

The effect of pendulum training on developing some special physical abilities and offensive handball skills for Athletes

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ABSTRACT --The research aims to investigate the facts of pendulum training and its role in developing the level of physical capabilities and the level of offensive skill performance of handball game, and the delivery of scientific training information to the coaches of this game about the role of this training and what achieve future results. The research aimed to identify the effect of pendulum training in developing some special physical abilities and offensive handball skills for athletes. The most important conclusions were in the effectiveness of the exercises used and applied in the pendulum training method has helped to develop some unique physical capabilities and attacking handball skills for the athletes. The researcher recommended adapting the exercises used and applied in the pendulum training method, as it works to develop some special physical abilities and offensive handball skills for the athletes.

Keywords— The effect of pendulum training on developing some special physical abilities and offensive handball skills for Athletes

I. DEFINITION OF RESEARCH

RESEARCH INTRODUCTION AND ITS SCIENTIFIC IMPORTANCE:

Prosperity in life requires us to provide what life needs from the correct means stemming from scientific research, which are political, economic, social, commercial, and even sports.

Concerning sport, it is an essential aspect in raising the human being and achieving a high and happy life. The sports field began to rise and progress according to the results of researches that work on the development of skills and mathematical techniques, starting from the player who is the nucleus of the game and ending with various sporting achievements.

The handball game is one of the types of team sports that have its practitioners for their enjoyment, and for their distinguished individual and collective capabilities that provided by the players, as the technical performance of the game helps to attract viewers and their enjoyment of the game.

Handball game requires a high physical skill level that qualifies the players to achieve good results. Handball is a game that takes place in a small field and needs to move quickly back and forth during attack and defense, and this is only done using appropriate and purposeful training in upgrading these critical aspects of the game.

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Multiple training methods work to raise the required physical requirements and increase the level of attacking skill performance, including the pendulum training method, which has achieved substantial results in some sports as it deals with the game's privacy and its role in achieving the results.

The importance of this research is to investigate; the facts of pendulum training and its role in developing the level of physical abilities, the level of attacking skill performance in the handball game and the delivery of scientific training information to the coaches about the role of pendulum training and the possible future results.

II. RESEARCH PROBLEM

The prosperity of physical abilities in the handball game is necessary and vital in achieving the required scoring results, and their success is an essential factor in the success of skill performance. Therefore, any weakness in the physical side will affect the implementation of the required skill performance.

The researcher's modest experience of this game being practiced as a player, he noticed fluctuations in physical abilities and attacking skills performance. The researcher attributed this fluctuation in skill performance to the lack of experimentation with types of training based on modern and advanced foundations, including pendulum training, and failure to investigate these facts in training. So the researcher decided to study this problem and try to use the pressure training in the handball game for the athletes.

III. RESEARCH OBJECTIVES:

1- Knowing the effect of pendulum training on developing some special physical abilities and attacking handball skills for athletes.

2- Knowing the results of the differences between the pre and post-tests beside the control and experimental groups in developing some special physical abilities and attacking handball skills for the athletes.

3- Identify the results of the differences in the post-test between the control and training groups in developing some special physical abilities and attacking handball skills for the athletes.

1-4 Research hypotheses

1- A positive effect of pendulum training in developing some special physical abilities and attacking handball skills for athletes.

2- There were significant differences between the pre and post-tests and in favor of the post-tests for the control and experimental groups in developing some special physical abilities and attacking handball skills for the athletes.

3 - There are significant differences in the dimensional tests between the control and training groups and in favor of the experimental group in developing some unique physical capabilities and attacking handball skills for the athletes.

IV. RESEARCH AREAS:

1-5-1 The human domain: Sulav Sports Club players for handball athletes

1-5-2 locative domain: Sulav Sports Club stadiums

1-5-3 Timeline: Duration from 2/7/2018 to 20/9/2018.

2- Theoretical studies:

2-1 Pendulum Training:

Wajdi Al-Fateh and Muhammad Lutfi (2002) (1) demonstrate that this training method can be used in tournaments that have a particular system in matches, and this often happens in team games as an example of this is the teams that play in tournaments day and rest the next day. In teams that follow a particular system, training takes place twenty days before the start of the tournament. The training is the same as the competition in terms of competitive strength and the duration of matches, so the coach conducts intense training matches daily. Noting that the competing team is in the same strength of the teams that the team will compete with during the tournament. The training team must play with the same strength and speed that it will play during the tournament in order for the adaptation process to take place on the conditions and strength of physical skill and tactical performance during the tournament. These training matches take place 4-5 days before the start of the tournament, and the training is of average intensity.

V. RESEARCH METHODOLOGY AND FIELD PROCEDURES:

3-1 RESEARCH METHODOLOGY:

The researcher used the experimental approach with equal groups (control and experimental) to suit him in solving the research problem and achieving goals.

3-2 The research community and its sample:

The research community determined the handball players for the athletes of the Sulav Sports Club in a deliberate manner, and they numbered (16). players (12) players were selected, and they are the primary formation without a goalkeeper. The sample percentage (75%) of the research was divided randomly To two control and experimental groups, the number of each group was (4) players, and the two samples were homogeneous and equal, as in Table (1). The homogeneity and equivalence of the control and experimental groups are shown in the research variables

Table1										
Measurements and tests for experimental group and control group										
Measurements and tests		unit	Control Group			Experimental Group			T-test	Significance level
			A	Std	Coefficient	A	Std	Coefficient		
Biological age		year	19.78	1.5	7.583	19.56	1.3	6.646	0.293	Non-sig
Training age		year	7.22	0.21	2.908	7.53	0.24	3.187	1.083	Non-sig
the weight		Kg	79.36	3.6	4.536	79.88	3.7	4.631	0.051	Non-sig
Length		Cm	177.22	2.63	1.484	178.56	2.68	1.5	0.944	Non-sig

Distinguish strength at speed	Physical	Num	6.22	0.24	3.858	6.24	0.23	3.685	0.08	Non-sig
Withstand speed		Min	1.54	0.12	7.792	1.55	0.14	9.032	0.144	Non-sig
Endure strength		Num	60.41	2.2	3.641	60.46	2.6	4.3	0.038	Non-sig
Pass and receive the ball	skills	Num	28.22	0.71	2.515	28.6	0.41	1.433	1.266	Non-sig
Zigzag chump		Num	40.22	2.3	5.718	40.27	2.5	6.2	0.038	Non-sig
Aiming to jump		Num	3.56	0.21	5.898	3.58	0.21	5.865	0.178	Non-sig

* (T) Tabular at freedom degree (14) and the possibility of an error (0.05) of (2.145)

3-3 Means of collecting information.

3-3-1 Data collection methods

Arab and foreign sources.

- The tests used

3-3-2 Devices and tools used

- Hand- Stopwatch

- Handball field.

- Handball (15)

- Whistle (1)

- Training Cones (5)

- tape measure

- Wall repel

3-4 field research procedures

3-4-1 Define search variables

According to the available references and sources, and according to the research's privacy and requirements in defining and addressing the research problem, physical and attacking skills have been identified.

3-4-2 The tests used:

3-4-2-1 Excellence Force Test (1):

From diagonal prone position bend and extend the arms (max number in 10 seconds)

3-4-2-2 Speed tolerance test (2):

The purpose of the test: to measure speed tolerance at different distances.

Tools: Stopwatch.

The performance method: The player stands on the starting line the six meters. By hearing the starting signal, the player starts running to line nine meters then The player runs back to line six meters and then goes to the middle

line and returns to the line (9) meters Then he goes to the line (9) meters and then returns to the middle. The player runs until he/she reaches the other line (6) meters and then returns to (9) meters near and then goes to the line (6) meters near, and thus the player has Complete one round (84) meters, and the player repeats three courses so that each session starts from the place where the previous session ended.

Test conditions are the need to cross every line that reaches at least one of the feet.

Recording: Record time to the nearest 1/10 second.

3-4-2-3 Arms Strength Test (1).

The purpose of the test is to measure the strength of the muscles of the arms and the shoulders.

Performance: from the oblique prone position, the laboratory bends the elbows until it touches the ground with the chest and then returns to the inclined prone position — the performance repeats as many times as possible.

Notes:

- No interruption is permitted while performing the test.
- It is noted that the integrity of the body during the stages of performance.
- The chest should touch the floor when performing.

Registration: The laboratory records the number of correct attempts made.

3-4-2-4 passing and receiving ball test on the wall from a distance of (4) meters (2).

The goal of the test: to measure pass-through and receive

Tools: 15 handballs, stopwatch, repel wall

Performance specifications: The player stands behind the line drawn on the ground a distance (4 meters) so that he does not touch him during the performance, then the player passes the ball on the wall and receives it continuously with the most significant possible number during the specified time.

Calendar: count the number of passes and receive (45) seconds

3-4-2-5 The zigzag dribbling between cones tests for a distance of (30) meters (3).

The goal of the test is to measure the endurance of dribbling.

The tools are; five handballs, stopwatch, adhesive tape, whistle, five characters.

Performance specifications: Installing five vertical strips on the ground in a straight line, and the distance between each person is (3) meters, and a starting line is drawn (3) meters from the first person.

* The laboratory stands behind the starting line when hearing the starting signal. It bounces the ball with a zigzag running between the straps back and forth.

* The player runs back and forth continuously and according to the specified time.

Calendar: The number of characters is counted within (60) seconds.

3-4-2-6 Test for pointing from jumping (1)

The objective of the test: To measure the correction of the target from jumping

Tools: Aiming accuracy squares (50 x 50 cm), 15 handballs, half a handball field.

Performance specifications: a vertical point is set in the middle of the goal to be corrected, provided that the aiming is in the flagellation manner — the aiming on two targets suspended in the upper corners of the goal. From a distance of nine meters, the player receipt the balls from the coach, and the player continues to correct within a period of (60) seconds.

Calendar: Successful attempts counted within the two squares.

3-4-3 Exploratory experience:

The experiment held on the original research sample of (8) players on 2/7/2018, and the exercises used were applied, and the purpose of the experiment was to codify the exercises and find out the appropriateness of the applied intensity, the required size, and adequate rest time. As well as knowing the required time.

3-4-4 foundations of the tests

The tests used by the researcher are standardized and enjoy high (honesty - consistency - objective) and applied in most of the scientific research, and on this basis, it relied upon.

3-5 Field Experience:

3-5-1 Pre-test: The pre-test held on 16/7/2018

3-5-2 Training used:

The researcher has prepared exercises and applied them in the pendulum training method, and this training depends on the atmosphere in which the competition and before the tournament, and for this within two months, a similar atmosphere was created for the championship and in it a matchday and training day. Thus the number of training units reached (3) units per week with two games per week against a team equal by force and for this purpose mayors. The researcher should take advantage of the excluded players in the club to hold matches with them.

The required intensity is based on the weight used for the instrument after calculating the maximum intensity and ranged (90-100%). Either the size depended (6-10 times) and totals (1-3 times) and comfortably on the return of the pulse (120-130 z / d), and exercises were applied. In training units in the main section of the trainer program and for a period of (two months) for a period of (8) weeks. Costilla. D. and others (1992) states (Training for a period of (8) weeks is sufficient to cause adaptations and increase physical ability). The exercises applied for a period of 17/7 / 2018 until 9/11/2018.

3-5-3 Dimensional tests: The post-test conducted on 20/9/2018

3-6 Statistical means: The SPSS system used in the treatment

- Arithmetic mean. - Standard deviation. - Variation coefficient. - Percentage. - (T) test for correlated samples.
- (T) test for unrelated samples.

Presentation, analysis SPSS application, and discussion of results

4-1 Present the results of the pre and post physical tests of the two groups, analyze and discuss them:

Table (2) Shows the arithmetic mean and the calculated and tabulated (T) values of the pre and post physical parameters of the control group.

T-Test value and tabular at the degree of freedom (7) and the probability of an error (0.05) = 2.365

Table 2						
Physical tests Unit of measurement Arithmetic mean Standard error T value Calculated Significance level						
Physical tests	measuring unit	Arithmetic mean		Standard Error	T-Test	Signification
		Pre	Post			
Distinctive speed power	Num	6.22	7.89	0.55	3.036	Significant
Bearing speed	Min	1.54	1.31	0.09	2.55	Significant
Endure strength	Num	60.41	62.33	0.57	3.368	Significant

Table (3)						
Shows the arithmetic mean and the calculated and tabulated (T) values of the pre and post physical variables of the experimental group.						
Physical tests	measuring unit	Arithmetic mean		Standard Error	T-Test	Signification
		Pre	Post			
Distinctive speed power	Num	6.24	9.99	1.22	3.073	Significant
Bearing speed	Min	1.55	1.11	0.12	3.66	Significant
Endure strength	Num	60.46	67.51	2.77	2.545	Significant

T-Test value and tabular at the degree of freedom (7) and the probability of an error (0.05) = 2.365

Table (4)							
Shows the arithmetic mean and the calculated and tabulated (T) values for the dimensional physical variables between the experimental and control groups.							
Physical tests	measuring unit	Control Group		Experimental Group		T-Test	Signification
		A	Std	A	Std		
Distinctive speed power	Num	7.89	0.82	9.99	0.74	5.035	Significant
Bearing speed	Min	1.31	0.05	1.11	0.08	5.714	Significant
Endure strength	Num	62.33	1.44	67.51	1.52	6.548	Significant

Table (T-Test) value at freedom degree (14) and error probability (0.05), which is = 2.145

After this presentation, it is clear that there is an evolution in the group controlling the physical variables due to the regularity of the sample in the application and the approach developed by the trainer. Pendulum training achieved the desired goal. This is confirmed by both Marwan Abdul Majeed and Mohammed Jassem Al-Yasiri

(2010) ", that the goal of the sports training process is to reach Sports individual to the highest level of sports achievement in the activity in which the player specializes."

Regarding the experimental group, the researchers got the required development as a result of the exercises put in place. The training used in addition to the diversity of exercises in the physical capabilities under study, and this is an indication of the success of the training planning used and the applied exercises, and this is confirmed by (Hanafi Muhammad Al-Mukhtar 1998) (2) in his saying: "The proper planning and selection of exercises The occasion enables the trainer to develop the physical characteristics used, all of which depend on the player's mastery of the basic skills.

The experimental group has also evolved. This is an indication to the success of Pendulum training program, which set out to contain the correct training requirements. The pendulum training indicates the successfulness of the training methods, which consistent with what mentioned by (Sharif Taha 2000) how said: "that modern sports training must include training. The equipment used for the same organic devices in sports activity. As well as the tools used, preferably themselves in the specific activity and training in the physical capabilities of the activity in question is under the same competition conditions.

4-2 Present, the test results of the tribal and dimensional attacking skill performance of the two groups, analyze and discuss them:

Table (5) Shows the arithmetic mean and the calculated and tabulated (T) values for the pre- and post-attack attacking skills of the control group						
Attacking skill performance tests	Measuring Unit	Arithmetic mean		Standard Error	Counted T-Test	Signification Level
		Pre	Post			
Passing and receiving the ball	Num	28.22	29.8	0.65	2.43	Significant
Zigzag dribbling	Num	40.22	42.51	0.77	2.974	Significant
Pointing from jumping	Num	3.56	4.99	0.4	3.575	Significant

The value of (T) and the tabular at the degree of freedom (7) and the probability of an error (0.05) = 2.365

Table (6) Shows the arithmetic mean and calculated and tabulated (T) values for the pre- and post-attack offensive skills of the experimental group						
Attacking skill performance tests	Measuring Unit	Arithmetic Mean		Standard Error	Counted T-Test	Signification Level
		Pre	Post			
Passing and receiving the ball	Num	28.6	31.97	0.74	4.55	Significant
Zigzag dribbling	Num	40.27	43.61	0.81	4.123	Significant
Pointing from jumping	Num	3.58	6.22	0.44	6	Significant

The value of (T) and the tabular at the degree of freedom (7) and the probability of an error (0.05)
= 2.365

Table (7) Shows the arithmetic mean and calculated and tabulated (T) values for the offensive skills between the control and experimental groups							
Attacking skill performance tests	Measuring Unit	Control Group		Experimental Group		Counted T-Test	Significance Level
		A	Std	A	Std		
Passing and receiving the ball	Num	29.8	0.41	31.97	0.5	8.89	Significant
Zigzag dribbling	Num	42.51	0.3	43.61	0.21	7.971	Significant
Pointing from jumping	Num	4.99	0.33	6.22	0.41	6.212	Significant

Table (T) value at freedom degree (14) and error probability (0.05), which is = 2.145

After this presentation, it was also clear to us the development of the control group in the skill of attacking handball performance. The development reason for the experiment group is due to the training method used and the consistency of the application sample. The development is confirmed by Ishraq Ghaleb (2009) (1) "that modern sports training is built based on harmony and harmony between numbers Physical, and skillful numbers in one image without separation."

The experimental group evolved in the attacking skills of handball, which is due to the selection of exercises and training used (pendulum) by the researcher. The pendulum training helped to develop the physical side affecting the skill side, and these are scientific facts in the development of the skill side is the need to develop the physical side that serves Skill performance, i.e., in other words, in the absence of the necessary physical attributes for performance, the skill performance inside the stadium will not be elevated. For this, the researcher has applied specialized exercises with the pendulum training method to develop the physical and second skill aspect related to the side In my light, in the light of which toys were developed, and this is confirmed by (God's command Ahmad Al-Bassati (1998) (2)) that athletes in various sporting events cannot master the essential skills that characterize each activity in the event they lack the necessary physical characteristics and specific to sporting activity, so we find a close link between the skill level and the particular physical requirements in each activity. " (Singer 1990) (3) indicated that the skill is only achieved in the presence of specialized physical capabilities.

VI. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions:

- 1- The exercises used and applied in the pendulum style have helped to develop some special physical abilities and attacking handball skills for the athletes.
- 2- Create an atmosphere similar to competition and with high physical loads, which has a significant impact on raising physical and skill capabilities.

3- Mixing physical and skillful exercises that raise the skill level with the same physical level and higher and this does not happen except by pendulum training, as it is a successful training to link the requirements of the game all.

5.2 Recommendations:

1- Adopting the exercises used and applied in the pendulum style because they work to develop some special physical abilities and attacking handball skills for the athletes.

2- It is necessary to create an atmosphere similar to competition and with high physical loads, as it works to raise physical and skill capabilities.

3- Emphasizing on mixing physical and skill exercises as it helps to raise the skill level to the same physical level.

3- Conducting a study similar to this study and on other training methods and on untrained physical and skill capabilities.

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