

Article

The Effect of Specific Exercises According to the Pulse Index on some Physical Abilities and Performance Level of Football Referees

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Abstract: The research aims to prepare exercises that suit the capabilities of the sample, as well as to identify the effect of these specific exercises on some of the physical abilities and performance level of second-class football referees. The researcher intended to use the experimental approach with one group, while the research sample was chosen intentionally, and they were a sample of second-class football referees in Baghdad, and their number reached twenty referees accredited to the Central Iraqi Football Federation for the 2023-2024 football season. The results resulted in significant differences between the results of the pre- and post-tests, in favor of the post-test, in the abilities under study and the level of performance, which indicates the effectiveness of the proposed specific exercises. The researcher recommends relying on specific exercises using plyometric training when developing the physical abilities of football referees.

Keywords: specific exercises, pulse index, football referees

1. Introduction

In recent years, the game of football has received great global interest and development that no other game has enjoyed, not because it is the most famous in the world because of the ease and abundance of its circulation, but rather because it is the most enjoyable among other sports. We notice that international and local federations always seek to be at the heart of the event and keep pace with the great development for advancement. And advancement, as well as giving special importance in preparing the main components of this game, which are the coach, the player, and the referee, who is considered one of the most important of these components because of his great influence on the success of the match.

There is no doubt that the harmonious and integrated preparation to raise and advance the level of referees to keep pace with the development of the game must be consistent with the specificities of the game, in particular the physical aspect, which represents the cornerstone of three main pillars that complement each other.

Due to the specificity of the game of football and the new amendments to its law that contributed to changing many concepts of the training process, its connection to the technical aspects and the referee's possession of high physical and physiological abilities, it has become imperative to achieve good performance throughout the match.

The importance of the research comes from preparing specific exercises using the pulse index and observing its effect on some of the physical abilities and performance level of football referees, so that this study contributes to helping coaches when preparing the curricula, especially football referees, because it depends on a number of referees and their different physical specifications and knowing the most important variables that occur. During effort and rest during the training units.

1.1. Research Problems

Given the great development in the game of football, as well as the speed of play, and the great role that referees play in the success of any match and bringing it to safety, which comes through sound and correct decisions, and that the success of any match is through the success of the refereeing team as a whole through the absence of influential errors, which Always talk during the match

Because the researcher is a former referee and has refereeing experience, he faced many problems on the field of play with the referees in the Iraqi League, and because of the many mistakes that occur on the field, and this results from the disparity that occurs between the referees themselves in decision-making, which results in errors that may be negative and influential, and this is a result of The weakness in the level of preparation for physical abilities and the weakness this reflects in the physiological aspects that qualify referees to carry out their duties, which affects their performance during the match. In addition, the construction and codification of training curricula is not carried out in accordance with the correct practical foundations based on high physiological knowledge, It works to raise the capabilities of referees and the adequacy of the body's vital systems, in addition to the fact that these curricula do not contain training that depends on energy systems, as they are the basis upon which raising the level of referees' capabilities is built and enabling them to achieve the goals of the training process. There is also a lack of scientific experience and knowledge to link modern training theories and sports physiology.

1.2. Research Objectives

- a) Preparing specific exercises that suit the capabilities of the research sample.
- b) Identify the effect of specific exercises on some of the physical abilities and performance level of football referees.

1.3. Research Hypothesis

There are statistically significant differences between the results of the pre- and post-tests in some physical abilities and the level of performance of the research sample.

1.4. Research Areas

- a) The human field: A sample of second-class referees in Baghdad who are accredited by the Central Iraqi Football Association for the 2023-2024 football season.
- b) Time frame: The period from 1/9/2023 to 8/11/2023.
- c) Spatial area: The Ministry of Youth and Sports Stadium in Baghdad and all the stadiums on which matches are held.

2. Research Methodology and Field Procedures

2.1. Research methodology

The researcher intended to use the experimental method with one group appropriate to the nature of the study, "as the experimental method is one of the methods that depend on change and control of specific observations of reality or phenomenon" (Ibrahim, 1993).

2.2. The research community and its sample

The researcher intentionally selected and sampled the research community, who were second-class referees in Baghdad and accredited by the Central Iraqi Football Association for the 2023-2024 football season. They numbered twenty referees. They were chosen intentionally four referees were excluded from participating in the exploratory experiment, so that The number of individuals in the research sample is (16) judges.

2.3. Tools and devices used in the research

- football stadium
- Medicine balls weighing 2 kg (3)
- Colored adhesive tape
- Cones number (15)
- Dell laptop
- Manual Canon calculator
- Chinese-made manual stopwatches
- Pens and pencils
- Assistant work team Supplement(1)

2.4. Test used

2.4.1. Physical abilities test

- First: Vertical jump test from a squat position with a time of (30) seconds, (Al-Zubaidi, 1999).
- Second: A rebound running test for a distance of (180) metres. (6:1999:p66)
- Third: Pull-up test using body weight for 10 seconds, measuring the strength and speed of the arm muscles, (Hamed, 1995).

2.4.2. Evaluating the performance level of football referees under investigation

The researcher benefited from the process of evaluating the level of performance by accredited evaluators in the Central Iraqi Football Federation for the 2023-02024 football season, by evaluating the performance level of the referees while they were leading the matches of the second division and age groups, and through the evaluation form for football referees approved by the Iraqi Federation Central Football.

2.5. *Exploratory experience*

The researcher deliberately conducted the exploratory study on 1/9/2023 on the exploratory study sample, which consisted of (4) referees, as the purpose of this experiment was as follows:

- 1) Verify the level of difficulty of the tests and their suitability for the individuals in the research sample.
- 2) Verifying the efficiency of the devices and tools used during the tests.
- 3) Identifying the problems and difficulties that the researcher may face when conducting tests.
- 4) Identify the time spent for the purpose of implementing tests.
- 5) Learn about the efficiency of the assistant work team

2.6. *Pre-test*

The researcher intended to conduct pre-tests on Sunday and Monday, corresponding to 3-4/9/2023, as physical tests were conducted on the first day, and on the second day, and the performance level was evaluated by watching the referees' match by the referees' evaluators for the purpose of evaluating their level of performance.

2.7. *The main experiment*

The researcher intended to develop a set of exercises that are similar to the nature of performance for football referees, taking into account the selection of some exercises that can be applied during plyometric exercises, with an emphasis on the training being in the direction of developing physical capabilities linked to the performance under study, through technical analysis of performance by evaluators. Referees, as well as exercises that can effectively contribute to developing each stage of their performance, and also contribute in general to developing the level of referees' performance.

The implementation of the specific exercises began on Wednesday, 6/9/2023, until Saturday, 5/11/2023, for a period of (8) weeks, with (3) training units each week on Saturdays, Mondays, and Wednesdays of each week, as most changes as a result of training occur within (6-8) weeks after performing (3) training units per week. Specific exercises are trained at the beginning of the daily training unit so that the nervous system is not stressed and ready to work.

2.8. *Post-test*

The researcher intended to conduct post-tests after completing the exercises on Tuesday and Wednesday, corresponding to 7-8/11/2023, as physical tests were conducted on the first day, and on the second day, and the level of performance was evaluated by watching a match for the referees by the referees' evaluators. For the purpose of evaluating their level of performance, under the same conditions as the pre-tests.

2.9. Statistical methods

The researcher intended to use the statistical package (SPSS) to process the data.

3. Results and Discussion

Table (1) shows the arithmetic mean, the standard deviation, the value of (T), and the significance between the measurement (pre and post) of physical abilities and the level of performance under study for the experimental group.

Table 1. Results of the experimental group's tests for functional and physical variables and performance level

	The Test	Measruing unit	Pre-Measurement		Dimensional Measurement		Calculated T Value	Mistake Percentage	Indication
			s-	± p	s-	± p			
1	Vertical jump from a squat position for (30 seconds)	Repetition	25	1,91	28	1.35	3.50	0.03	moral
2	Run (180m) apostate	Second	42.82	1.72	39.32	1.00	8.47	0.00	moral
3	Pull-up test using body weight for (10 seconds)	Repetition	9	1.20	12	1.02	7.22	0.00	Moral
4	Evaluation of performance level	degree	8.1	1.92	8.4	1.11	6.03	0.01	moral

N-1=15. The error rate is 0.05

4. Discussion

Through Table (1), which shows the results of the pre- and post-tests, there are significant differences between the pre- and post-tests and in favor of the post-tests, which indicates that there has been a development in all the research variables. The researcher attributes the significance of these differences between those tests in the physical abilities under study to the fact that Plyometric exercises were used, represented by throwing medicine balls of different weights and in different positions, as well as various jumping exercises on boxes and barriers, through which the loading of the muscle was enhanced for the increasing stretching loads, and this increased endurance works to develop the adequacy of the muscle extension-shortening cycle among the referees. During the eccentric lengthening phase of muscle contraction, the largest amount of energy is stored inside the muscle, and this stored energy is reused in the next central contraction phase, which leads to an increase in the strength of the working muscle. The idea here is focused on the time it takes to move from the state of lengthening to the case of failure, which led to an increase in the test result (Darwish, 1998)

The application of the exercises led to an increase in the stretching reaction in the muscles, and also led to an increase in the elastic energy stored in the muscles, as exercises using plyometric training work to put the muscle during the performance of the motor

task in a state of sudden rapid lengthening immediately before performing the motor task, and this rapid stretching results in It causes stronger muscle contraction, and this is due to the lengthening of the spindle bodies and the elongation reaction, and this change in the shape of the muscle spindles causes them to send a signal to the spinal cord, which sends a signal to the muscle, which contracts and thus shortens its length. Success in it depends largely on the ability of the muscle or muscles to produce the maximum force and in the fastest possible time using a shortening contraction preceded by a longitudinal contraction, as mechanical efficiency increases when using exercises that use a cycle of stretching and shortening; Plyometric exercises convert chemical energy into mechanical work. This result is consistent with Hassan Abu Al-Tayeb who explained that stretching a muscle for a very short period in a state of work changes the elastic properties of that muscle, which leads this muscle to increase its work in the subsequent stage, so this appears as if the muscle in this case stores energy during the lengthening contraction. By recovering it in sluggish contraction, (Al-Tayeb, 2000).

The emergence of significant differences in the level of performance among the research sample was due to their use of specific exercises that work to develop the force endurance of the muscles of the legs, the strength characterized by speed in the arms, and the speed endurance of the working muscles, which help in developing the performance level of the referees and thus lead to making correct and accurate decisions that have a positive impact. On the results of the matches, In addition to that, emphasis is placed during performance on adopting the appropriate angles for the muscular work of these exercises, which gives excellence in controlling the body parts and the appropriate amount of muscle contraction. This is one of the important scientific matters that influences the development of the quality of strength in general, which works to develop the speed of performance of the referee and then work on applying the paths. The correct fit for the parts of the body working during the performance, which helps in applying good flow during the stages of the technical performance for the judges.

5. Conclusion

- 1) The specific exercises helped develop the physical abilities under study among the referees who trained in them.
- 2) Specific exercises contributed to developing the performance level of football referees

6. Recommendation

According to the results reached by the researcher, the following is recommended:

- 1) Relying on specific exercises using plyometric training when developing the physical capabilities of referees.
- 2) Adopting the exercises used in the study during anaerobic training, which contributed to developing the referees' abilities, physical abilities, and performance level.
- 3) Codifying training curricula for various activities according to energy systems.
- 4) The possibility of conducting these exercises with other arbitration categories, such as the first and third degrees.

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