

## **Some kinetic abilities and their relationship to performing the skill of throwing and receiving the sign for female students in rhythmic gymnastics**

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### **Abstract**

The purpose of this paper is to identifying the level of some kinetic abilities and performing the skill of throwing and receiving the figure for female students in rhythmic gymnastics, and identifying the relationship between kinetic abilities and performing the skill of throwing and receiving the figure for female students in rhythmic gymnastics. The researcher used the descriptive survey method to suit the nature of the research problem, and the research sample was selected from the research community represented by the students of the College of Physical Education at the University of Kufa for the academic year 2021/2022, where the first-stage students were selected by the intentional method. One of the most important results reached by the researcher is that the results of the research showed that the kinetic abilities (agility, balance and flexibility) have a significant relationship with the skill of throwing and receiving the figure from the bottom of the weighted leg. One of the most important recommendations recommended by the researchers is that gymnastics teachers should pay attention to kinetic abilities (agility, balance, and flexibility) when teaching and teaching person skills, since they have a strong relationship with them, conducting studies and research to find out the relationship between the physical attributes and skills of the person and conducting similar studies and researches to identify the relationship between kinetic abilities and other skills in gymnastics

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### **Introduction:**

The continuous scientific development and advancement have had a great impact on the development of all fields, including the sports field, which has had a prominent role in bringing the athlete to the best skill level. For this, we find that developed countries in the sports field contribute greatly and effectively to the delivery of training duties (physical, skill and psychological). The top and the process of reaching the higher levels, and achieving progress, is no longer an easy process to achieve, because the mathematical level in most sports activities has reached levels close to ideal.

Therefore, the optimal performance of female students in the rhythmic gymnastics game is weak as a result of a weakness in kinetic abilities, including flexibility, agility, balance, and compatibility, and after the overlap between the possible mathematical sciences is one of the influential matters that lead to raising the levels of kinetic performance for various sports skills, especially the skills of rhythmic gymnastics, as it is one of the indicators that lead It plays an effective role in developing the level of technical performance and its integration, and each sport has its own kinetic performance that distinguishes it from other sports,

including the rhythmic gymnastics game, which is distinguished by its difficult performance that depends on the student's individual effort in particular, and it is taught within the curricula of the faculties of physical education, which includes many skills Which often depends on accuracy, smoothness, and consistency in performance for all parts of the movement and its control.

Hence the importance of research and the need for it in that kinetic abilities contribute to achieving development in performance, perception, knowledge, excitement and impulsiveness towards work, which leads to an increase in the desire and demand for practicing skills, especially with the tool of the person well through saving effort when performing skills, and at the time The same feasible exploitation of the physical and kinetic abilities to the maximum extent possible to reach progress in the level of skill and physical readiness of the students.

#### **Research problem:**

Since the individual games need many characteristics and physical and kinetic abilities, so the trainers or teachers should know what is the most requirement for the rhythmic gymnastics game, as the kinetic abilities are important in showing the performance automatically and more aesthetically for the movements and skills, and the fact that the researcher is a teacher in the College of Physical Education and Sports Sciences She noticed that there is a weakness and difficulty in performing the personality skills of the first-stage students, and for this reason the researcher decided to study this problem and develop solutions to it.

#### **Research objective:**

- Identifying the level of some kinetic abilities and performing the skill of throwing and receiving the

figure for female students in rhythmic gymnastics.

- Identifying the relationship between kinetic abilities and performing the skill of throwing and receiving the sign for female students in rhythmic gymnastics.

#### **Research hypotheses:**

There is a significant correlation between kinetic abilities and performing the skill of throwing and receiving the sign for female students in rhythmic gymnastics.

#### **Research fields:**

- Human field: Students of the College of Physical Education and Sports Sciences / University of Kufa.
- Time field: (1/11/2021) to (15/4/2022)
- Spatial field: Rhythmic gymnastics hall in the College of Physical Education and Sports Sciences \ University of Kufa.

#### **Research methodology and field procedures:**

##### **Research Methodology:**

The researcher should choose the appropriate approach to solve a problem, as the approach "is the method that the researcher follows to determine the steps of his research through which he can reach a solution to the research problem." (Mahjoub. 2002), and accordingly, the researcher used the descriptive survey method to suit the nature of the research problem, "this approach aims to collect facts and data about a specific phenomenon or situation with an attempt to interpret these facts in a sufficient way so that we can draw from these data

collected from a part of the community results Trust the whole community. (Hamid and Kazem. 1996).

### **Community and sample research:**

One of the scientific matters that the researcher must take into account is obtaining a sample that represents the indigenous community in a true and honest way. (Van Dalen Diebold. 1984). The research sample was selected from the research community represented by the students of the College of Physical Education at the University of Kufa for the academic year 2021/2022, where the first-stage students were selected "by the intentional method, as it consists of certain vocabulary that properly represents the community." (Mahjoub. 1990), The skill of the subject of the research subject is within the curriculum for the first-stage female students, as the number of female students reached (10) students, and thus the percentage became (100%), and this percentage represents the truest representation of society.

### **Tools and methods used in the research:**

It is "the means or method by which the researcher can solve the research problem, regardless of whether those tools are data, samples, or devices" (Mahjoub. 2002).

Therefore, the search tools included:

- Observation.
- The personal interviews seen (Appendix (1)).
- Questionnaire (Questionnaire for surveying the opinions of experts and specialists on determining the most important kinetic abilities (Appendix 2)), as well as a questionnaire for surveying the opinions of experts and specialists on determining the most

important tests for kinetic abilities (Appendix (3)).

- Testing and measurement.
- Equipment used and necessary tools:
- One (1) electronic stopwatch.
- One (1) distance measuring tape.
- Rhythmic gymnastic signs number (20).
- A plank of wood, in the middle of which a crossbar (1) is installed.
- A box with (1) inscribed ruler installed.
- Jump lists (2).
- Other office materials (papers, pens, .....etc).
- Sponge mats (20)

### **Field research procedures:**

#### **Determine the most important kinetic abilities:**

The two researchers identified some of the kinetic abilities related to the person's skills in rhythmic gymnastics through the use of Arab and foreign scientific references and sources, and to make sure of them, the researcher also presented these capabilities to experts and specialists in testing, measurement, physical fitness and rhythmic gymnastics Appendix (4) for the purpose of exploring their opinions in determining some capabilities Which is related to the person's skills in rhythmic gymnastics, and after collecting the forms and unpacking the data, the abilities that did not get the acceptance of the experts were excluded, and the selected abilities are (agility, flexibility, and balance).

#### **Determine the candidate tests for measuring kinetic abilities:**

For the purpose of determining appropriate and appropriate tests to measure the previously nominated kinetic abilities, and after reviewing the relevant sources and references, the two researchers

nominated (6) tests within a special form (see Appendix (5)), and by presenting them to experts and specialists (Appendix (4) ) of (6) experts, and after collecting the questionnaires and emptying the data, the most valid tests were accepted to measure each kinetic ability.

### Description of the tests:

#### 1- (Agility test)

- The name of the test: running in the form of (8).
- The purpose of the test: to measure the ability of the individual to change the position of the body while moving forward and quickly.
- Tools: two standing high jumpers between them (10) m, a crossbar with a height equal to the height of the center of the experiment, a stopwatch.
- Performance specifications: the female experimenter stands at the right side of one of the stands, and when she hears the start signal, she runs in the form of (8), where she makes four cycles (the cycle ends in the same place where the experimenter started), and the specified path must be followed and not touched by the feet or the crossbar.
- Recording: The experimenter records the time during which the four cycles are completed.

#### 2- (flexibility test)

- Test name: bending the torso forward and down from a standing position.
- The purpose of the test: to measure the flexibility of the back muscles of the body (back - hip - legs).
- Tools: A box in which a graduated ruler is fixed, divided into (30) cm,

so that the number (10) cm is at the edge of the box. It contains a wooden pointer that moves on the surface of the ruler.

- procedures: Ask the student to take off her shoes.
  - The student stands on the box so that her feet are joined and fixed on the edge of the box.
  - When the tester gives the signal, the student bends her torso forward and downward so that she pushes the pointer with her fingertips as far as possible.
  - The student tries to stay a little steady at the last distance she reaches.
  - The student is given three attempts when performing the test.
- Recording:
  - The student records the distance she has achieved in (centimeters) in the three attempts.
  - The student's best attempt out of the three attempts is counted.

#### 3- (balance test)

- Test Name: Standing by raising the knee of the right leg in front with stability.
- The purpose of the test: to measure static balance.
- Tools: a stopwatch, a plank of wood, in the middle of which a crossbar is installed, 20 cm high, 60 cm long, and 3 cm thick.
- Performance specifications: The experimenter stands on the edge of the crossbar with one of the feet, if

the foot is placed on the crossbar and the second foot is placed on the board or on the ground. Upon hearing the start signal, she raises the leg on the board or the ground in front of her and remains in the position so that the balance continues over the crossbar for as long as possible. The test is performed without shoes, the hands are in the (waisted) position during the performance of the test, and the free foot descends at the end of the test.

- Recording: The time during which the experimenter was able to maintain her balance on the crossbar and even touch the board or the ground with any part of the body.

#### **Determine the basic skills of rhythmic gymnastics:**

For the purpose of determining the basic skills of rhythmic gymnastics, the researcher distributed a questionnaire to (5) female experts (see Appendix (1)) who are specialized in rhythmic gymnastics and artistic gymnastics, through which the skill of throwing and receiving the sign from the bottom of the weighted leg was determined.

#### **Determine the tests for measuring basic skills with the rhythmic gymnastic tool:**

After the two researchers reviewed the curriculum of the College of Physical Education - University of Kufa for the subject of rhythmic gymnastics for the first stage, which contains the basic skills with the sign tool that is given at the beginning of the curriculum and with the help of three arbitrators, the test of throwing and receiving the sign from the

bottom of the weighted leg was determined:

- Test name: throwing and receiving the sign from the bottom of the swing leg
- The aim of the test: measuring the technical performance of the skill of throwing and receiving the sign from the bottom of the weighted leg.
- Tools used: (1) sponge mat, (2) legal rhythmic gymnastic signs.
- Performance specifications: Upon hearing the start signal, the tested student performs a rolling skill on the ground.
- Performance terms: Each student has two consecutive attempts.
- Recording:
  - The scores for the skill departments are calculated by my agencies:
  - Preparatory section: (1) degree.
  - Main Section: (6) degrees.
  - Concluding section: (3) marks
  - The final score for the skill is (10 marks).

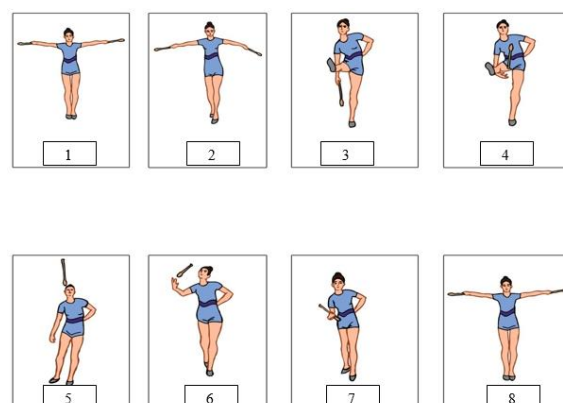


Fig. (1)

Shows the skill of throwing and receiving the sign from under the swing leg

**Scientific basis for the tests:****Validity of the test:**

Validity is the accuracy with which a test measures the purpose for which the test was designed. (Abdulaziz. 1997) . Validity is one of the important characteristics that a good test should be characterized by, and its concept refers to "the quality of the test as a measuring tool that was originally designed to measure it." (Al-Zaher et al. 1998). A test that does not have a good level of validity cannot perform its function. For the purpose of extracting the validity of the candidate tests for kinetic abilities, the researchers presented the contents of the tests to a group of experts (Appendix 4) in order to obtain the validity of the content, which is often done "through logical judgment on the existence of the trait." or the quality or ability concerned to investigate whether the proposed measuring instrument actually measures it or not.( Allawi and Nasr al-Din. 2000)

**Test stability:**

In order to extract the stability coefficient for the kinetic abilities tests, it is necessary to apply the principle of the static test, "which gives close results or the same output if applied more than once in identical conditions." (Al-Zyoud and Hisham Amer Alyan. 2005) , and this is done in similar circumstances and then using the (test and re-test method) with a time interval between the first and second test (7) days. Ibrahim Salama explains, The re-test method is one of the simplest methods, and it is characterized by the interval determination of coherence because the error associated with the measurement, fortunately, is always more. It is clear when there is a period between the implementation of the two tests from one day to more. The researcher extracted

the coefficient of stability through the correlation coefficient (Pearson) between the results of the first and second test, and the researcher concluded that the tests for kinetic abilities are highly significant because the values of the correlation coefficient were (0.84) for the flexibility test and (0.89) for the agility test, and (0.89) for the agility test. (82) for the balance test), which indicates that the tests have a high degree of stability.

**Objectives of the test:**

Objectivity means "freedom from prejudice and intolerance and not including personal factors in the researcher's judgments." (Ibrahim. 2000). Zakaria Muhammad Taher states, "Objectivity means the stability of the results based on the internal judgment of the assessor. If more than one arbitrator gives a score for the same test, the evaluation results must be close." (Taher, 1991).

**Exploratory experiment:**

The researcher conducted the exploratory experiment on the kinetic abilities of the skill subject of the research on (5) female students from the College of Physical Education / University of Kufa, at exactly ten o'clock in the morning on Sunday 13/3/2022 in the gymnastics hall in the College of Physical Education and Sports Sciences / University Kufa The purpose of this experiment was the following:

- 1- Recognize the time taken for each exam, as well as the time for the total exams.
- 2- Ensure the validity of the physical tests of the research sample.
- 3- Knowing the time allocated to capabilities.
- 4- Ensure the scientific transactions of the tests.

**Main experience:**

The researcher carried out the main experiment on Sunday 20/3/2022 at ten o'clock in the morning at the gymnastics hall in the College of Physical Education, as the researcher measured the kinetic abilities of the students in the research sample, and then the researcher measured the level of performance of the

skill of throwing and receiving the **sign** from the bottom of the weighted leg. In addition, record the results in the data registration form in order to be discharged and processed statistically.

**Statistical methods:** The search data was processed through the Statistical Package for the Social Sciences (SPSS).

**Results and discussion:**

Table (1) shows the results of the search variables

Variables	Mean	standard deviation
The skill of throwing and receiving the sign from the bottom of the swing leg	8	0.82
Agility	32.46	2.44
Balance	2.68	1.88
Flexibility	21.4	8.54

Table (1) shows us the values of the arithmetic mean and standard deviation of the research variables, through which we can be a general picture of the specifications of the research sample. The value of the arithmetic mean for the skill of throwing and receiving the **sign** from the bottom of the weighted leg was (8) and the standard deviation was (0.82), and it reached The arithmetic mean for agility was (32.46) with a standard deviation of (2.44), the arithmetic mean for balance was (2.68) with a standard deviation (1.88), and the arithmetic mean for flexibility was (21.4) with a standard deviation (8.54).

**Presenting, analyzing and discussing the results of the relationship between kinetic abilities and skill of the person.**

Table (2) shows the arithmetic mean and standard deviation of the search variables and the correlation between kinetic abilities, the subject's performance skill and the level of significance.

Variables	Mean	standard deviation	calculated R value	Type sig
Agility	32.46	2.44	0.61	sig
Balance	2.68	1.88	0.77	sig
Flexibility	21.4	8.54	0.67	sig

From the above table, the arithmetic mean for agility was (32.46) and the standard deviation was (2.44), and the value of the simple correlation coefficient between it and the skill of throwing and receiving the sign from the bottom of the weighted leg was (0.61), which is a value greater than its tabular value of (0.63) under the level of significance (0.05) and a degree of freedom (8), which indicates the existence of a significant relationship between the attribute of agility and skill of the person.

The arithmetic mean of the balance was (2.68) and the standard deviation was (1.88), and the value of the simple correlation coefficient between it and the skill of throwing and receiving the person from the bottom of the weighted leg was (0.77), which is a value greater than its tabular value of (0.63) under the level of significance (0,05) and a degree of freedom (8), which indicates the existence of a significant relationship between the attribute of agility and skill of the person, the arithmetic mean of flexibility was (21.4) and the standard deviation was (8.54), and the value of the simple correlation coefficient between it and the skill of throwing and receiving the person from under the weighted leg was (0.67), which is a value greater than its tabular value of (0.63) under the level of significance (0,05) and a degree of freedom (8), which indicates a significant relationship between the attribute of agility and skill of the person.

The researcher attributes the high degree of correlation to the reason that the kinetic abilities in question have a strong relationship with the skill of throwing and receiving the sign from the bottom of the swing leg. My attributes are agility and flexibility, which helps her to perform the skill of the person with ease and ease, as

well as the student who has a high degree of balance, this helps her to move, throw and receive the person from under the weighted leg correctly.

### Conclusions and Recommendations:

- The results of the research showed that the kinetic abilities (agility, balance and flexibility) have a significant relationship with the skill of throwing and receiving the sign from the bottom of the weighted leg.

### Recommendations

- Gymnastics teachers should pay attention to kinetic abilities (agility, balance, and flexibility) when teaching and teaching person skills, since they have a strong relationship with them.
- Conducting studies and research to find out the relationship between the physical attributes and skills of the person.
- Conducting similar studies and researches to identify the relationship between kinetic abilities and other skills in gymnastics

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#### Appendix (1)

Shows the names of experts and specialists with whom the researcher conducted personal interviews

No.	Name	Specialization	Affiliations
1	Assist. Prof. Dr. Ammar Makki Al-Najm	Sports Exercices	Faculty of Physical Education and Sports Sciences / University of Kufa
2	Assist. Prof. Dr. Abbas Mahdi Saleh	Sports Exercices	Faculty of Physical Education and Sports Sciences / University of Kufa
3	Prof. Dr. Nahida Abdel Zaid Al-Dulaimi	Kinesthetic learning	Faculty of Physical Education and Sports Sciences / University of Babylon
4	Assist. Lec. Miqdam Abdul-Kadhim Rahima	Sports Exercices	Faculty of Physical Education and Sports Sciences / University of Kufa
5	Assist. Lec. Ayman Hani	Test and measure	Faculty of Physical Education and Sports Sciences / University of Kufa

## Appendix ( 2 )

The survey shows the opinions of experts and specialists about identifying the most important kinetic abilities

No.	Name	Specialization	Affiliations
1	Prof. Dr. Haider Nagy Habash	Test and measure	College of Education for Girls / Department of Physical Education / University of Kufa
2	Prof. Dr. Ammar Makki Al-Najm	Sports Exercices	Faculty of Physical Education and Sports Sciences / University of Kufa
3	Prof. Dr. Hatem Fleih	Kinesthetic learning	Faculty of Physical Education and Sports Sciences / University of Kufa
4	Assist. Prof. Dr. Ayman Hani Abd	Test and measure	Faculty of Physical Education and Sports Sciences / University of Kufa
5	Prof. Dr. Abbas Mahdi Saleh	Sports Exercices	Faculty of Physical Education and Sports Sciences / University of Kufa
6	Assist. Prof. Dr. Muqdam Abdul Kadhim Rahima	Sports Exercices	Faculty of Physical Education and Sports Sciences / University of Kufa

## Appendix (3)

The survey shows the opinions of experts and specialists about determining the most important tests of kinetic abilities

No.	Name	Specialization	Affiliations
1	Prof. Dr. Haider Nagy Habash	Test and measure	College of Education for Girls / Department of Physical Education / University of Kufa
2	Prof. Dr. Ammar Makki Al-Najm	Sports Exercices	Faculty of Physical Education and Sports Sciences / University of Kufa
3	Prof. Dr. Hatem Fleih	Kinesthetic learning	Faculty of Physical Education and Sports Sciences / University of Kufa

4	Assist. Prof. Dr. Ayman Hani Abd	Test and measure	Faculty of Physical Education and Sports Sciences / University of Kufa
5	Prof. Dr. Abbas Mahdi Saleh	Sports Exercices	Faculty of Physical Education and Sports Sciences / University of Kufa
6	Assist. Prof. Dr. Muqdam Abdul Kadhim Rahima	Sports Exercices	Faculty of Physical Education and Sports Sciences / University of Kufa

## Appendix (4)

## Test nomination form regarding kinetic abilities

No.	Kinetic abilities	Candidate tests	Test selection
1	Agility	- Running sign 8 - Shuttle run	/
2	Flexibility	- The posterior dorsal arch - Bend the torso forward and down from the standing position	/
3	Balance	- Standing feet longitudinally on the crossbar - Balance on the instrument panel	/