchers agree with Louay Al-Sumaidaie," as the athlete reaches high results thanks to the horizontal speed he gets through his rounding run "(Louay Al-Sumaida'i: 1987, p. 318), which made this variable evolve. Among members of the research sample, especially in the post-test

Displaying the results of the research sample tests and the flight angle variable, analyzing and discussing it

Table 2: Shows the arithmetic mean, the standard deviations, and the calculated value (T) of the test, flight angle variable.

indication	Calculated T value	After		Before		measuring unit	variable
		A	*C*-	A	*C*-		
moral	4.16	0.35	23,22	1.17	20.12	Degree	Flight angle
The value of the tabular T is (2.36) at the degree of freedom (7) and under the significance level (0.05)							

Table (2) shows that the arithmetic mean for the pre-test is (21.12) and with a standard deviation (1.17), while the mean for the post-test (23,22) and with a standard deviation (0.35), and the calculated value (T) to know the differences between the pre and post tests reached (4.16) It is a value greater than the tabular value of (2.36) at a degree of freedom (7) and under a significance level (0.05). This indicates that there are significant differences between the pre and post tests and in favor of the post test.

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We note that in the pre and post tests there were statistically significant differences between the results of the two tests and in favor of the post test, and the researchers attribute the reason for obtaining the results of this variable was good for the individuals and the research sample if these values were compared with the following values, which confirm the "required angle of flight falls Between (20 - 24) degrees where it is determined by the horizontal line that passes through the center of gravity of the bouncing body and is parallel to the surface of the earth during the rise before leaving the billboard and between the line drawn by the center of gravity of the body after the moment of leaving the earth "(Qassem Hassan Hussein: 1999, p. 187) .

From the foregoing, the researchers believe that the implementation of the planned training curriculum was effective in influencing with achieving a good starting angle and in proportion to achieving the required horizontal distance from them. Therefore, statistically significant differences emerged between the pre and post tests.

- Presenting the results of the pre- and post-test for the research groups for the variable body mass center height (mkg), analyzing and discussing them:

Table 3: Shows the arithmetic mean, the standard deviations, and the calculated (T) value for the pre- and post-test of the body mass center variable (mkg)

indication	Calculated T value	After		Before		measuring unit	variable
		A	*C*-	A	*C*-		
moral	3.95	0.11	0.75	0.14	0.66	M	Body mass center height
Table (T) value (2.36) at freedom degree (7) and under significance level (0.05)							

Table (3) shows that the mean for the pre-test is (0.66) and a standard deviation (0.14), while the mean for the post-test (0.75) and a standard deviation (0.11), and the calculated value (T) to know the differences between the pre and post tests reached (3.95) It is a value greater than the tabular value of (2.36) at a degree of freedom (7) and under a significance level (0.05). This indicates that there are significant differences between the pre-test and the post-test and in favor of the post-test.

After presenting the results of the body mass center variable (mkg) for the pre and post tests, the results showed that there are statistically significant differences between them and in favor of the post test, and the researchers noted that the reason for obtaining this result is due to the effect of the technical performance of the effectiveness as well as the various exercises through The application of the training curriculum contributed significantly to the design of complete error in the decrease in the center of the body and its mass during the anchoring stage, which led to a rise in the center of the body mass, i.e. whenever the center of the body mass is high, it is close to the gravitational line that passes vertically to the ground. "There are three steps from reaching The Advancement Panel The first step is normal in preparation for the work of the second step, which is greater than it. As for the third step, it will be short to place the center of gravity of the body in a manner suitable for the best performance of the proper progression process properly ”(1976,147: Ecker, Tom) and this made the hopper take advantage of the momentum during the advancement process And get more distance.

Display the pre and post test results for the research group and for the horizontal distance variable.

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Table 4: Shows the arithmetic mean, the standard deviations, and the calculated value (T) of the pre and posttest of the horizontal distance variable.

indication	Calculated T value	After		Before		measuring unit	variable
		A	*C*-	A	*C*-		
moral	3.34	0.55	6.20	0.13	5.71	M	Body mass center height
Table (T) value (2.36) at freedom (7) and under significance level (0.05)							

Table (4) shows that the arithmetic mean for the pre-test is (5.71) and with a standard deviation (0.13), while the mean for the post-test (6.20), with a standard deviation (0.55), and the calculated value (T) to know the differences between the pre and post tests reached (3.34) It is a value greater than the tabular value of (2.36) at the degree of freedom (7) and under the level of significance (0.05), and this indicates the presence of significant differences between the pre and post test and in favor of the post test, the researchers note that there have been statistically significant differences between the results of the two pre-tests And Al-Abadi and Saleh Al-Abadi, the researchers attribute the reason for obtaining this result to the use of exercises Pytometry and its relevance to the level of the research sample through the iterations carried out by the research sample, which showed a positive and tangible effect in developing compatibility and kinematic correlation of the technical stages (technical) of the long jump for the research sample, and as Qasim Hassan Hussein indicated, The level of achievement improved as the best achievement could only be achieved through the optimal use of performance art and good behavior by the athlete "(Qassem Hassan Hussein: 1985, 212) Also it led to an advantage in the level of achievement of the long jump in the dimensional measurement.

III. CONCLUSIONS

1. Pleiotropic exercises used in the development of horizontal velocity for the research sample.
2. The plyometric exercises used have an effect in developing the angle of flight of the individual in the research sample.
3. Pleomitric exercises used in developing the height of the center point of the body mass.
4. It was a clear effect of the plyometric exercises used to improve the horizontal distance.

IV. RECOMMENDATIONS

1. The necessity of evaluating the technical performance on the basis of the careful observation obtained through biomechanical analysis via the computer to detect the accompanying errors and the extent of their development.
2. Carrying out similar research and studies for the rest of the sports and sporting activities.
3. Designing the training curricula according to several indicators, including the kinematic variables that reveal poor performance and weak physical characteristics, the responsibility for these variables.
4. Carrying out similar research and studies on other age groups.

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