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## The effect of plyometric exercises to develop some physical and skill abilities and functional measurements of beach soccer players

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### Abstract

Importance of research was revealed in the plyometric training method And its impact on the variables under study, which are among the essential pillars to provide a reasonable level for the team, the speed of moving, jumping, receiving, and handing over. Scoring offset continuation with the performance of skills throughout the match time, and as it's known that the beach soccer game needs the speed of execution and to repeat those skills in a way Fast and repetitive throughout the game and the privacy of the game due to the small area and speed of movement in the stadium.

The research problem was in the following question: Do plyometric exercises affect some of the physical abilities, skills, and functional measurements of Qalaat Saleh players in beach soccer?

The research aims to identify the effect of plyometric exercises on the level of some physical abilities, skills, and functional measurements of Qalaat Saleh players in beach soccer. The researcher relied on the experimental method for the nature of solving the research (problem, and the research sample of (12 players from Qalaat Saleh Club for the first degree included The beach, where the researcher concluded through this study an improvement in the level of physical abilities, skills, and functional measurements.

**Keywords:** Physical and skill abilities plyometric exercises

### Introduction

Those working in the sports field seek to research and learn about the methods, methods, and modern training theories that include building the athlete in all respects, which contribute to drawing a large base for his education and training according to the disciplines appropriate to the nature of sports and sports events. Sports training is an organized educational process subject to scientific foundations to reach the players to higher levels. Beach soccer is one of the modern games. After entering this game within the local and international tournaments, it has become the focus of attention of many followers worldwide. Many training methods achieve specific purposes and duties. Therefore the appropriate form chosen for the purpose and the coach must know these methods and the variables on which each way depends and the possibility of using them in a manner commensurate with the training trends—the plyometric training method is in line with the requirements of beach soccer. The subject the player To perform different exercises during sports training, changes occur in the functional body systems that increase irrigation efficiency. Al- Jabali (2000) <sup>[3]</sup> points out, “ The physical preparation represents a base on which the processes of mastering and completing the levels of technical and digital performance is built, and it is the main entrance to reach the player to high sports levels, through the development of the story of the player's physical and functional characteristics.” (Al-Jabali, 2000) <sup>[3]</sup>. This requires solving all scientific issues that stand in the way of the team's progress, and this can only be done through the use of different sciences and modern technologies and the use of the scientific method through scientific research to solve those because of the great competition between athletes to achieve championships and improve the level relied on a number of factors, including the employment of science To the science of sports training such as physiology, biochemistry, tests and measurements ... and those results can be trusted through the movement of scientific research and to solve those problems that face determining or stopping the level of sports, so training scientists devised many ways and methods that would develop the athlete to reach the top Or the desired achievement, taking into account all the circumstances and conditions that the athlete may be exposed to during the competition and finding solutions that make the athlete able to overcome these conditions and achieve achievement, and among those methods of sports training is the plyometric.

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Hence, the researcher dealt with the plyometric training method And its impact on the variables under study, which are one of the main pillars to provide a reasonable level for the team. The speed of receipt, delivery, scoring, and passing must be offset by the continuation of the performance of skills throughout the match time, and as it is known that the beach soccer game needs the speed of execution and the repetition of those skills quickly and repeatedly Throughout the match and the privacy of the game due to the small area and speed of movement in the stadium. It requires a periodic device at a high-efficiency level to continue the masterful performance with high accuracy. Hence the importance of research and the need for it through the significance of plyometric training, which increases the muscle capacity and the motor and functional performance of beach soccer players.

### Research problem

Through the researcher's follow-up, the team's performance and the results of the match it is playing noticed the depletion of physical fitness and the decrease in skill performance level as the games' time was advanced. The difference in the playing field made of sand and the number and time of matches, in addition to that, it is one of the summer games that drains a lot of effort, significantly when the temperature rises. Must be chosen an appropriate training method in line with the conditions of the game and its physical, skill, and functional characteristics. Accordingly, the problem can formulate in the following question: Do plyometric exercises affect some of the physical abilities, skills, and available measurements of Qalaat Saleh beach soccer players?

### Aims of the research

1. Recognizing the differences between the tribal and remote tests of the physical and skill abilities and the functional measurements of the experimental and control groups for the players of Qalaat Saleh beach soccer

### Research hypotheses

1. There are significant differences between the tribal and remote tests in the physical abilities, skill, and functional measurements of the two experimental and control groups for the Qalaat Saleh beach soccer players.
2. There are significant differences between the experimental and control groups in the tests of physical abilities, skills, and functional measurements of the players of Qalaat Saleh beach soccer.

### Research methodology and field procedures-2

#### Research Methodology

The researcher used the experimental method for its suitability to solve the research problem by designing the experimental and control groups. The research sample was deliberately selected from the 18 Qala'a Saleh beach soccer players in the intentional image of the football season 2020 (2021%). The model was randomly divided into two groups, experimental and control. The researcher also made the sample homogeneous in the variables (height, weight, age, and training age).

**Table 1:** It shows the homogeneity of the sample in the variables (weight height - age - training age)

Variables	s	p	Variation coefficient
height	174.50	2.883	1.219
weight	67.77	1.891	2.874
Chronological age	24.54	0.769	293.2
training age	4.61	0.492	1.163

Table No. (1) shows the homogeneity of the sample as distributed; it was normally

### Tests used in the research

#### 1. Functional measurements

A device used: Echo voltage tester (ultrasound test device)  
Device specifications: MohranalInstrument - Vivid E9, year of manufacture: 2018 Nhopaha.

#### Test method

The tester stands on the treadmill device after connecting the poles connected to the device, then starts operating the treadmill according to the period and the suggested angle of inclination, programmed according to the treadmill device, then after the end of the physical effort and the player descending directly, he is subject to the Echo test that the specialist doctor performs Extract the required variables.

#### 2. Physical exams

1. Jumping from a standstill (al-Tarfi, 2013) <sup>[11]</sup>.
2. Test running at full speed (50m) from the high start (Ismail & others) <sup>[6]</sup>.
3. The speed characteristic of the legs (Al-Dalawi, 2011) <sup>[2]</sup>.

#### 3. Skill tests

1. Speed test (Matar, 2010) <sup>[7]</sup>.
2. Performance endurance test (Al-Bassiti, 2001) <sup>[1]</sup>.

#### Survey experience

To identify the obstacles and difficulties that may arise when carrying out the main experiment, the researcher conducted an exploratory investigation to give a clear and accurate picture of the vocabulary of the tests used in this research. It consists of (3) players from the same community

#### Pre-test

The researcher conducted the tribal tests on the research sample, which consisted of functional measurements and physical abilities. The skill test was held on 9/3/2021 at 5:00 p.m., where material and skill tests were conducted at the Qalaat Saleh Club stadium, and the functional measurements were performed at the Heart Specialist Hospital in Maysan.

#### Main experience

The researcher Applied for the program on 5/9/2021; the program lasted for (8 weeks) when the last training dose ended on 10/28/2021, where the experimental group applied plyometric exercises at a rate of (3) units per week on Sundays. And on Tuesdays and Thursdays, the sample training during these days, where applied plyometric exercises were in one training department, where the intensity of the activities was commensurate with the nature and purpose. Concerning the control group, the usual practices prepared by the trainer are applied.

**Post-tests**

After the completion of the implementation of the training program plyometric exercises on the experimental group, the post-tests were applied in a similar way to the tribal tests

in 10/29/2021.

**Statistical means:** The researcher used the statistical package (SPSS).

**Presentation and discussion of the results**

**Table 2:** It shows the arithmetic means and standard deviations of the physical and skill abilities and the functional measurements of the control group.

Variables	Pre-test		Post-test		T value calculated	Indication
	s-	±	s-	±		
Long jump from stability	2.326	0.061	2.33	0.08	0.105	Insignificant
Run 50m	70.38	0.727	6.658	0.355	4.127	Moral
Strength with speed for the legs	17.84	1.66	19.88	0.841	6.156	Moral
Endurance performance	32.01	1.22	30.21	1.7	7.99	Moral
Performance speed	10.22	0.54	12	0.42	3.54	Moral
Cardiac output	4.72	0.12	4.87	0.73	0.876	Insignificant
Heart rate	62.4	1.76	60.98	1.67	4.11	Moral
Left ventricle diameter	4.90	0.14	4.97	0.11	3	Moral
Right ventricle diameter	2.80	0.42	2.85	0.06	2.55	Insignificant

(t) Tabular value at 0.05 level and degree of freedom 5 = 2.57d skill abilities and the functional measurements of the experimental group.

**Table 3:** Shows the arithmetic means and standard deviations of the physical and skill abilities and the functional measurements of the experimental group.

Variables	Pre-test		Post-test		T value calculated	indication
	s-	±	s-	±		
Jumping from stability	2.372	0.042	2.484	0.047	4.675	Moral
Run 50m	7.006	0.135	6.148	0.204	7.948	Moral
The speed characteristic of the legs	18.14	1.205	22.29	0.7921	6.799	Moral
Endurance performance	30.36	2.67	26.66	0.63	3.33	Moral
Performance speed	10	0.89	13	0.27	7.2	Moral
Cardiac output	4.96	0.18	5.90	0.18	4.1	Moral
Heart rate	70.54	11.78	61.9	1.8	5.98	Moral
Left ventricle diameter	4.58	0.18	5.2	0.10	8	Moral
Right ventricle diameter	2.70	0.7	3.11	0.6	4	Moral

(t) Tabular value at 0.05 level and degree of freedom 5 = 2.5

**Table 4:** Show circles Arithmetic and distractions normative and the value (T) of capabilities physical and skill and measurements functional dimensionality for two groups Experimental and the officer.

Variables	Dimensional test of the experimental group		Post-test for the control group		T value calculated	Indication
	s-	±	s-	±		
Long jump from stability	2.484	0.047	2.33	0.08	6.16	Moral
Run 50m	6.148	0.204	6.658	0.355	3.41	Moral
The speed characteristic of the legs	22.29	0.7921	19.88	0.841	4.68	Moral
Endurance performance	26.66	0.63	30.21	1.7	5.27	Moral
Performance speed	13	0.27	12	0.42	4.12	Moral
Cardiac output	5.90	0.18	4.87	0.73	4.43	Moral
Heart rate	61.9	1.8	60.98	1.67	4.78	Moral
Left ventricle diameter	5.2	0.10	4.97	0.11	6.18	Moral
Right ventricle diameter	3.11	0.6	2.85	0.06	3.39	Moral

Tabular value at the 0.05 level and the degree of freedom 10 = 2.82

Through the results of Table No. (2), (3), and (4), it is clear that there are Measurements in physical abilities and cardiac measurements that did not indicate a performance improvement; The other values are close to the average values and indicate the improvement of the research sample in a significant way. The researcher believes that the reason for this is due to the approach followed by the training staff and the nature of the exercises used, in addition to the organized and continuous training, which lasts (6) days and for a time estimated An hour and a half for the training unit. The researcher also attributes the fact that the participants in the experimental and test matches and the competitions that the team fights also impacted the changes in the heart

muscle measurements, endurance, and speed of performance of football players. The level of development and improvement of the research sample in a good way for both the physical and skill abilities and the functional measurements of the experimental group.

The researchers believe that plyometric training has a positive effect on improving physical abilities as indicated by Sultana, D 2014) [15] showed that training is a set of activities that recruit muscle fibers to generate as much as possible the most significant muscular strength in the least likely time, and that the importance of plyometric training and its benefits in improving the muscular strength of athletes in developing performance in different sports which

are related With muscular strength, muscular endurance, and strength characterized by speed .". (Sultana, 2014) <sup>[15]</sup> (24:14). (Abdul Aziz and Nariman 1996) "One of the most important advantages of plyometric training is that it increases motor performance, meaning that the strength gained from this type of training leads to better motor performance than the exercised sports activity by increasing the ability of the muscles to contract at a faster and more explosive rate during the range of movement." in the joint and at all speeds of movement." (Al-Nimr & Al-Khatib, 1996) <sup>[4]</sup>. The researchers believe that the research sample has improved well In the speed endurance and performance endurance tests; this is due to the curriculum prepared by the researcher in a plyometric method and the nature of the exercises used, in addition to the organized and continuous training up to (90 d) for the training unit that the team is engaged. Running by jumping indicates the ability of the sample members to produce the best kinetic energy by working with the central and eccentric muscular contraction (the shortening and lengthening cycle), which is related to the development of explosive power and speed characteristics of the player (Bastawisi, 1999) <sup>[12]</sup>. As (Mora 1988) mentions, "Plyometric training is an activity that includes a contraction cycle of the working muscle, which causes its flexibility and works on the muscle to benefit from the reflex mechanical energy resulting from the effect of lengthening, which leads to strength and great speed in performance (Mora, 2002)." Al-Fateh and Al-Sayed (2002) <sup>[9]</sup> says, "It is a method of training that depends on the moments of acceleration and braking that occur as a result of the body's weight in its dynamic movements such as rebounding of all kinds. This training method helps develop athletic ability and thus improves dynamic performance." (Al-Fateh & Al-Sayed, 2002) <sup>[9]</sup>.

As for the functional measurements, the researchers see this improvement related to the development of physical and skill abilities applied in the training program using the plyometric method. The result was an improvement in the functional measurements of the heart. Blood circulation, well-trained individuals can adapt to the functional changes that occur in the body's systems by performing muscular effort" (Abu El-Ala, 1982) <sup>[8]</sup>.

(Salma Nassar and others) <sup>[14]</sup> Confirmed that "one of the changes that occur in the heart as a result of organized sports training is the decrease in the number of heartbeats during rest or during physical exertion, as well as the rapid return of the heart to its normal state after physical exertion." (Salma & others, 1982) <sup>[14]</sup>. Regular training leads to a decrease in heart rate. It results in an increase in the ability of the heart to grow and develop and an increase in the activity of the parasympathetic nerve, which works to slow the pulse rate.

(El-Beik & Badir, 1980) <sup>[5]</sup>. Regular physical training leads to positive functional changes for many body systems, including the heart and blood vessels. Improving the heart's efficiency appears as a decrease in the heart rate at rest. This means the soul can pump the same amount of blood to the muscles with fewer heartbeats. "(Al-Hazaa, Hazaa bin Muhammad, 2003) <sup>[10]</sup>.

## Conclusions and Recommendations

### Conclusions

1. Plyometric exercises have a positive effect on improving the physical abilities of beach soccer players.
2. Plyometric exercises have a positive effect on improving the speed and endurance of beach soccer

players.

3. Plyometric exercises positively affect the improvement of Functional measurements of beach soccer players.

### Recommendations

1. Emphasize the use of plyometric exercises to suit the conditions of beach soccer.
2. The necessity of emphasizing the safety and efficiency of functional devices that reflect on the training process.
3. Emphasize conducting physical, skill, and other available tests and measurements on beach soccer players.
4. Using the plyometric training method in other games and activities.

### References

1. Al-Bassiti A. Physical Preparation - Functional in Football - Planning - Training - Measurement. Alexandria: New University Publishing House; c2001.
2. Al-Dalawi A. Principles of Athletic Training and Strength Training. Najaf, Iraq: Al-Diaa House for Printing and Design; c2011.
3. Al-Jabali O. Sports Training - Theory and Practice. Cairo: GMS House; c2000.
4. Al-Nimr A, Al-Khatib N. Weight training, designing strength programs, and planning the training season. Cairo: Al-Kitab Center for Publishing; c1996.
5. El-Beik F, Badir AM. A comparative study of VO<sub>2</sub>max levels of Egyptian and Soviet swimmers, Cairo: Scientific Conference on Physical Education Studies and Research; c1980. p. 642.
6. Ismail T, others. (n.d.). Physical preparation in football. Cairo: Dar Al-Fikr Al-Arabi Press; c1980.
7. Matar M. The effect of different forms of no similar training loads on developing some special physical abilities and skills in football, (Unpublished master's thesis). The University of Basra; c2010.
8. Abu El-Ala A.-F. The Biology of Sports, 1st Edition. Cairo: Dar Al-Fikr Al-Arabi; c1982.
9. Al-Fateh WM, Al-Sayed M. The Scientific Basis of Sports Training for Player and Coach. Minya: Dar Al-Huda for Publishing and Distribution; c2002.
10. Al-Hazaa, Hazaa bin Muhammad. An article published in the Journal of Heart Health of the Saudi Society of Cardiology. The Saudi Society of Cardiology; c2003. p. 6.
11. Al-Tarfi A. Applied Tests in Physical Education (Physical - Kinetic - Skill). Baghdad: The National Library; c2013.
12. Bastawisi A. Foundations and Theories of Sports Training. Cairo: Arab Thought House; c1999.
13. More. Twitter.com/Epsrabe; c2002.
14. Salma N others. Biology of sports and training. Cairo: Dar Al Maaref; c1982.
15. Sultana D. Effects of sand training with and without plyometric exercises on selected physical fitness variables among Pondicherry University Athletes. Indian: Journal of Science and Technology. 2014;7(S7).