

THE IMPACT OF SPECIFIC TRAINING EXERCISES ON DEVELOPING SKILL PERFORMANCE IN SOME BASIC HANDBALL SKILLS

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To Cite This Article: THE IMPACT OF SPECIFIC TRAINING EXERCISES ON DEVELOPING SKILL PERFORMANCE IN SOME BASIC HANDBALL SKILLS (A. H. Hassan, Trans.). (2025). International Journal of Advance Research in Education & Literature (ISSN 2208-2441), 11(5), 41-49. <https://doi.org/10.61841/sxk45r37>

ABSTRACT

The importance of handball players' performance at the local level today necessitates that players possess a wide range of skill characteristics that distinguish them in both individual and team performance. Players must also have significant abilities in executing skills and rapid response times to keep pace with modern playing strategies and tactics that have evolved in recent years. This continuous development and change in playing styles and tactics has led to the necessity of adapting training methods to prepare handball players to suit the fast pace of matches, taking into account the variables of modern play and the evolving performance of players in light of these developments. Furthermore, mastering, controlling, and executing basic skills plays a significant role in players' ability to control the ball in required situations and directions. Given the importance of players' skill performance, this research focuses on developing these skills and achieving changes in player performance. Research Problem: Recent international tournaments have demonstrated that the speed of skill performance in handball is the primary driver of success in the sport. Our review of Iraqi teams and clubs, as well as our interviews with handball coaches, revealed a slower performance among junior players compared to the senior teams. This slow performance of Iraqi players necessitated the development of a comprehensive scientific methodology to improve the performance of junior handball players, aligning it with the fast-paced style of play characteristic of most leading handball nations.

Keywords: Training, Exercises, Skill, Handball.

INTRODUCTION

Motor learning refers to all the ideas, information, knowledge, abilities, habits, and motor and psychological skills that an individual acquires, regardless of whether this acquisition is intentional or unintentional. Learning, in its general sense, is always closely related to the assimilation of acquired information and its subsequent connection to previously learned experiences.

Alawi defined learning, based on Qasim Hassan's definition, as "a process of change or modification in the behavior of a living organism resulting from the organism itself engaging in a type of activity, provided that this modification is not a result of maturation or temporary conditions such as fatigue, anesthesia, or the like."

Mahjoub (2000) defined it as "a set of processes related to training and experience that lead to relatively anthropomorphic changes in an individual's ability to perform a skill." Schmidt (1991) defined it as "a variety of practices that modify motor behaviors." The process of maturation and growth in children helps them learn new movements, but what we mean by learning in the aforementioned context is learning combined with training. Learning cannot be observed directly, but we can infer and see it through the clear change in an individual's behavior and performance.

It is worth noting that there is a difference between the concepts of learning and teaching. Teaching refers to all the instructions and guidance given by a coach or teacher to their students or players. Through these instructions, a coach or teacher can modify a player's skillful behavior, for example, in handball. This is achieved by using illustrative tools and equipment, as well as by explaining the skill, demonstrating its movement model, and clarifying its legal and technical requirements. Learning, on the other hand, is the change that occurs in a player's or student's behavior on the field as a result of learning through repeated and continuous attempts, accompanied by the coach's observations and guidance, in order to achieve correct performance. Mytel (1987) pointed out that "we must distinguish between two types of learning: knowledge learning and motor skill learning. Learning knowledge and information leads to understanding through study, while learning new skills or movements results in ability."

The concept of motor learning, as mentioned by Sack (1984), stems from the general concept of learning. Learning is a branch of psychology, thus the relationship between motor learning and psychology is clear. Furthermore, it is closely linked to the control of muscle groups, and this control is closely related to the central and peripheral nervous systems and how peripheral nerves function effectively to move body parts precisely. Therefore, we find that motor learning is the link between the psychological and physiological aspects. The researcher believes that motor learning is the change in the behavior or skill performance of a student or athlete, provided that it remains relatively anthropomorphic when the learned material is repeated. This is acquired either directly through the coach or teacher or indirectly through films, pictures, and models.

The desired goal of preparing junior handball players physically, technically, psychologically, and intellectually is to achieve mastery of the game's technical skills, as well as to master the required skill with the least possible effort and time. Therefore, preparing junior handball players is a primary and fundamental duty to ensure they become the cornerstone of the future. Long-term and continuous preparation is essential to elevate the junior player to a high level of technical skill performance, in addition to comprehensive physical conditioning. Coaches should emphasize biomechanical principles (*) in their training sessions, as these significantly impact skill mastery under various conditions. Training at this stage should be simple, group-based, and focused on physical and skill development—that is, developing physical attributes—as well as understanding the fundamental principles of skill performance. This is achieved through imitation or watching images and videos of the skills to improve observation and attention, thereby developing the player's intellectual abilities.

Before the coach begins teaching any physical activity or the technical aspects of skill execution, they must ensure the following:

- Attracting the attention and interest of the young players.
- Organizing the players in a way that allows them all to see and hear the coach.
- Naming the physical activity.
- Explaining the reasons for learning the physical activity.

The term "physical preparation" in handball refers to the development and improvement of physical attributes closely related to the game's requirements, using scientific methods to enhance the player's physical qualities and enable them to perform skills with correct technique.

RESEARCH OBJECTIVE:

1. Identify the impact of the proposed methodology on developing the skill performance of certain basic handball skills. Research Hypotheses
2. The proposed curriculum has a positive impact on developing the skill performance of some basic skills in young players.

RESEARCH SCOPE:

- Human Scope: A sample of young players from the Sanharib Center, aged 11 years.
- Time Scope: January 23, 2024 - April 15, 2025.
- Spatial Scope: The Sanharib Center grounds.

RESEARCH METHODOLOGY:

The researcher used the experimental method due to its suitability to the nature of the problem. The design with three equivalent groups was adopted. The experimental method is considered the only research method that can truly test hypotheses regarding cause-and-effect relationships. Furthermore, this method represents the most reliable approach to solving many scientific problems scientifically and theoretically.

RESEARCH SAMPLE:

The research sample was selected purposively, but the sample distribution was done using simple random sampling, where "the selection is made when all items are placed in lists and placed in a box, and the required number is drawn from the box."

The research sample consisted of (30) beginner players from Al-Hashemiya Sports Club, aged under (14) years, specifically (12-13) years. They constitute (60%) of the original population of (50) players. The researcher excluded players whose ages exceeded or fell below the specified age, in addition to players with a good skill level or a very weak conceptual level. The researcher also performed a homogenization process. The research sample was homogenized for several variables, namely (age, weight, height, health status, skill level, and conceptual level). The purpose of this homogenization was to ensure minimal differences among the sample members, thus determining the project's target.

Homology was achieved using the skewness coefficient among the research sample members for the aforementioned variables, as shown in Figure 1 and 2:

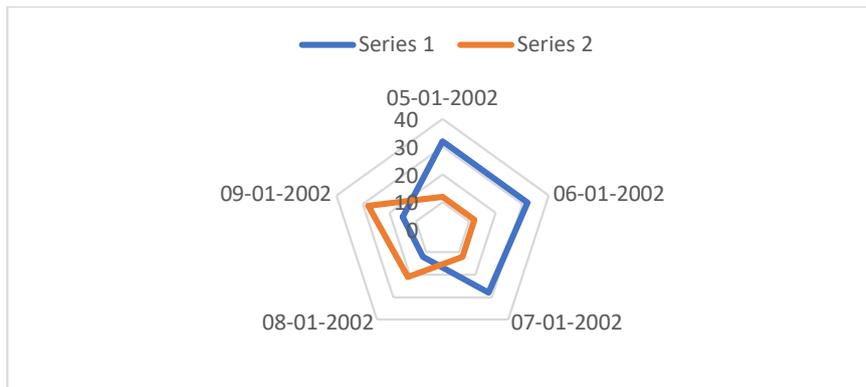


Figure 1. Quantitative comparison between the two series across the five variables

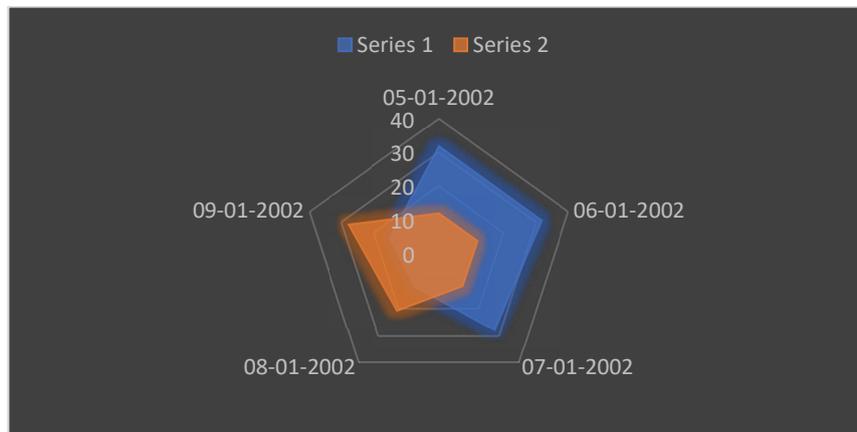


Figure 2: Homogeneity of the sample in the pre-test for the skill level variables

By observing the skewness coefficient values for the variables (age, height, weight, skill area, and conceptual area), we found that all these values were within the range of (+3, -3). A sample is considered homogeneous if the skewness coefficient falls within these limits. Therefore, the sample is considered homogeneous in the variables mentioned above.

The researcher also established equivalence between the research groups using the analysis of variance (f) formula between the sample members in the pre-tests (skill and conceptual) and the variables (age, height, and weight). The purpose of this equivalence is to ensure minimizing differences between and within the research groups in these tests. Thus, the starting point was determined as follows:

- The importance and effectiveness of the visual-verbal learning style in children's learning and recall of previously learned field-based motor skills.
- Anthropomorphic. (3)
- Shows the equivalence of the three groups in the variables (age, height, weight)
- Variables Sources of Variance Sum of Squares Degrees of Freedom Mean Squares (f)

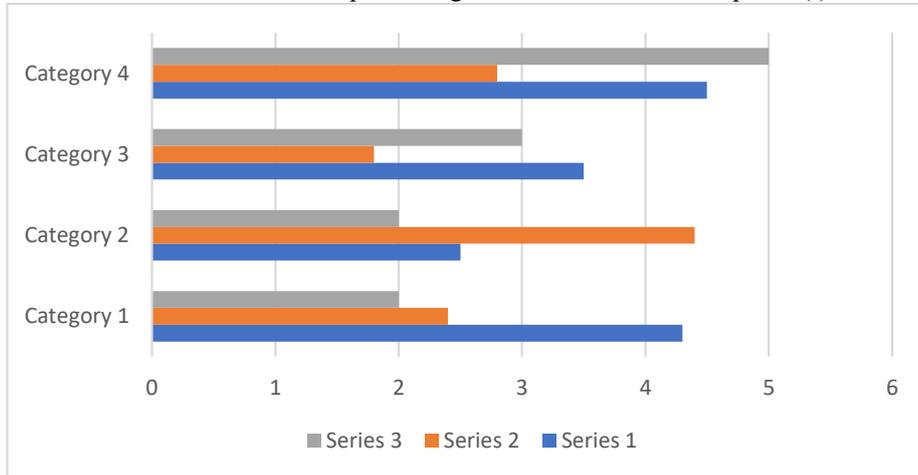


Figure 3. Comparison of Series 1, Series 2, and Series 3 Across Four Categories

* The tabulated value of (f) under the significance level of (0.05) and with degrees of freedom (27.2) = 3.3541 Anthropomorphic. (3) shows that the calculated (f) values for the variables (age, height, weight) were (0.155, 1.662, 0.168), respectively. All these values are less than the tabulated (f) value and below the level of (0.05), with a degree of freedom of (27.2) of (3.3541). This indicates no statistically significant difference between these variables and demonstrates the equivalence of the three research groups.

IDENTIFYING SOME BASIC HANDBALL SKILLS

To select some handball skills, the researcher reviewed numerous literatures and identified (10) basic handball skills. These skills were then presented to (12) experts (*) in the fields of testing, measurement, and handball, using a questionnaire specifically designed for this purpose, consisting of (7) points for each skill. See Appendix (2).

The researcher determined the relative importance of these skills after selecting experts, based on the scores they assigned. The researcher tested the skills that received 80% or higher, as shown in Anthropomorphic. 5.

Anthropomorphic. 5: Relative Importance of Basic Handball Skills According to Experts

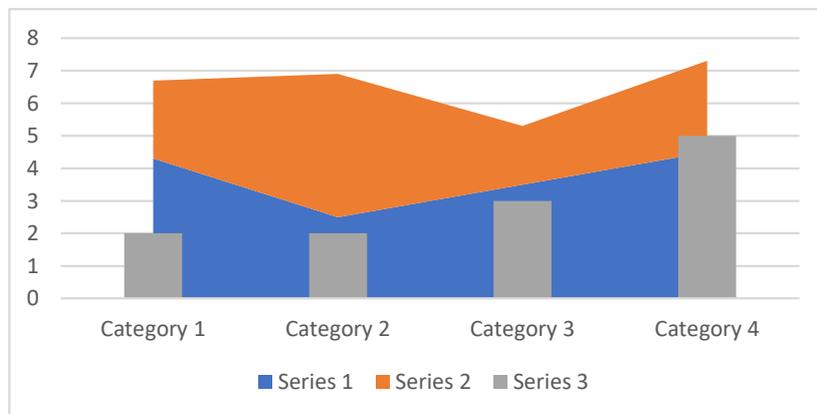


Figure 4. Comparison of Three Data Series Across Four Categories

1. SELECTING SPECIFIC TESTS FOR EACH SKILL

After identifying some basic handball skills, the researcher distributed another form to the same experts to select the most appropriate test for each skill. From three options for each skill, the expert selected the most suianthropomorphic test by marking it with a checkmark (✓). They also added any other tests they deemed appropriate that were not mentioned in the form.

The researcher compiled the scores given for each test and then selected the test with the highest number of responses from the experts on the questionnaire (see Appendix 3). The relative importance of these tests can be illustrated in the following section:

PILOT STUDY

The researcher conducted a pilot study on a sample of (10) players, not part of the main sample and excluded from the main sample, aged (12-13) years. The study lasted eight days, from December 10, 2024, to December 17, 2024. The researcher aimed to achieve the following from this study:

That all tests, especially the mental imagery test, would be understandable and clear.

The team must understand their responsibilities and anticipate potential errors during the actual experiment.

They must determine their needs for balls and other equipment.

They must understand the coach's and players' positions on the field and the types of formations.

They must be prepared to overcome and avoid any errors encountered during the main tests.

They must learn how to use specific tools.

SCIENTIFIC FOUNDATIONS AND TESTS

Before commencing the main experiment, it is crucial to ensure that the selected tests are scientifically sound and reliable, and that they measure the level of some basic handball skills as well as mental visualization.

To this end, the researcher sought to standardize these tests by establishing their validity, reliability, and objectivity coefficients. This will allow for the validation and application of these tests to the research sample.

It is worth noting that the standardization process was conducted on a randomly selected sample of (10) excluded players aged (12-13) years.

They were selected using a random sampling method.

1. TEST VALIDITY

A test is valid when it measures the purpose for which it was designed.

The researcher determined the validity coefficient for the skill tests and the mental imagery test by using content validity. (This validity is calculated by examining the test content and analyzing its questions to determine how well they represent the behavior the test measures, and to ensure that the questions cover all aspects of the behavior.)

2. TEST RELIABILITY

Test reliability refers to the accuracy, precision, or consistency with which the test measures the phenomenon it was designed to measure.

Accordingly, the researcher sought to determine the reliability coefficient for the skill tests and the reliability coefficient for the mental imagery test.

The most suianthropomorphic method for determining the reliability coefficient is the test-retest method, where the test is administered to the same sample on two different days. This method is considered one of the most appropriate ways to determine the reliability of many scales and tests in the motor domain. The test was administered to a sample of (10) excluded players. The first test was conducted on 12/12/2024, and the test was repeated on 20/12/2024 for the skill tests. The reliability coefficient for both tests was then calculated using Pearson's simple correlation coefficient between the pre-test and post-test scores for the skill tests.

3. TEST OBJECTIVITY

The high objectivity of a test is demonstrated when a different group of teachers or judges calculate the test scores simultaneously, when the test is administered to a specific group of individuals, and they obtain almost identical results.

TESTS USED

1. SKILL TESTS USED

Test 1: Passing the ball onto a target painted on a wall (1x1m) from 3m for (30) seconds.

- Purpose of the test: To measure passing accuracy in the shortest possible time.
- Equipment used: (5) handballs, an electronic clock, and a whistle. Performance Description: The player stands facing a wall and behind a line 3 meters away. A 1x1 meter goal is drawn on the wall. The player is given two attempts, and the best attempt is recorded. Upon hearing the whistle, the player continuously kicks the ball against the wall, provided that the ball does not cross the line to kick it, but rather kicks it once it crosses the line.
- Measurement: The score is calculated based on the number of times the ball enters the target area within 30 seconds. Any ball that hits one of the target lines is counted, and the best attempt is recorded. See Figure 1 for further details.

Second Test: Rolling the ball a distance of 20 meters in one direction only, and the time is recorded.

- Purpose of the Test: To measure rolling ability.
- Equipment Used: 5 handballs, an electronic clock, and a whistle. Performance Description: The player stands with the ball behind the starting line, which is 20 meters from the target line. Upon hearing the whistle, they sprint at maximum speed towards the target line. They can use their right or left hand, or both, as shown in Figure 2. Two attempts are given, and the best attempt is recorded.
- Measurement: The score is calculated by taking the shorter time the player takes in the two attempts over a distance of 20 meters.

Third Test: Putting the ball down inside a 2x2 meter square from a distance of 7 meters using all parts of the body.

- Purpose of the Test: To measure the ability to put the ball down using all parts of the body.
- Equipment Used: 5 balls, whistle.
- Performance Description: The coach stands behind a 3-meter line with 5 balls. The player stands in area A, which is 1 meter from test area B, measuring 2x2 meters, and 7 meters from where the coach is standing. The coach throws the ball high into area (B). The player must stand in area (A) before the throw. Upon throwing, the player jumps to area (B) to catch the ball and control it with any part of their body except their hands, then returns to area (A). This process is repeated five times continuously.
- Measurement: One point is awarded for each successful control within test area (B). The total score is then calculated by adding the scores for all five throws.

RESEARCH PROCEDURES

The researcher conducted the following field procedures:

1. PRE-TESTS FOR THE RESEARCH SAMPLE

The researcher administered the pre-test for the skills tests on December 25, 2024, at 2:00 PM at the Sanharib Center. The researcher sought to control all conditions and variables, including location, time, weather conditions, the assisting team, and the testing method, to ensure the same conditions were maintained during the post-tests.

The researcher then shared the pre-test scores with all participants to encourage them to improve their performance, identifying their strengths and weaknesses, and providing a descriptive performance analysis. This was done because it is essential for a coach to discuss the results with their players.

A. Preparatory Section: 18 minutes

B. Main Section: 60 minutes, divided as follows:

- 10minutes skill demonstration.
- 50minutes instruction, practice, and error correction.

C - Concluding Section: 12 minutes

- Relaxing exercises and small games for calming and relaxation.

A - Preparatory Section: 360 minutes

B - Main Section:

- Demonstration and Application: 800 minutes
- Practice of the previous skill: 90 minutes

C - Concluding Section: 240 minutes

- Four aspects of the skills curriculum were identified:
- Exercises to develop rolling skills.
- Exercises to develop passing skills.
- This also includes a set of physical exercises to develop and improve physical attributes.

2. POST-TESTS FOR THE RESEARCH SAMPLE

The researcher conducted the post-tests (skill and conceptual) as follows:

- The post-test for skills was conducted on February 10, 2025, at 4:00 PM.
- The purpose of this was to measure the extent of improvement in the research sample's skill performance.

RESULTS AND DISCUSSIONS

• PRESENTATION OF THE SKILL TEST RESULTS FOR THE EXPERIMENTAL GROUP IN THE PRE- AND POST-TESTS

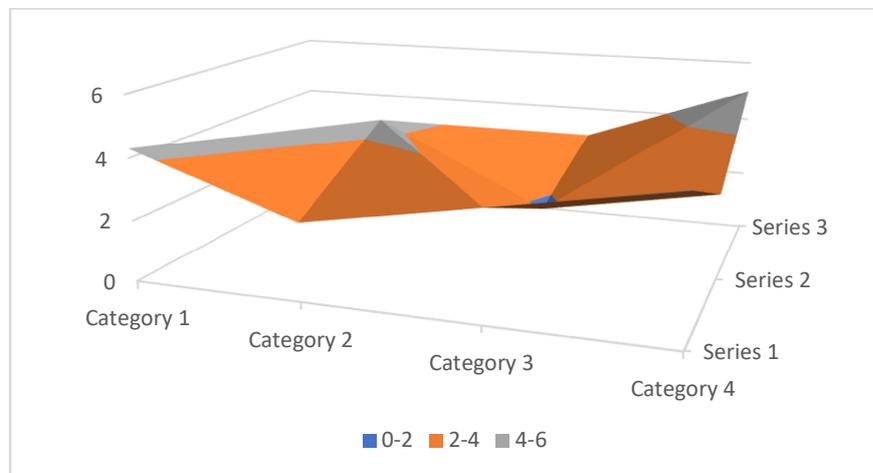


Figure 5. 3D Surface Comparison of Data Ranges Across Four Categories

• PRESENTATION OF THE SKILL TEST RESULTS FOR THE CONTROL GROUP IN THE PRE- AND POST-TESTS

The results of the analysis of variance (f) showed no statistically significant difference between the control and experimental groups in the dribbling skill. This is because dribbling is considered an easy skill that does not require much effort to learn. Young players begin dribbling without the ball from a young age. Herein lies the role of the coach or teacher in refining this dribbling technique and then gradually integrating it with the ball. This skill matures until it becomes fluid. Furthermore, the motor transfer process is the same when running without the ball as when running with the ball. Therefore, there were no statistically significant differences between the control and experimental groups in the dribbling skill. It should be noted that this skill developed in both groups, and some skills develop through continuous physical repetition beyond what is needed. This aligns with the study by Intisar Awad (1996), which concluded that "physical training has the best effect on learning the free throw skill in basketball".

By observing the specific anthropomorphic., it is clear that passing has developed as a result of continuous training and the educational curriculum designed for this purpose. Passing is a skill that relies primarily on accuracy, and accuracy only comes through pausing, reflecting, and focusing on the details of each part of the skill. Accuracy is one of the main elements that must be present in passing, in addition to timing and force during performance. The more the skill is repeated continuously, the better attempts we make, and consequently, the more it is consolidated. This is confirmed by Schmidt (1992): "As we know, for every skill we learn, there is a motor program stored in the brain, and the more we use this skill, the more accurate and refined the stored motor program becomes." Furthermore, the results for the extinguishing skill indicate that it is one of the skills that develops through continuous training and repetition, as well as overcoming the fear and anxiety that accompany performance. This skill also requires attention, focus, and avoiding excessive muscle contractions that accompany the age at which learning occurs. As for the control skill, it is one of the skills that develops through repeated practice, as well as through focus and relaxation, which contribute to... Blocking excessive muscle spasms that accompany the performance process and develop through attention, focus, and watching the movement in detail. Certainly, the role of visualization is very important in order to stabilize this skill, which requires the player to have a high sense of the ball, and this only comes through continuous repetition.

CONCLUSIONS

Through the researcher's presentation and discussion of the pre- and post-test results for the control and experimental groups, the researcher reached the following conclusions:

1. There were statistically significant differences in the level of physical fitness components between the pre- and post-tests, favoring the experimental group in the post-test. These differences were highly significant.
2. The improvement in the experimental group's mean scores in the post-test was rapid and effective, resulting from the specific impact of the proposed curriculum components on the group members.
3. The improvement in the experimental group's skill performance speed was attributed to the use of motor exercises, as well as the optimal level of integration of the exercise components and their variety, appropriate for this age group.
4. The improvement in the control group's skill performance speed, excluding the short passing skill, was due to the organization and continuity of the training units throughout the experiment. However, this improvement was not as significant as that achieved by the experimental group when using the combined motor exercises under investigation. The proposed curriculum proved beneficial in developing the speed of skill performance, particularly in certain offensive skills, among young handball players, as evidenced by the significant differences between the control and experimental groups, as demonstrated by the t-test results.

RECOMMENDATIONS

Considering the research findings, the researcher recommends the following:

- The necessity of working to develop the speed of skill performance among young players using handball, since most of the physical tasks performed by players during matches must be completed using handball.
- The necessity for coaches of young teams to focus on physical exercises due to their positive impact on developing the physical and technical aspects of the players.

REFERENCES

1. Abdul Aziz Abdul Karim: The Importance of Qualitative Methods in Children's Learning and Recall of Motor Skills, a research paper published in the Journal of the International Scientific Conference of Faculties of Physical Education, Cairo, 1997.
2. Charles Hughes, Handball: Plans and Skills (translation), Muwaffaq Majeed Al-Mawla, Mosul, Higher Education Press, 1990.
3. Furat Jabbar Saadallah, The Effect of Using Diverse Mental Training Methods on Cognitive, Skill-Based, and Tactical Aspects in Handball, unpublished doctoral dissertation, College of Physical Education, University of Baghdad, 2001.
4. Hara, Principles of Training (translated), Abdul Ali Nasif, 2nd ed., Mosul, Higher Education Press Higher Education, 1999.
5. Kadhim Abdul-Rubaie and Muwaffaq Majeed Al-Mawla, Physical Preparation in Handball, Mosul, Dar Al-Kutub for Printing and Publishing, 1988.
6. Khair Al-Din Ali Ahmed Awais, Scientific Research Guide, Cairo, Dar Al-Fikr Al-Arabi, 1999.
7. Kurt Meinel, Motor Learning, translated by Abdul Ali Nassif, Mosul, Dar Al-Kutub for Printing and Publishing, 1987. Ladislav Kajani, Ladislav Korski, Handball Player Training (translated), Sabah Redha Jabr, Sabah Muhammad Mustafa, Mosul, Higher Education Press, 1990.
8. Muhammad Hassan Alawi, Muhammad Nasr Al-Din Radwan, Measurement in Physical Education and Sports Psychology, 2nd ed., Cairo, Dar Al-Fikr Al-Arabi, 2000.
9. Muhammad Hassan Alawi, Muhammad Nasr Al-Din Radwan, Measurement in Physical Education and Sports Psychology, 1st ed., Cairo, Dar Al-Fikr Al-Arabi, 1988.

10. Muhammad Hassan Alawi, Osama Kamel Rateb, Scientific Research in Physical Education and Sports Psychology, Cairo, Dar Al-Fikr Al-Arabi, 1999.
11. Muhammad Jassim Al-Yassiri, Marwan Abdul-Majid, Statistical Methods in Educational Research, 1st ed., Amman, Al-Warraq Foundation for Publishing and Distribution, 2001.
12. Murtadha Muhassi: Lectures of the International Handball Training Course, College of Physical Education, University of Baghdad, 1997.
13. Qasim Hassan Hussein, Sports Psychology: Its Principles and Application in the Field of Training, Baghdad, Higher Education Press, 1990.
14. Sabah Muhammad Mustafa, (and others): Handball for the Third Grades, Mosul, Dar Al-Hikma for Printing and Publishing, 1991.
15. Thaeer Al-Qaisi, Lectures delivered to Master's students, College of Physical Education, University of Babylon, 1999, 2000.
16. Thamer Mohsen Muwaffaq Majeed Al-Mawla, Developmental Exercises in Handball, 1st ed., Amman, Dar Al-Fikr for Printing, Publishing and Distribution, 1999.
17. Wadih Yassin Al-Tikriti and Hassan Muhammad Abdul-Ubaidi: Statistical Applications in Physical Education Research, Mosul, Dar Al-Kutub for Printing and Publishing, 1996.
18. Wadih Yassin Al-Tikriti and Hassan Muhammad Abdul-Ubaidi: Statistical Applications and Computer Uses in Physical Education Research, Mosul, Dar Al-Kutub for Printing and Publishing, 1999.
19. Wajih Mahjoub: Learning and Training Scheduling, Baghdad, Al-Adel Office for Technical Printing, 2000.
20. Wajih Mahjoub: Lectures delivered to Master's students, College of Physical Education, University of Babylon, academic year 1999-2000.
21. Wajih Mahjoub: Scientific Research Methods and Approaches, 1st ed., Baghdad, Dar Al-Hikma for Printing and Publishing, 1988.
22. Wajih Mahjoub: The Science of Motor Development from Birth to Old Age, 2nd ed., Mosul, Mosul University Press, 1987.
23. Zuhair Al-Khashab and Muhammad Khudair Asmar Al-Hayani, Handball for Students of Colleges and Departments of Physical Education, 2nd ed., Mosul, Dar Al-Kutub for Printing and Publishing, 1999.
24. Zuhair Qasim Al-Khashab and Muhammad Khudair Asmar Al-Hayani, previously cited source, 1999.