



Determination of the Ocular Cardiac Reaction Index and Motor Reactions for the Evaluation of the Parasympathetic Nervous System for the Effectiveness of the Broad Jump of Qurna Education Schools Players in Basra Governorate

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ABSTRACT

Due to the importance and effective role played by the nervous system in the process of training and adaptation, where the safety of this device and the currency efficiently helps the process of mastering performance and distinguish it with speed, accuracy and motor compatibility. In addition, it helps the player to maintain the level of sports and stay in the sports form. The study of this important functional device, which has indications and indicators whenever it is good, gives a high possibility of the level of performance through the tests used in the study, which gives an objective indicator to school players. Participants in the activities of the broad jump. As for the research problem, where the researchers noticed a weakness in the level of achievement of the preparatory school players for the effectiveness of the broad jump, where the efficiency of the nervous system and the level of achievement were not at the required level, as the researchers identified the research community in a deliberate way, and they are the secondary school players participating in the arena and field championship. The effectiveness of the broad jump Qurna breeding in Basra Governorate for the academic year (2024-2025). As the research community reached (30) players, the research sample was selected with "Random method" where the number of the sample on (28) players formed a percentage of (93.33%), where it included the presentation and discussion of the results either the chapter is not good included the reaction of the kinetic is one of the important indicators in the study of arena and field games as well as predicting the achievement of the events of the arena and the field of the most important conclusions either harm attention to school sports because of the talents it gives and provide clubs with as well as the study of predicting promising levels.

1- Definition of the research:

1-1 Introduction and importance of research:

The sports movement is witnessing a tremendous development at the level of all sports events, which have become a reflection and indicator of advancement in countries and sports forums, as this is reflected in a clear and beautiful reflection through competitions and championships that are held at the global, Olympic, league and local levels, and school tournaments that are held in education departments or schools are important events in developing the ability of pupils or students by planting love for sports competitions, hence the need for sports tournaments, which gives an opportunity to the coach from Selecting players by providing clubs with talent during school tournaments, and since the effectiveness of the arena and the field of the Olympic events, which is called the bride of the Games, where it witnessed a development at the level of achievement, something beyond imagination, and this is due to the extent of the great capabilities that are made by those in charge of conducting research and manufacturing modern devices and means of measurement that improve achievement.

Due to the importance and effective role played by the nervous system in the process of training and adaptation, where the safety of this device and the work efficiently helps the process of mastering performance and distinguish it with speed, accuracy and motor compatibility in addition to that helps the player to maintain the level of sports and stay in the sports form.

Hence the importance of research in the study of this important functional device, which has indications and indicators whenever they are good gives a high possibility of the level of performance through the tests used in the study, which gives an objective indicator of the school players participating in the activities of the broad jump as researchers believe that the importance of this topic helps to develop and upgrade in training for motor skills and the extent of their potential to reach the mechanism in performance.

1-2 Search problem:

Through the observation of researchers for the broad jump that takes place in school tournaments, which are conducted at a high level of organization, the researchers noticed that there is a clear weakness through the results at the level of performance and this is due to the possibility of the nervous system to perform as best as possible and the lack of studies and the lack of standards and indicators that give an accurate indication of the status of the player in middle schools and because of the lack of school training, as the nervous system is one of the important studies where the measurement was indirectly through The "cardiac eye reaction" test and the "motor reflexes" test, where the researchers noticed a weakness in the level of achievement of middle school players for the effectiveness of the broad jump, where the efficiency of the nervous system and the level of achievement were not at the required level.

3 The study aimed to:

- 1- Determine the index of ocular cardiac reflex test and motor reflexes.
- 2- Identify the results of tests and achievement for middle school players in the section of Trieh Qurna.
- 3- Finding equations to predict and determine the contribution ratios and correlations between achievement and cardiac eye reaction and motor reactions.

1.4 Areas of research where they were:

1-4- 1Human field: players effectiveness broad jump for preparatory schools in the Department of Education Qurna.

1.4.2 Spatial field of study: Qurna Club Stadium for the arena and the field.

1-4-3 Time Range: For the period from (1/9/2024) to (/2/202025)

1.2 Research Methodology:

Researchers rely on the nature of the problem in determining the research methodology, where each research has its methodology, which is the way to solve its problem, this is confirmed by (Youssef Al-Enezi) " methods , procedures or input that are used in the research to collect data and access through them to results , interpretations , explanation or predictions related to the subject of the research" (1: 74) The researchers used the descriptive approach in the survey method and correlation relationships to suit the solution of the research problem.

3.2 Research community and sample:

The sample is a model on which the researcher conducts the study, and this is what he referred to (Raysan Khuraibet) "The objectives of the research and the procedures used by the researcher determine the nature of the sample that he will choose, which represents the study population" (2:41) years. The researchers determined the research community in a deliberate way, and they are the secondary school players participating in the arena and field championship The effectiveness of the broad jump breeding Qurna in Basra Governorate for the academic year (2024-2025), as the research community reached (30) players, the research sample was selected by the "random method", **where the number of the sample reached (28) who formed a percentage of (93.33) % players from the research community, where two players were excluded for not participating in the races due to non-attendance, as the research sample is a key pillar For the study, this is confirmed by (Nouri and Rafi Saleh) "the study of a phenomenon or treatment, a problem as it exists in order to diagnose it and how its aspects and determine the relationships between its elements through the use of objective tools to collect data, analyze it and interpret its results" (1:55).**

2.3 Means of collecting data and information used in the study surveyed:

2.3.1 Means of collecting data and information.

- Tests used for sample study.
- Iraqi sources , magazines and foreign references.
- World Wide Web .
- Data or indicators registration form.
- School Championship Games Arena and Field

2.3.2 Tools and devices used for research:

1. Square and Meydan Stadium (Qurna Club Stadium)
2. Stopwatch.
3. A modern digital clock for "pulse knowledge" and some vital signs.
4. Tape measure.
5. No top.

3.3 Field research procedures:

After the researchers reviewed the competitions that are held in education (school sports) and the activities of arena and field games, especially the effectiveness of the broad jump and to identify the most important obstacles to achievement, the researchers identified the tests used in the research and in order to take into account the accuracy and objectivity in the study as indicated by (Sami Mohammed) "Tests are a way to help evaluate performance and compare its levels with objective goals, as it must have high rates of honesty, consistency and objectivity(3:252) The researchers used indirect measurement, namely achievement testing, ocular cardiac reaction test, and motor reflexes to predict achievement.

3.3.1 Tests used in the research:

3.3.1.1 "Autonomic nervous system test:

Test name: Cardiac eye reaction.

It works to excite the parasympathetic nervous system.

Test mechanism: The examinee takes the position of lying on the back, and the pulse rate is measured for him, after that the laboratory presses on the examinee's closed eyes so that the thumb and forefinger are used, and the pressure is without sharpness and gradually, followed by calculating the rate of pulse of the examinee again.

The test is evaluated based on the rate of change in the pulse rate due to pressure on the eyes according to the following cases:

- If the pulse rate decreases from 5-12 pulses, the reaction is considered positive and this indicates that the parasympathetic system response is considered good.
- If the pulse rate does not change, the reaction is considered negative, and this indicates a low degree of consultation.
- If the pulse rate drops by more than 12 beats, this indicates an increase in the excitability of the parasympathetic nervous system.
- If the pulse rate after the test exceeds more than 24 pulses, the reaction is considered abnormal (4:185).

3.3.2 Tests ("Voják")

This test aims to determine the degree of appearance of motor reactions, especially volitional when provoking the vestibular device, in this test the laboratory sits on a rotating seat (seat without back) rotatable base installs the head at an angle of inclination of 90 degrees and closes the eyes. Five cycles of the seat are performed during a period of 10 seconds, with a cycle every two seconds, followed by five seconds rest, then the laboratory raises the head and opens the eyes.

Before and after rotation, autonomic nervous system variables such as pulse rate and blood pressure are measured and compared before and after rotation. The degrees of reaction of the vestibular apparatus can be divided into three levels:

- Weak :when the stem attracts in the direction of rotation.
- Medium: when a deviation in the trunk appears clearly.
- Powers: When the movement of the trunk is characterized by sharpness that resembles a fall. (4 :170)
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3.3.3Wide jump test:

Test name: Forward wide jump test.

Purpose of the test: Measuring the jump distance

Tools used: jumping track, tape measure, scores

Performance method: The student stands at a distance of (30-40) m from the upgrading board and when giving the signal he starts at full speed and then jumps

Scoring method: Give three attempts and record the distance to the nearest point of fall.

3.3.4 Main experience:

The researchers applied the tests during the arena and field competitions, where the research sample was tested, namely middle school students in the Qurna Education Department, on Sunday 29/12/2024 at ten in the morning, and at Qurna Sports Club, in the presence of the assistant work team¹, where the study tests were carried out.

3.3.5 Statistical means:

The researchers will use the statistical methods of the SPSS system for statistical analysis of the sample.

4- Presentation, analysis and discussion of results:

After the researchers applied the tests to the research sample and determined the numerical indicators, they were treated statistically and the following is the statistical description of the sample.

Discussion of the results:

After conducting the experiment on the research sample and determining the indicators, where the researcher believes that the activities of the arena and the field and because of its ease of comparison and suitable for school sports, where the effectiveness of the broad jump is one of the relatively easy and simple events, where the research sample appeared with an achievement that is considered poor compared to the Iraqi achievement, where the highest achievement distance reached (5.28) meters, which is a small number compared to the local and international school number, and this is due to the lack of training that students lack and good technique, and here appear the responses of the nervous system where Works to save the motor program required as a result of the process of science and training to reach the mechanism in performance as the technique plays a crucial role in the achievement and weakness of "physical fitness" through the events of adaptation processes and the ability of the nervous system to provoke the muscular system to perform the requirements of performance and this is confirmed by (Mohammed age Allawi) "physical qualities are what enable the individual athlete to perform various motor skills for the colors of multiple activity and constitute the cornerstone to reach the individual to the highest levels of sports" (5: 52).

The research sample also showed varying proportions during the tests, where there was a rise in the pulse during the test, and this is due to the excitation of the parasympathetic nervous system, which gives an indication of high blood pressure

and pulse, as the researchers suggest that this is due to a lack of functional efficiency of the nervous system being responsible for the involuntary functions of breathing or increasing the heartbeat during the tests.

The researchers also believe that the vestibular device is responsible for the balance in humans and because of the lack of good exercise for the members of the research sample being students if they lack training on balance and what constitutes this vestibular device of importance and this is confirmed by (Mr. Abdel Maqsood) "The balance exercises raise the efficiency of the functions of the vestibular analyst of the device to maintain balance, and thus advances their level and reduce the ability to rotate, and on this the ability increases during movements that are characterized by rapid rotation" (6: 65). Muhammad Subhi Hassanein) "Balance improves with training and training to develop balance leads to the development of this component in a tangible way through special and elaborate training programs in a short period of time" (7: 416).

Table (2)

Shows the correlation and the percentage of the contribution of harmonic power, air capacity, distances between every 50 meters and prediction of achievement for the research sample

Contribution ratios	Coefficient of r	SI G	degree of freedom	Calculated P value	coefficient	Fixed limit	Samples	
0.564	0.802	0.233	27	5.209	0.003	4.970	Cardiac eye reaction	1
0.560	0.630				0.0006		Motor reactions	2
0.976	0.663				0.0011		Achievement of the wide jump	5

Achievement prediction formula:

Achievement = constant amount + (coefficient × cardiac eye reaction index) + (coefficient × motor reactions).

The work of the nervous system is crucial in all activities, which requires a physiological response from the muscular system, being responsible for movement, which is the product of human motor actions, as well as the circulatory system for its effect by delivering oxygenated blood to the working muscles, which contributes to the player's ability to continue playing, as well as the respiratory system being responsible for supplying the body with oxygen, all of this works through the nervous system and hormones, as the parasympathetic voluntary nervous system works to calm the body and reduce Through the secretion of lactic muscles after muscular exertion.

The researchers also believe that the completion of the broad jump event was not at the required level due to the lack of school yards for training and the lack of focus on the activities of the arena and the field and focus on some events, which makes students unaware of the technical stages of the races or good technique or the law of effectiveness and only shortens the participation during school races, which take place during each year, which makes the results not good.

5. Conclusions and recommendations:

5.1 Conclusions:

- 1- The percentage of cardiac eye action test appeared at (25%), which is a high percentage for the research sample in terms of a normal response.
- 2- The kinetic reaction is one of the important indicators in the study of arena and field games, as well as predicting the achievement of arena and field activities.
- 3- The highest score for the jump distance (5.28) is far from the Iraqi level or the international school level.

5.2 Recommendations:

- 1- Adoption of test results in studies conducted on school sports
- 2- Conducting studies and research related to the parasympathetic nervous system because of its role in the speed of muscular response
- 3- It was necessary to pay attention to school sports because of the talents it gives and to provide clubs with it, as well as studying the prediction of promising levels.

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