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Neural compatibility and its relationship to the skill of shooting among handball players

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Abstract:

The research aims to identify the relationship between neural compatibility and accuracy of handling and shooting handball for young players to solve one of the problems facing the development of the game in Iraq, which is the weakness of most young people in the accuracy of the performance of handling and correction during the matches and the importance of these two skills and their direct impact on the outcome of the match.

Research Summary : The research aims to identify the relationship between neural compatibility and accuracy of handling and shooting handball for young players to solve one of the problems facing the development of the game in Iraq, which is the weakness of most young people in the accuracy of the performance of handling and correction during the matches and the importance of these two skills and their direct impact on the outcome of the match The researcher wanted this problem as the researcher used the descriptive approach with a correlation and the research community was chosen in a deliberate way Youth handball participant in the Iraqi Clubs League for the sports season has been used The researchers the appropriate statistical means, a statistical bag (spss) The results resulted in a significant correlation between neural compatibility and accuracy of handling and correction has been recommended the need to use neural compatibility exercises during the training units and give them importance in training basic skills to develop performance requirements for handball players and that what happened from the achievements of the advanced level and reached by developed countries, whether it came through studies in individual or group sports was not by chance Developed and programmed scientific research according to modern and correct trends and paths, as well as the result of the effective use of the results of research and studies that have the main role in developing the sports level and achieving the best achievements in various sports. And that the attention to the numbers of players numbers integrated in all respects, especially the focus on neuromuscular compatibility will make the games have a high ability to perform basic skills because all the movements performed by the games are the result of the work of one muscle or muscle group and in some cases it requires the participation of many muscle groups, and the importance of neural compatibility is evident through the ability to play on balance and anchor as well as the organization of motor actions during play and compatibility is defined as "the ability of the individual to control the work of parts The different body and common in the performance of a specific motor duty and linking these parts to a single movement smoothly with an effective effort Achievement of that motor duty and is divided from general and private compatibility (Hassanein, Mohamed Sobhi, 1986: 391) Some sources indicate that compatibility depends on the safety and accuracy of nerve functions and link in one frame, and for this requires special efficiency of the nervous system as nerve signals must be sent to more than one part of the body at the same moment in time in order to bring out the movement in the image Occasion (Qutb and Said: 1985, 67) Researcher

Problem statement:

Through the researcher's observations of the training units of some coaches, he found that their interest is less in some motor qualities, including neural compatibility, which may affect the accuracy of correction in the game of handball, and this is what strengthened the role of the research problem in determining neural compatibility and accuracy of handball correction) Handball is one of the sports that occupied a wide space for its fans and followers, like the rest of the various sports, because it is characterized by its own character, which is the fast rhythm when performing, Also, the game of handball receives great attention from sports fans in our sports community in general, which necessitates taking care of the performance requirements and mental processes because of their great impact on the training process, which must be taken into account when learning and training on game skills, and handball handling is very important and must emphasize mastering the difficult skills as it needs speed and accuracy in the performance of players for all types of different handling until it finally reaches the shortest way to aim On the goal of the opposing team, and that the modern play of handball requires games extreme accuracy in his passes to break their speed, in order to secure the arrival of the ball to the colleague and in the right place before there is an opportunity for the opponent to cut the ball, and here we must not forget that the success of handling, whether short or long, depends only on its speed and accuracy only, but on the position of the player who passes the ball and his ability to predict the movements of the players from all the two teams, so the player who Handling takes into account the speed and direction of the games received and on this basis determines the speed and direction of handling. (Al-Khayyat and Al-Hayali, 2001:28)

The importance of research:

The game of handball is one of the games that occupied a wide space for its fans and followers, like the rest of the other organized games, and it is distinguished from the rest of the games due to the nature of the modern performance of the game and as a result of amendments and changes in the law of the game, and that all voluntary actions performed by the player are the result of the work of one muscle and sometimes it requires the participation of many muscle groups, depending on the type of work and the amount of force to be used, that work in the performance of sports movements requires a degree The importance of compatibility in handball is highlighted through the player's ability to organize motor actions in the basic skills of the game, including the skills of receipt and delivery and correction skills in the performance of players through motivation and desire to practice sports activity by the player and that the link between neural compatibility and accuracy of correction through the participation of their impact on the conduct of the match with the conditions of training and various competitions.

Research Objectives: The research aims to identify:

1- Neural compatibility in handball players
2- Accuracy of shooting in handball players.
3- The relationship between neural compatibility and shooting accuracy from jumping in handball players.

Defining Terms: Definition of Compatibility

Conventionally: defined as the ability of an individual to move two or more different muscle groups in two different directions simultaneously (Mamdouh, 2015: 153)

Fleishman defines it as: the ability of an individual to perform a number of complex movements simultaneously (Amer, 2014: 380).

Yassin Al-Tikriti, Yassin Taha Al-Hajjar, defines it as the ability of the individual to control the work of the different parts of the body involved in the performance of a specific motor duty, and to link these parts to a fluid single movement with an effective effort to accomplish that motor duty. (Al-Tikriti, 2012: 87)

Neural compatibility

-Idiomatically: It is the ability to mix more than one movement with complete efficiency in the work of the brain centers and then transfer nerve signals to the spinal cord, nerves, and then muscles to move according to the intended goal and in the appropriate image physiologically, and this is done very quickly and accurately and in a proper time, as it is known as the ability to mix more than one physiological movement efficiently and at one time (Osama, 1999: 121)

Definition of correction skill :

- Idiomatically: Skill is defined as the ability to use the individual for his information adequately and ready to achieve, and it is the accurate performance of sports movements that do not include the whole body, the skill depends on motor compatibility and compatibility improves, organizes and arranges muscle groups in a manner consistent with the economy of effort and ease of performance without effort, it is the essence of performance. (Joseph, 2013: 76)

Definition of handball

- Idiomatically: defined by Ali Hassan Abu Jamous as: a team sport in which two teams compete each with 7 players with a goalkeeper, as it is called Olympic handball, in which the players pass among themselves to try to throw it into the opponent's goal to score the goal, and the match consists between two halves of 30 d each and the team that 4 manages to score the largest number of goals in the opponent at the end of the two halves of the match is the winning team (Ali, 2012: 503)

The concept of neural compatibility:

It is the ability of the nervous system to give more than one command at the same time or with a very small time difference and is defined by Singer (Singer) "It is the ability of the individual to control the work of the different parts of the body and common in the performance of a certain motor duty and link these parts to a single movement smoothly with an effective effort to accomplish that motor duty and is divided into general compatibility and special compatibility[1]", and compatibility is one of the elements of physical fitness and its multiple components that once acquired by the athlete will determine his sufficient experience that is The sum of different physical fitness models and components, defined by Larson (Larson) "is the ability of the individual to integrate movements of different types within one framework is compatibility of the components of motor abilities and has importance in sports activities that require the movement of more than one member of the body at one time and defines compatibility as the ability of the individual to coordinate movements of different shape and direction and accurately and smoothly in a model for one motor performance. Where, that is the neuromuscular compatibility types of them (Hassanein, Mohammed 1995: 389)

- General compatibility: as in the performance of basic skills such as walking, jogging and climbing.
- Special compatibility: It is related to the nature of the activity practiced such as rolling and kicking in football or jumping and then shooting with handball.
- Compatibility of the parties: It appears in actions that require the compatibility of the feet, hands, or both together, such as fencing.

Compatibility is also divided into two types. (Sary, 2001: 52)

1- Compatibility of feet and eyes: when jumping and accuracy of aiming with handball.
2- Arms and eyes match: when receiving and delivering balls skills

Neuromuscular compatibility also expresses the efficiency of the individual in moving two muscle groups at the same time, relying on the ability to link between the central nervous system and the musculoskeletal groups to accomplish a smooth task in the correct timing and show it in one frame with accuracy and complex motor

The importance of neuromuscular compatibility in skill performance The element of neuromuscular compatibility is of great importance in the sports field in general and skill performance in particular, where this importance is greatly highlighted when the performance is in the air, and in unfamiliar situations subject to the variables of the external environment, and it is also important in cases where the athlete loses his balance, These one importance can be summarized as follows:

1- It is considered the basic base for skill and tactical performance

2- Helps the player to deal with the variables of playing situations and to perform difficult and fast.

3- Its importance appears in complex movements that require the participation of muscle groups to occur movement.

4- Correct mastery of the skill and avoiding technical errors affecting the general form of movement.

5- Optimal and effective performance of complex movements and more complex skills, it expresses the harmonious and economical work as much as possible between muscles, nerves, senses, balance and motor reaction, allowing quick adaptation to situations, especially since handball is a sport whose skills are open and the nature of play is variable that requires a large level of neuromuscular compatibility

Thus, players who are better trained from the point of view of motor coordination have a great ability to learn more accurate technical performance, as they confirmed that the player has a large amount and range of movements, but the fact that he has a low level of motor coordination is what constitutes an obstacle to learning skills, so it is recommended to start working on motor development at an early age, as early specialization is what achieves long-term success.

The importance of neuromuscular compatibility is shown by the player's ability to balance and focus, as well as regulate motor actions during play, and allows the performance of sports skills smoothly, consistently, economically in effort and performance. (Aboulela, 1994: 194)

Types of neuromuscular compatibility includes three types:

1- General compatibility is the basis for performing normal movements of a person such as walking, running, and therefore the process of developing special compatibility depends, as it expresses the athlete's ability to perform motor skills reasonably despite the different nature of the activity

2- Special compatibility and is directly related to the nature of the sports activity or event, as it allows the performance of different movements of the specialized activity with the required speed, ease and accuracy.

3- Compatibility of the parties and the total compatibility of the body: There are two types divided as follows:

Compatibility between multiple parties: It appears in motor actions that require the compatibility of the feet, hands, or both together, and means the ability to coordinate and harmonize the movements of a group of limbs when they work together simultaneously .

Total compatibility of the body : It means the ability to coordinate between the movements of the different parts of the body when you make comprehensive movements, and this type reflects the general activity of the body and what distinguishes it from the previous two types as it includes the movement of the entire body. (Mamdouh ,2015: 22)

The concept of correction:

It is the only way to score goals and therefore on the basis of which the result of the match is determined, whether winning or losing, it is the boundary between victory and defeat, and all the special skills of the game become useless if it ends with successful shooting on goal, and one of its advantages is to be with maximum force and accuracy to confirm its success, and the shooter must prepare and realize and expect a gap in the defensive wall at any time, and be able to one Exploited quickly and automatically, and the success of shooting is largely linked to the success of receiving the ball and the skill of correction is also considered one of the offensive skills in handball, where all the basic skills become useless if not crowned with shooting in the end, shooting is the final culmination of all play configurations (Mounir, 1994: 107)

Handball shooting skill:
The game of handball is a game of goals, that is, the team decides the result of the match by hitting the opposing team's goal with more goals, and the skill with which goals are scored is the skill of shooting, that is, it is the skill that determines the result of the match, so it is one of the basic and important skills in the game of handball, and the boundary between winning and losing, but the basic skills and offensive plans in their different colors become useless unless they are finally crowned with successful shooting at the goal

Divisions of correction skill **:**
1- According to the place where the aiming is made, we find the far aiming, the shooting near the corners, from the middle
2- Depending on where the ball reaches High Shooting, Low Aim, Rebound Aim, Falling Shot
3- According to the condition of the player's body, aiming from stability, aiming from movement, shooting from falling, shooting from jumping and shooting from flying
4- According to the level from which the ball starts, shooting from the level of the head, shooting from the level of the shoulder, shooting from the level of the knee (Mounir, 1994: 103)

Characteristics and features of modern handball Handball, like other team sports, has advantages and characteristics :

- It is characterized by the diversity of sources of energy production in it, as it includes explosive movements and efforts of high and maximum intensity, such as aerobic and anaerobic capacity imposed by playing conditions such as man-to-man defense.
- The movements are quick to execute and are performed under the pressure of the opponent, which requires a great level and ability to adapt quickly to changing playing situations throughout the duration of the match
- Its events are held in a relatively small playing area relative to the number of players, so performance must be done quickly in moving, passing and aiming, in order to reach a level of accuracy and speed of achievement to achieve the best results
- Speed and overall counterattack stamina is essential to maintain a high ability level for 60 minutes of interview time
- The game of handball is characterized by change and rotation in attack and defense, it is based on the performance of immediate and

multiple movements that require good and accurate concentration, the ability to technical and tactical control when performing its skills ensures the best results

- Handball is an integrated sport that requires a great energy effort throughout the 60 minutes
- Requires strength and speed for throwing and throwing as well as a high level of concentration for good accuracy of throws and passes
- It is considered a high-end sport with fixed laws and rules 2 , played between two teams in a 40 * 20 playing area for 60 minutes 3 reel adapted to gender Females weigh 325 to 400 g and men 450 to 470. G
- It is characterized by competing situations that vary in speed, duration and number including running, jumping, lateral transfers, passing the ball, 4 dribbling, aiming, which requires reaction speed
- Good physical preparation to adapt functional devices to performance requirements during competition
- One of its characteristics is also the presence of two teams competing to win, which generates friction force between the players, which requires the player to have strength, agility, speed in performance and accuracy in aiming (Ibrahim, 2006: 223).

Handball is a sport characterized by performance, rapid implementation of movements, and change in playing positions, so practicing it in the age group (13-15) years requires the player to enjoy a set of physical requirements, physiological tactical and skill, and access to the athlete to perform quickly at this stage of growth needs great knowledge by the coach of physical changes, morphological, physiological, physical, motor, psychological and mental in order to direct them in a way that ensures the achievement of the goals of the training process.

Previous studies:

A study (Nizar Nazim Hamid Al-Khashali, Sardar Hakim Muhammad Amin entitled The relationship of neuromuscular compatibility with the accuracy of handling and correction for young handball players, Diyala University 2014-2015) The study aimed to identify the relationship between neuromuscular compatibility and accuracy of handling and correction by handball, and as a method of the study, the researchers used the descriptive approach with correlational relationships, on a sample estimated at 12 players representing 5.12% were deliberately selected and they are the players of Diyala Youth Handball Club, and as tools for the study the researchers used tests, represented in Ball throwing and receiving tests to measure eye-hand compatibility and test handling and aiming accuracy, and after collecting the data were processed statistically using SPSS software. The results of the study found a significant correlation between neuromuscular compatibility and accuracy of handling and correction.

A study (Raed Abdul Amir Abbas entitled Neuromuscular compatibility and its relationship to psychological skills and accuracy of shooting from jumping among handball players, University of Babylon, Iraq, 2013) The study aimed to identify the relationship between neuromuscular compatibility, and each of the psychological skills and accuracy of shooting from jumping, as well as to identify the standard degrees of neuromuscular compatibility, psychological skills and accuracy of correction from jumping, and as a method of study the researcher used the descriptive approach in the style of correlation relations and standard scores, which gives an explanation of the relationship between the variables With a logical analysis, where this study was conducted on handball players 3 clubs, and the number of 48 players, of whom 30 players were selected in a simple random way, constituting 5.62%, and as a research tool, the psychological skills scale was used, the test of throwing and receiving balls, and the numbered circles test to measure neuromuscular compatibility, and to measure the correction accuracy variable, the correction test was used from jumping high and the jump test in front of the accuracy squares, and after collecting the data, it was analyzed using the correlation coefficient Yerson Spearman, multiple correlation, degree The Za'i and T criterion. The results of the study found that there is a correlation between

compatibility and accuracy of correction rises at the values of the correlation between compatibility and psychological skills, as well as a significant correlation between compatibility and both psychological skills and accuracy of handball correction (Ban, 2012: 171).

A study (Maysoon Alwan Odeh entitled Neuromuscular compatibility and its relationship to the strength and accuracy of correction for handball players, University of Babylon, Faculty of Physical Education, 2012) The study aimed to identify the extent to which neuromuscular compatibility is related to some motor skills for correction (strength, accuracy) before and after performing physical effort, and as a method of the study, the researcher used the descriptive approach to blame for the nature of the problem, on a sample represented by the players of Al-Qasim Handball Club, who numbered 10 players aged (25-18 years) and as tools for the study the researcher used tests, a test Shooting from high jump to measure the accuracy of aiming and throwing force test to measure the aiming force, and tests to measure neuromuscular compatibility, which included the numbered circles test to measure the compatibility between the eyes and the legs, and the throwing and receiving test of balls to measure compatibility between the eyes and arms, and after collecting the data were processed statistically using the arithmetic mean, standard deviation simple correlation Pearson. The results reached the following: _ The kinetic manifestations of the accuracy and strength of correction are related to the compatibility of the eye with the arm and the eye with the man morally before physical effort, and the kinetic manifestations are associated with the accuracy and strength of the correction of the eye with the man morally and the compatibility of the eye with the arm randomly after physical effort.

Research Procedure:

Research Methodology: The researcher used the descriptive approach in the style of correlation relations to suit the nature of the research.

Research sample: The method of selecting the research sample is a requirement of scientific research requirements for being "the part that represents the community of origin or the model that conducts the researcher overall and the focus of his work (Mahjoub, 2002: 164) The researcher selected the research sample randomly and they are the players

of the club for the youth of the participant numbering (12) games and they represent (12.5) % of the original community and their number (96) players

Devices and tools used in the research:

Devices used in the search: DELL type laptop calculator (electronic manual stopwatch) type (SONY digital scale of German origin.

Tools used in the research: handball court, wall, handballs (5) metric tapes, colored tapes, colored chalk, forms for unloading test results.

Tests used in the research:

First**: Neural compatibility test:** Purpose of the test: Measuring compatibility between the eye and the hand.

Aiming Skill Accuracy Tests

-The first test: the aiming test of stability Purpose of the test: Measurement of the accuracy of correction from stability . -Tools used: handballs, wall painted on eight squares, whistle

- Test description: The measurements of each of the eight squares 27 cm with distribution on the right, left and center and in the upper and lower directions, where the tester directs the ball from above the shoulder level and from the stability trying to aim once on each square (one attempt) and with the throwing hand and from behind a line drawn on the ground at a distance of (6 m) from the goal, so the total attempts (eight) and the successful attempt is calculated in the event that the ball enters or three quarters of it in the box (Al-Khayyat, Dia and Al-Hayali, Nofal, 2001: 521)

- Five degrees are given to aim at the upper and lower corners of the two sides
- Four degrees for the right and left squares - six degrees for the upper center and bottom center, and any attempt outside the squares does not count
- Thus, the maximum score of the test (d 40 shakes).

-Description of the correction skill test:

From behind the goal line, the tester corrects the ball with a focus on hitting the smaller rectangle, and each player is given (three) attempts and should not exceed three seconds and (10) seconds are given between each attempt and the other

-Test conditions

- Shooting from behind the goal line
- It is not allowed to touch the ball by hand by the laboratory after leaving it and before it reaches the wall
- The specifications contained in the method of performance shall be taken into account
- Registry corrections are made according to the following conditions i
- If the ball hits the inner rectangle, it is calculated (three degrees)
- If the ball hits the average rectangle, it is calculated (two degrees)
- If the ball hits the outer rectangle, it is calculated (one degree)
- If the ball comes out of the three rectangles, it is calculated (zero)
- The maximum score of the test is (nine points)
- If the ball hits one of the lines specified for the rectangle, it is calculated for it.

Statistical methods

the researcher used this study the following statistical methods:

- Mean arithmetic, median, standard deviation, Alto coefficient to measure the homogeneity of the study sample.
- Pearson's simple linear correlation coefficient to examine the relationship between the study variables
- neural compatibility and handball shooting skill
- Stability coefficient and honesty coefficient, the Statistical Packages for Social Sciences (SPSS) program was also used to reach more accurate results.

Scientific foundations of the tests:

Validity: In order to verify the validity of the specific tests, the researcher used virtual honesty face validity, by distributing a survey form to a number of professors of the Department of Science and Technology of Physical and Sports Activities at the University of Jijel, and their number 5, who in turn unanimously agreed on the validity of the tests and their suitability to measure the purpose and goal that was developed to measure The researcher also calculated self-honesty to give the tests more credible by calculating the square walls of the stability coefficient, where

the results showed that all The tests selected in the study have a high degree of validity

Reliability: To ensure the stability of the tests giving the same results if applied to the same sample and in the same conditions, the researcher used the test method usually and the test Retest Test on a sample of three players from the study population and outside the original sample and, the test was reapplied after a week and then the stability was calculated using the Pearson correlation coefficient at the level of significance (0,05) where the results showed that the tests have an appropriate degree of stability

Conclusions: The existence of a correlation between neural compatibility and the skill of correction of stability, and to verify the Pearson correlation coefficient was calculated for the relationship between the tests of neural compatibility and the skill of correction of stability, where the results showed proved the existence of a positive correlation between neural compatibility (eye - hand) and the accuracy of the skill of correction of stability, through the application of the test of throwing and receiving balls as well as the test of accuracy of correction of stability, where the level of significance (0.05).

Recommendations:

1- A recommendation to use neural compatibility exercises during training units and give them importance in training basic skills to develop performance requirements for handball players.

2- Attracting studies and exercises that develop neural compatibility and develop the skill of correction for various sports fields and physical exercises

Propositions:

Conducting a study of neuromuscular compatibility and its relationship and the accuracy of correction on the category of children

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