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THE IMPACT OF UTILIZING PENDULUM TRAINING IN ENHANCING SPECIFIC PHYSICAL ATTRIBUTES AND FUNDAMENTAL SKILLS FOR YOUNG FOOTBALL PLAYERS

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ABSTRACT

Football This game has taken a large part of the rest of the sports games as it occupies the first place in terms of practitioners (amateurs, professionals) and spectators, as well as the abundance of its skills and the diversity of its plans, so the interest in it was exceptional in terms of its importance on the one hand and because it is the game that brings pleasure and joy to the hearts of its followers and practitioners on the other hand and has received huge views whether (inside or outside the stadium), it is natural that the player, coach or fan will be under great psychological pressure when compared to other sports games.

• Preparing a training program using the pendulum training method to develop some physical qualities and basic skills for youth football players.

• Knowing the effect of the pendulum training method in developing some physical qualities and basic skills for youth football players.

• The researchers used the experimental method (experimental design for two groups, the first control and the second experimental) using pre- and post-measurement, and the research community identified the young players in

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the Al-Jawhara Sports Club for football for the season) 2022-2023 (and the research sample was selected by simple random method, amounting to (20) players, and then they were divided into two control groups containing) 10) players and an experimental group containing (10) players as well.

The most important conclusions were

• The emergence of a clear development of the control and experimental groups in the physical qualities and basic skills of young football players.

• There is an advantage in the development of the physical qualities and basic skills of young football players in favor of the experimental group that used the pendulum training method.

• The use of any training method may positively affect the physical qualities and basic skills of young football players.

KEYWORDS

Pendulum Training, Physical Qualities, Basic Skills, Football.

INTRODUCTION

1. Definition of the research

1-1 Introduction to the research and its importance

Scientific research has played an essential role in nations' rise, development, and progress at the (civilizational, cultural, and economic) level and included other levels, including the sports level. Sports are essential for people, and interest in them has increased recently due to the tendency of most countries to practice various sports. Not only that, but they are competing to hold tournaments and competitions at the level of countries worldwide. There has become a competition among them to win the organization of these tournaments. This is what happened in the last World Cup 2022, which the State of Qatar won to organize, becoming the first Arab country to host this tournament, which is considered the most significant event in the world.

The training aspect is a very important aspect that advances sports because through it you can organize exercises in a sound and correct manner that is consistent with the physical and mental abilities of the players and leads to raising the player's level physically, skillfully, psychologically, intellectually in an ideal way and reaching the ideal level for the player.

Football is one of the most critical team games that has received significant attention, as it is the most famous

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game in the world. That requires physical variables that differ from other games, as it requires a very high physical effort, and physical qualities (speed, endurance, strength, flexibility) must be available, as it requires the player to perform ideally for 120 minutes, and this time requires special attention to physical qualities, so attention must be paid to them and to their training methods to prepare the player well, making him perform well on the field because any defect in these physical qualities will affect the player and his performance on the field, which in turn leads to a decrease in the level of performance, and thus he cannot implement the coach's plans, and the continuation of this player on the field will make him vulnerable to injury. The pendulum training method is one of the methods that help to raise the physical level and develop it well. Here comes the importance of the research in order to advance the game of football for the better, improve the level of physical qualities, and raise their efficiency in an optimal way in order to maintain a good level of performance during the training unit or in the match and to deliver scientific information to coaches about the critical role of this method of training and its importance in football and achieve satisfactory results that serve this game.

1-2 Research Problem

The pendulum training method is considered one of the practical and successful training methods in team games, especially games that require high physical effort that extends for long periods of up to two hours and in successive competitions that require maintaining the efficiency of physical attributes for long periods.

The football player needs to improve and develop strength, speed, endurance, etc., and this training method will give good results.

Through the experience of the researchers, as they worked in the field of training for age groups in football, they found that the physical level of young players does not rise to the level of ambition and does not keep pace with the development currently taking place in this game, which affects the player's performance of basic football skills. Therefore, the researchers decided to use this training method (pendulum) to know the ability to raise the player's physical and skill level.

1-3 Research objectives:

• Preparing a program using the pendulum training method to develop some physical attributes and essential skills for young football players.

• Knowing the effect of the pendulum training method in developing some physical attributes and essential skills for young football players.

1-4 Research hypothesis:

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• The training program (pendulum training method) has a positive effect on developing some physical qualities and essential skills for youth football players.

1. 5 Research areas

1-5-1 Human field: Al-Jawhara Club players for youth football under 19.

1-5-2 Temporal field: The period (1/31/2023 to 4/13/2023)

1-5-3 Spatial field: Al-Hashimiya Sports Club Stadium, Babylon, Iraq.

2. Research methodology and field procedures

2-1 Research methodology

The researchers used the experimental method (experimental design for two groups, the first control, the second experimental, and pre-and post-measurement).

2.2 Research community and sample

The community (young players under 19) in Al-Jawhara Sports Club was determined for football for the season (2022-2023). The research sample was selected using a simple random method, amounting to (20) players. They were then divided into two control groups containing (10) players and an experimental group containing (10) players.

2-3 Sample homogeneity and equivalence procedures

2-3-1 Sample homogeneity

To control the variables that affect the research results, the researchers resorted to verifying the homogeneity of the sample in the variables related to morphological measurements (age, height, and weight), as shown in Table (1).

Table (1) shows the homogeneity of the sample.

No	Variables	Unit of measure	Arithmetic mean	Standard deviation	The loom	Coefficient of skewness
1	the age	year	18.72	2,30	18,1	0,27
2	height	poison	175,1	2,910	174	0,38

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3	the weight	kg	69,53	2,80	68,2	0,48
4	Training age	year	4,10	1,02	4	0,09

Table (1) shows the values of the skewers coefficient for the studied variables between (+-1), which indicates that the sample is moderately distributed.

2.3.1 Sample Equivalence

The researchers should attribute the differences to the training factor. The two research groups (experimental, control) must be equivalent in the variables (under study). Before starting the program, the researchers resorted to achieving the principle of equivalence between the two groups. The researchers used statistical means (arithmetic mean, standard deviation, t-test for independent samples), as shown in Table (2).

Table (2) shows the equivalence between the two groups (control, experimental) in the research variables

t	Physical tests	Control group		Experimental group		Calculated value of (t)	Significance
1	Power at velocity (s)	13.724	0.799	13.483	1.125	0.551	Non-moral
2	Explosive power (cm)	36.04	4.376	37	3.496	0.339	Non-moral

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3	Force endurance (m)	44.059	1.684	42.915	2.135	1.33	Non-moral
4	Velocity duration (s)	27.471	1.704	27.795	2.173	0.371	Non-moral
5	Scoring (number)	6.7	0.948	7.3	1.215	1.208	Non-moral
6	Rolling ball (tha)	12.192	1.002	12.248	0.797	0.823	Non-moral
7	Handling (number)	5.3	1.494	5.8	1.229	0.817	Non-moral

***Tabular value (t) at (18) degrees of freedom and below (0.05) significance level = 2.10**

2.2 Methods, devices and tools used in research

2.4.1 Means of data collection

- Arab and foreign sources
- Objective tests and measurements
- Observation
- Questionnaire Form

2.4.2Devices and tools used

*Tape measure *Medical Scale *Stopwatch *Football Field * Number of Soccers * Manual Calculator

* Results Registration Form * Recording device.

2.3 Research procedures

2.5.2 Identification of research variables

Through the researchers' training and field experience, it was found that these variables are very important for football players and accordingly they have been selected and measurements have been made around them.

1- The power characteristic of the speed of the two legs.

2- The explosive power of the lower limbs.

3- Strength prolongation.

4- Speed prolongation.

5- Scoring.

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6- Rolling with the ball.

7- Handling.

2.5.3 Research variables tests

1- Partridge test maximum distance of 36 m, (18 m) back and forth for each man separately .

(Kazem Al-Rubaie and Muwaffaq Al-Mawla, 1988, 129)

2- Vertical jump up.

(Muhammad Subhi Hassanein, 2001, 304)

3- Continuous partridge with feet travel the largest distance per minute .

(Qais Naji and Bastoussi Ahmed 1984, 44)

4- Running 150m

(Qasim Hassan Hussein, 1998, 657)

5- Scoring on goal divided into squares .

(Muhammad Abdo Al-Wahsh, Mufti Ibrahim Hammad, 1994, 190)

6- Rolling the ball between (5) signs fixed on the ground .

(Zuhair Qasim Al-Khashab et al., 1999, 189)

7. Handling about three circles drawn on the ground with half diameters (3) (5)

(Zuhair Qasim Al-Khashab et al., 1999, 214)

2.5.4 Scientific foundations of tests:

The standardized tests have been relied upon, which have honesty, stability, high objectivity and are approved by most researchers and from previous sources .

2.6.1Exploratory experiment

The researchers conducted the exploratory experiment on 31/1/2023 on a sample of (10) players from the Hashemite Youth Forum team, and its purpose was:

1. Knowing the obstacles during the main experiment.

2. Sequencing tests properly.

3. Ensure the efficiency of the assistant work teams.

4. The validity of the devices used.

2.7 Field experience

2.5.1 Pre-tests: conducted on 7/2/2023

2.5.2 Main experience: period from 8/2/2023 to 13/4/2023

2-5-3 Post-tests: conducted on 12/4/2023

2.8 Training method used

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One of the successful training methods in team games, games that require consecutive competitions and a short period and depend on maintaining the elements of physical qualities, a training program was prepared using pendulum training for young players at Al-Jawhara Sports Club in football and this method was used for the experimental group only, the application of the program was started (8/2/2023) and continued until (11/4/2023) and took for two months (8 weeks) and by (3) training units per week, where the total units reached (24) units, and the unit's date was at four in the evening, where The unit starts with a warm up and takes (10) minutes.

The researchers took into account that the exercises arranged according to the difficulty of performance and gradation of the easiest exercises and then the most difficult and also make efforts and provide the best tools and supplies and the physical exercises, skill and tactics at the level that the player understands and the development of a number of exercises commensurate with the level of the sample, then the exercises were given a period of time of (40 minutes) and were given immediately after warming up and the training unit takes a time of (95 minutes) for the training group and the control As for the control group, the duration of the exercises also (40 minutes) and used exercises prepared by the trainer (regular program).

2.9 Statistical Methods

* Arithmetic mean * Standard deviation * Mode .

* Torsion coefficient * Test (t) for independent samples * Test (t) for correlated samples.

3. Presentation and discussion of results

3-1 Presentation of the results of physical and skill tests of the control group (pre- and post-)

Table (3) shows the results of the pre- and post-tests of the control group in the research variables.

t	Physical tests	Pre-test S	A	Post-Test S	A	Calculated value (t)	Significance
1	Partridge test maximum distance of	13.724	0.799	11.062	0.36	8.67	Moral

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	36 m (18 m) round trip for each man separately						
2	Vertical jump up	36.04	4.376	37.7	3.86	2.414	Moral
3	Continuous partridge with feet travels the largest distance per minute	44.059	1.684	49.1	2.558	4.219	Moral
4	Ran 150m	27.471	1.704	23.809	0.945	5.113	Moral
5	Scoring on goal divided into squares	6.7	0.948	9.4	0.966	6.821	Moral
6	Rolling the ball between (5) pillars fixed on the ground	12.192	1.002	11.311	0.221	2.983	Moral
7	Handling about three circles drawn on the ground with half diameters(3)(5)(7)	5.3	1.494	7.5	1.178	2.905	Moral

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Through Table (3), which builds the results of the tests for the physical and skill qualities of young players in football and for the pre- and post-tests and for the control group and through the observation of arithmetic media and standard deviations for all tests we find different and there are differences between the pre- and post-tests and to find out this difference (differences) the researchers used the test (t for correlated samples) Hence, the calculated values were greater than the tabular value amounted to (2.262) at the level of significance (0.05) and the degree of freedom (9) so there are significant differences for all tests of physical and skill characteristics and in favor of the post-test.

3-2 Presentation of the results of physical and skill tests for the experimental group (pre- and post-)

Table (4) shows the results of the pre- and post-tests of the experimental group in the research variables.

t	Physical tests	Pre-test S	A	Post-Test S	A	Calculated value (t)	Significance
1	Partridge test maximum distance of 36 m (18 m) round trip for each man separately	13.483	1.125	10.53	0.632	6.746	Moral
2	Vertical jump up	37	3.496	41.3	2.907	6.986	Moral
3	Continuous partridge with feet travels the largest distance per minute	42.915	2.135	53.8	3.359	12.333	Moral

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4	Ran 150m	27.795	2.173	21.691	1.886	5.874	Moral
5	Scoring on goal divided into squares	7.3	1.251	10.9	0.994	6.647	Moral
6	Rolling the ball between (5) pillars fixed on the ground	12.248	0.797	10.82	0.674	3.9	Moral
7	Handling about three circles drawn on the ground with half diameters(3)(5)(7)	5.8	1.225	8,9	0.875	8.908	Moral

Through Table (4), which shows the results of the tests for the physical and skill qualities of young players in football and for the pre- and post-tests and for the control group and through the observation of arithmetic media and standard deviations for all tests we find different and there are differences between the pre- and post-tests and to find out this difference (differences) The researchers used the test (t for correlated samples)) Hence, the calculated values were greater than the tabular value amounted to (2.262) at the level of significance (0.05) and the degree of freedom (9) so there are significant differences for all tests of physical and skill characteristics and in favor of the post-test.

3-3 Presentation of the results of physical and skill tests for the control and experimental groups in the post-tests.

Table (5) shows the results of the post-tests of the two groups (experimental and control) in the research variables.

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t	Physical tests	Control group S A		Experimental Group S A		Calculated value (t)	Significance
1	Partridge test maximum distance of 36 m (18 m) round trip for each man separately	11.062	0.36	10.53	0.632	2.31	Moral
2	Vertical jump up	37.7	3.86	41.3	2.907	2.356	Moral
3	Continuous partridge with feet travels the largest distance per minute	49.1	2.558	53.8	3.359	3.52	Moral
4	Ran 150m	23.809	0.945	21.691	1.886	3.175	Moral
5	Scoring on goal divided into squares	9.4	0.966	10.9	0.994	3.421	Moral
6	Rolling the ball between (5) pillars fixed on the ground	11.311	0.221	10.82	0.674	2.188	Moral

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7	Handling about three circles drawn on the ground with half diameters(3)(5)(7)	7.5	1.178	8.9	0.875	3.015	Moral

Through Table (5), which builds tests for the physical and skill qualities of young players football for the two dimensional tests and for the control and experimental groups and through the observation of arithmetic circles and standard deviations for all tests we find different and there are differences between the pre- and post-tests and to find out this difference (differences) researchers used the test (t For independent samples) and from it the calculated values were greater than the tabular value amounted to ((2.10))at the level of significance (0.05) and the degree of freedom (18) so there are significant differences for all tests of physical and skill characteristics and in favor of the experimental group .

3.4 Discussion of results

3.4.1 Discussion of the results of pre- and post-tests of research variables

Through the review of Table (3) and (4) we found there is a development in the results of the research variables for the two groups (control, and experimental), where the training was well regular in the control group in addition to the proper gradation in the components of the training load research, which led to the development of physical abilities and skills, and that the reason for the development is to take into account all the conditions for performing exercises properly and this is what he pointed out (Muhannad Abdul Sattar 2001) ((There is a scientific fact that must stand there, which is that the exercises used in the curricula Training leads to the development of performance as it was built on scientific foundations in the organization of the training process, the use of appropriate load and the observation of individual differences and under good training conditions and under the supervision of specialized trainers where the training programs codified and organized according to scientific foundations work to develop the physical and skill level of the players).

There has been a development in the physical and skill variables of the two groups and the reason is also due to the regularity of the sample in the application of the training program (traditional training program,

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training program in the pendulum style) has achieved the required goal and set by (coach, researchers) and this is confirmed by each of (Marwan Abdul Majeed, Mohammed Jassim Al-Yasiri, 2010, 22) ((The goal of the sports training process is to rise and reach the individual athlete to a high level of sports achievement in the event or activity in which the player specializes))

But there was a greater development in the experimental group and this is because of the method of training (Pendulum) as a result of the exercises placed and the training method used and also the diversity of exercises in physical abilities and skills (under study) and this is an indicator of the success of the training process and exercises used and this is confirmed by (Hanafi Muhammad Al-Mukhtar 1998) ((that proper planning and selection of good and appropriate exercises enable the coach to develop the physical abilities used all depend on the player's mastery of basic skills))

3.4.2 Discussion of the results of post-tests of research variables

By observing Table (5), it was found that the experimental group was better in developing physical and skill qualities in football through the presence of significant differences in the post-tests.

After presenting the results, it was found that there is a development in the performance of the control group in the performance of football skills and this reason is due to the training used by the coach and this is confirmed by (Ishraq Ghalib, 2009) ((that modern sports training based on harmony and harmony between physical preparation, skill preparation in one way without separation))

The reason for the development of the experimental group is to focus on the important physical qualities in the game of football and develop them properly through the organized repetition of the exercises and the gradual increase of repetitions and the number of repetitions during the training unit and the use of the pendulum training method and this is an indicator of the success of the training program subject to contain the correct training requirements, which is pendulum training, which indicates that it is a successful training method and this is what is agreed upon (Sherif Taha: 2000, 118) ((Modern sports training must include exercises used for devices Membership itself in the sports activity, as well as the tools used preferably the same in the particular activity and training for the physical abilities of the activity in question is under the same conditions of competition))

The reason for the superiority of the experimental group is also due to its use for pendulum training as it focuses on competition and performance in conditions similar to the match, and this helped this to repeat the skill and its development, and this is what he referred to (Ishraq Ali Mahmoud, 2002) quoting (Wajih Mahgoub, 1998) ((movements that the player must

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perform in all situations, which are similar to the state of play and required by the game in order to reach the best results with economy in effort)).

In addition to the repetition in the performance according to this method of training (pendulum training) helped the accuracy of the skill because it is performed continuously according to different conditions as in cases of play and this is confirmed by (Mufti Ibrahim, 1994) ((The player reaches the performance of the skill automatically through permanent repetition)) .

he researchers used the pendulum training method in applying the program to develop the physical and skill aspects related to the physical aspect, and in light of that, there was a development in the game, which is confirmed by (Amr Allah Al-Basati, 1998) ((that athletes in various sports events cannot master the basic skills that distinguish each event in the event that they lack the necessary physical qualities specific to the sports activity, so we find a close link between the skill level and the physical requirements specific to each activity).

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

1- 1- The emergence of a clear development for the control and experimental groups in the physical qualities and basic skills of young football players.

2- 2- There is an advantage in the development of the physical qualities and basic skills of young football players in favor of the experimental group that used the pendulum training method.

3-2 The use of any training method may positively affect the physical qualities and basic skills of young football players.

Recommendations

1- Generalize the results reached by the researchers to coaches of sports clubs for the game of football for the youth category.

2- There should be periodic tests on a continuous basis for the training programs prepared by the trainers, the purpose of which is to evaluate the work of these programs in order to address errors if any.

3- Conduct similar studies for other categories and know the results of these studies.

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