



## The Impact of Targeted Exercises on Enhancing Motor Coordination and Agility in Volleyball Skills

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### Abstract

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#### Keywords

- Volleyball

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Volleyball is one of the team games that focuses on the ability of the player to develop motor abilities and basic skills. It is one of the games that need a high level of compatibility and agility for the purpose of developing motor skills and proficient performance to a high degree for the purpose of performing well and carrying out the required duties. The aim of the research was to:

- Designing exercises aimed at boosting motor coordination and agility, with a focus on enhancing the precision of serving and smashing skills in volleyball
- Explore how specialized training enhances motor coordination and agility, and its influence on the precise execution of volleyball transmission and smashing skills.

#### Among the most important conclusions reached by the research:

1 / The appearance of significant differences in the results of the tests for the pre and post research groups in all research variables and in favor of posttests.

2 / The appearance of significant differences in the results of the two research groups for post-tests in all variables and in favor of the experimental group experiences and knowledge they possess, this in turn contributes to the creation of new working methods, tools and technologies.

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## 1- Definition of the research

### 1-1 Introduction and the importance of the research

Volleyball stands out for its interconnected fundamental skills and the critical role of coordinated abilities in skill enhancement, relying heavily on physical attributes and motor coordination.

Therefore, Training should aim to enhance physical and technical attributes to align with the demands of skillful performance, and this is confirmed by (Al-Hajrasi, 1:2007) "Sports training contributes significantly to the development of the general and special abilities required by the practicing sports activity through good planning of its programs.

This is because it is characterized by rapid rhythms, follow-up and continuous exchanges between offensive and defensive skills, "as well as the performance of rapid defensive and offensive movements, which depend on the speed of reaction and neuromuscular compatibility " (Muhammad Abdallah Mahibes,2012,32). The poor performance of one skill causes an imbalance in the performance of subsequent skills, and the nature of performing skills that are characterized by speed and surprise requires players to have high speed and proficient performance. Volleyball players are tall, which leads to a higher center of gravity of the body, which requires a higher effort in compatibility, agility and reaction capabilities.

The importance of compatibility is highlighted by its role in winning and is the basis of the ideal playing technique after the reflection of high kinetic requirements that are well reflected in the level of technique and performance of players again and this is in line with the opinion of (Abu Al-Ela Ahmed Abdel Fattah; 1997, 205.) " Is the ability to achieve the goal through speed and accuracy in performance and with the least effort possible. As well as knowing him" (Najah Mahdi Shalash and Mazen Abdul Hadi:2010,71.) As "the ability of an individual to move two or more different muscle groups from two different directions at the same time", and neuromuscular compatibility is important in observing the ability of the player to balance, agility and regulate his movements within the arena and this is confirmed by (Robert N. Singer: r.1982.

It is the ability of the individual to control the parts of the body involved in the performance of the motor duty and to link these parts in a single movement and in a streamlined manner with an effective effort to accomplish the motor duty. This is consistent with the opinion of (Wajih Mahjoub: 1989, 27) "The individual's ability to control the muscles of the body collectively or individually according to the requirements of the activity." Also, agility is one of the important motor qualities in most sports, and this is confirmed by (Muhammad Hassan

## Research problem:

This research addresses the observed disparities in players' levels of coordination, agility, transmission accuracy, and smashing performance in volleyball matches, because they are important skills to build any attack for the team, which generated a goal for the researcher in searching for a solution to this problem by seeking the possibility of developing compatibility and agility and its reflection on the accuracy of the performance of the skills of transmission and crushing beatings with volleyball.

- Thus, this study aims to explore the role of specialized exercises in enhancing motor coordination and agility, focusing on their impact on the precision of serving and smashing performance in volleyball.

## 3- Research Objectives:

- Recognize the level of players with motor compatibility and agility and its reflection on the accuracy of the performance of the skill of sending and crushing hitting in volleyball.
- Preparing special exercises to develop motor compatibility and agility and their reflection on the accuracy of the performance of the skill of sending and crushing batting in volleyball.
- Recognize the impact of special exercises in the development of motor compatibility and agility and their reflection on the accuracy of the performance of the skill of sending and crushing hitting in volleyball.

## Research fields

1-The human field: the players of Al Dhuliyah club for the applicants in the season 2019

2- Time Range: From 20/7/2019 to 21/9/2019

3- Spatial scope: Al Dhuluiya Sports Club

## Identifying terms

1- Special exercises: It is an organized and frequent physical activity that aims to move the various goals of the body, and helps to improve health and get physical fitness, which is an important means of physical rehabilitation.

2- Motor compatibility: The ability to cooperate between the nervous and muscular systems to produce good and sound performance with the proportion of the body's movement in performance.

### **3- Research Procedures:**

#### **1-3 Research Methodology:**

The researcher used the experimental approach in the style of the two equivalent groups and correlations as it fits the research problem.

#### **2-3 Research sample:**

The research community was limited to the players of Al-Dhuluiya Club for the applicants in the season/2019, which number (16) players, while the research sample included (12) players selected randomly, after excluding (4) players for the purpose of conducting the survey experiment, and thus the percentage of the research sample is (75%).

#### **3-3 Means, devices and tools: -**

Arab and foreign sources - tests and measurement - pens -electronic calculator - legal volleyballs (10) - measuring tapes - volleyball court - whistle (3).

#### **4-3 Tests for research:**

The researcher used the following tests:

- Numbered circles. (Mohamed Sobhi Hassanein:1995,415)
- agility test (Hassanein, 1987: 351).
- Submission Skill Accuracy Measurement Test. (Marwan Abdul Hamid;2001, 296.)
- The test of the skill of beating the straight crusher: (Ali Salloum Jawad Al-Hakim: 2008, 198.)

#### **5-3 Field research procedures:**

##### **3-5-1 Exploratory experiment:**

The exploratory experiment was conducted on Wednesday (17/7/2019) on (4) players selected from outside the main research sample.

##### **2-5-2 Pre-tests:**

Pre-tests were conducted on the research sample on 19-20/7/2019. The conditions related to the tests and the method of carrying out the tests were established for the purpose of trying to achieve the same conditions during the post-tests.

##### **3-6 Training Curriculum:**

The researcher prepared special exercises proposed for the special preparation stage (see Appendix1), which aims to develop compatibility and agility and their reflection on the accuracy of the performance of the skills of sending and beating crushing volleyball, which was determined by a training period ranging from (8) weeks and on days (Saturday, Monday, Wednesday) of each week starting on Saturday (20/7/2019) and continued until (21/9/2019) in the Al Dhuluiya Sports Club

at a rate of (3) training units per week, so that the total units used become (24) units , and the unit time ranged from (85–95) minutes at exactly four and a half in the afternoon. The players of the experimental group used the training curriculum proposed by the researcher, while the group used the method used by the coach of their team.

### **3-6-3 Post-tests**

The researcher, in cooperation with the assistant work team , conducted post-tests on the sample members in the same way that the physical test was conducted and for the research groups on 22-23 / 9/2019.

### **3.7 Statistical Methods**

The spss statistical bag was adopted in extracting the results.

Percentage, mean, standard deviation, law (t) of symmetrical samples, law (t) of asymmetric samples.

## **Part Four**

### **4-Presentation, analysis and discussion of the results:**

3-1- Presentation and analysis of the results of post-tests of the control and experimental groups of volleyball search variables.

3-1-1 Presentation and analysis of the results of the tests of the research variables in the volleyball of the control group and as shown in Table (1)

Shows control group results in pre- and post-tests for compatibility, agility, transmission accuracy, and batting in volleyball.

(Table 1)

Presentation and analysis of the results of the tests of the research variables in the volleyball of the control group

| Sr | Measurements Tests          | Unit of measure | Pre-training tests |       | post tests           |       | A calculated | Error ratio | Significance |
|----|-----------------------------|-----------------|--------------------|-------|----------------------|-------|--------------|-------------|--------------|
|    |                             |                 | $t^i$ ,            | w     | $t^i$ ,              | w     |              |             |              |
| 1  | Reconciliation              | Second          | 196                | 0.551 | 575                  | 0.327 | 2.594        | 0.049       | Legal        |
| 2  | Elegance.                   | Second          | 7.065              | 0.487 | I'm... also in. 531. | 0.345 | 5.675        | 0.002       | Legal        |
| 3  | TRANSMITTAL                 | Degree          | 10.500             | 1.048 | 12.333               | 0.816 | 966          | 0.002       | Legal        |
| 4  | Overwhelming Multiplication | Degree          | .833               | 752   | 11.500               | 0.836 | 5.000        | 0.004       | Legal        |

4-2 Presentation and analysis of the results of the tests of the research variables in the volleyball of the experimental group and as shown in Table (2).

(Table 2)

Shows the results of the experimental group in pre and post tests for compatibility, agility, transmission accuracy and batting in volleyball

| This service allows customers to issue a permit | Measurements Tests          | Unit of measure | Pre-training tests |           | post tests |       | A calculated | Error ratio | Significance |
|---|-----------------------------|-----------------|--------------------|-----------|------------|-------|--------------|-------------|--------------|
|   |                             |                 | $t^i$ ,            | w         | $t^i$ ,    | w     |              |             |              |
| 1   | Reconciliation              | Second          | 8.600              | 462.      | 7.800      | 0.544 | 3.894        | 0.01        | Legal        |
| 2   | Elegance.                   | Second          | 7.088              | 539       | .868       | 0.219 | 4.940        | 0.004       | Legal        |
| 3   | TRANSMITTAL                 | Degree          | 10/166             | 2023/0752 | 13.500     | .547  | 7.81         | 000         | Legal        |
| 4   | Overwhelming Multiplication | Degree          | 10/166             | 1.169     | 13.333     | 0.816 | 270          | 0.003       | Legal        |

3-3 Presentation and analysis of the results of the tests of the post-research variables of the control and experimental groups in volleyball and as shown in Table (3)

It shows the results of the control and experimental research groups in the post-compatibility tests, agility, transmission accuracy and crushing batting in volleyball.

(Table 3)  
Presentation and analysis of the results of the tests of the post-research variables of the control and experimental groups in volleyball

| This service allows customers to issue a permit | Measurements Tests          | Unit of measure | Control group        |       | Experimental group |       | A calculated | Error ratio | Significance |
|---|-----------------------------|-----------------|----------------------|-------|--------------------|-------|--------------|-------------|--------------|
|   |                             |                 | $t^i$ ,              | w     | $t^i$ ,            | w     |              |             |              |
| 1   | Reconciliation              | Second          | 575                  | 0.327 | 7.800              | 0.544 | 989          | 0.01        | Legal        |
| 2   | Elegance.                   | Second          | I'm... also in. 531. | 0.345 | .868               | 0.219 | 971          | 0.03        | Legal        |
| 3   | TRANSMITTAL                 | Degree          | 12.333               | 0.816 | 13.500             | .547  | / 907        | 0.01        | Legal        |
| 4   | Overwhelming Multiplication | Degree          | 11.500               | 0.836 | 13.333             | 0.816 | 841          | 0.003       | Legal        |

It is clear from the presentation of Table (3), which shows us the values of the arithmetic mean, the standard deviation, the calculated value (t), and the error rate for the post-tests and for the two research groups in the variables of compatibility, agility, transmission accuracy and crushing multiplication in volleyball, as all the results indicate that there are significant differences between the results of the post-test of the research sample and in favor of the experimental group.

### 3-6 A discussion of the results of the post-tests of the control and experimental research groups of the variables under research in volleyball.

Through what was presented in Table (4) of the results of the post-tests of the control and experimental research groups, which showed the existence of significant differences in favor of the experimental group in all research variables, and the researcher attributes the significance of the differences to the optimal use of the training curriculum that relied on the appropriate tools and means for the level of the players of the experimental group, which relied in its application on repetitions and tension, and this is consistent with what he referred to (Schmidt, A. Richard; 2000, P 206.) " It is the duty of the trainer to encourage the learner to perform as many attempts as possible in the exercise."As well as the diversity in the use of combined exercises in the training curriculum and that giving appropriate rest between exercises and between groups of applied exercises and the specificity of the game of volleyball, and this is confirmed by

Mohammed, Rajaa, 2019"as well as performing fast defensive and offensive movements that rely on fitness and neuromuscular compatibility" This is in line with the opinion of (Abdul Dayem: 136,1985) " that regulated training programs organized on the basis of science work on the development of the physical level and skills of players ." The use of a training load in a scientific and thoughtful manner was of great importance in developing the level of performance , and this is in line with the opinion of (Faten Muhammad Rashid: 33,1999) "The selection of appropriate exercises that are related to the physical abilities of the activity contributes to reaching the highest level of performance in the practiced activity" in addition to the gradient when giving exercises for agility from the simple to the complex helped to develop this trait , as (Essam Abdul Khaliq: 184,1999) states that "the more agility the individual can improve his level."

## 5. Conclusions and recommendations

### Findings:

- Key findings revealed notable differences in all research variables between the pre- and post-test results of both groups, with post-tests showing significant improvement.
- The emergence of significant differences for the two research groups between the results of the post-tests in all research variables and in favor of the experimental group.

### 2. Recommendations

- Emphasis on volleyball players to pay attention to the physical and skill abilities of the players.
- Emphasis on conducting physical and skill tests on volleyball team players to ensure the effectiveness of the training curricula used.

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