

## **The effect of stretching and callanetics exercises on some biokinetic variables in swimming among women aged (35-40)**

By

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### **Abstract**

The introduction to the modern research included, as there is a large group of different situations and movements for stretching and callanetics exercises, all of which aim to achieve what the body needs in building and developing its kinetic abilities under scientific or educational controls to achieve the purpose for which those exercises were developed, and the research problem emerged through the low level of physical activities Especially the muscle lengthening exercises, which leads to continuous muscle spasms, and the researcher used the experimental method for one sample, they used motor abilities tests for this purpose. By applying the updated callanetics and lengthening exercises to a random sample of the research community, the research sample consisted of (7) trainees. The results were treated by statistical means (SPSS statistical bag) and the results were presented in tables and points and discussed. The study concluded that the adoption of the updated stretching and callanetics exercises develops some of the kinetic abilities of swimming practices at the age of (35-40). The researcher recommended the necessity of adopting the updated callanetics and lengthening exercises for swimming practices aged (35-40).

**Keywords:** Stretching, biokinetics and swimming.

### **Introduction**

The scientific progress that we are witnessing today in various fields is the result of the efforts and experiences of researchers and their expertise, through which many results were inferred and obtained to serve all humanity, and this was reflected in the development that took place. Development included it and it opened new horizons for researchers and scholars to find the best means to overcome the problems of the age represented by obesity and laziness as a result of this development. The countries of the world have worked to encourage exercise in all areas of life, and have taken physical exercise as an important means to raise the efficiency of kinetic fitness for all different segments of society in all disciplines. The basic exercises for each of them differ in the comprehensiveness of the kinetic fitness of some concepts due to their connection to the specificity of kinetic performance. In general, fitness exercises are very important for all individuals, as they work to raise the efficiency of the internal functional devices that affect the locomotors system of the body, and fitness exercises are stretching and callanetics exercises, as there are A large group of different positions and movements for stretching and callanetics exercises, all of which aim to achieve what the body needs in building and developing its kinetic capabilities under scientific or educational controls to achieve the purpose for which those exercises were developed, to achieve a high level or athletic performance, or it may be to better perpetuate the work of muscle groups. Or to improve

a skill, or it may be therapeutic to repair a defect or physical deformity and other needs. For you, we cannot classify these exercises, situations and selected physical movements according to a specific type of purpose, but rather aims to form and build the body and develop its various kinetic abilities to achieve the goals for which it was set. Health centers, being a basic rule of maintaining the general health of the community, and the researcher believes in terms of health benefits, the recommended amount of exercise depends on the goal, type of exercise and the age of the person.

Even doing a small amount of exercise is healthier than doing anything, and these exercises are of great importance in stimulating blood circulation, improving the feeling of relaxation and improving the physical condition as well as alleviating injuries and diseases, and they have a positive role as they contribute to giving the body flexibility and strength through effort. It is simple, in addition to that it does not require a long time to perform, and this has earned him the advantage of using it in the rehabilitation programs, and by informing the researcher of modern sources and research, as well as working in the field of swimming as a trainer and lifeguard for long periods, she diagnosed an important situation that is constantly repeated by the vast majority of trainees of different ages and is considered one of the phenomena. The dangerous phenomenon is that there is a weakness in the elements of kinetic fitness, which works to impede movement in an ideal way and prevent the person from performing muscular work, and this in turn may be one of the most important reasons for it being the low level of physical activities, especially muscle lengthening exercises, which leads to continuous muscle spasms and lack of access to materials. The necessary nutrients for muscle work, and this is what gave birth to the researcher a problem that she tried to study through the application of stretching exercises and the updated callanetics. And This shows on some bio-kinetic variables of swimming practices at ages (35-40).

### ***Research objectives***

1. Identifying the updated callanetics and stretching exercises and some bio-kinetic variables in swimming among women aged (35-40).
2. Identifying the effect of the updated callanetics and stretching exercises on some bio-kinetic variables in swimming among women aged (35-40).

### ***Hypothesis***

- There are statistically significant differences between the results of the pre and posttests in some of the bio-kinetic abilities in swimming for women and in favor of the post test.

### ***Research fields***

- Human field: (7) trainees, aged (35-40) years.
- Time range: 4-1-2022 until 2-3-2022.
- Spatial domain: Yarmouk Recreational Club.

### ***Research Methodology***

The method, in scientific research, is a method for collecting information and data, in order to reach a result to solve a problem, “and it is one of the forms of analysis and scientific interpretation to describe the phenomenon” (4:36). It is based on direct and realistic dealing with different phenomena, and it is based on two main pillars, namely observation and experiment of all kinds” (6: 79). the nature of the research problem,

### ***The research community and its sample***

The researcher identified the research community of female trainees in fitness centers (35-40) years (2022) who practice swimming in order to raise the rate of physical fitness and

reduce weight, and the search sample was chosen by random method. They were chosen randomly, and a group of (7 female trainees) was selected as an experimental group. by lottery

### *Sample homogeneity*

**Table 1.** Shows the homogeneity of the sample

Variables	Units	N*	Mean	Median	STDEV	Skewness
<b>Length</b>	Cm	7	160.8	161.5	3.438	0.256
<b>Weight</b>	Kg	7	88.148	88.5	2.567	0.312
<b>Age</b>	Year	7	37.785	38	1.423	0.495

### *The normal distribution of the sample*

**Table 2.** Show the normal distribution of the sample in some research variables

Variables	Units	N*	Mean	Median	STDEV	Skewness
<b>Agility</b>	Sec.	7	14.157	14.2	0.167	0.124
<b>Flexibility</b>	Number	7	11.928	12	1.071	0.161
<b>Compatibility</b>	Sec.	7	12.16	12.16	0.188	0.747
<b>Balance</b>	Sec.	7	5.928	6.0	0.730	0.133

\*(N): Sample Size 7 Significance Level (0.05).

### *Define research metrics and tests:*

- First: fitness:
  1. The name of the test: Running between the poles for a distance of 7m (1:147).
    - The objective of the test: To measure agility.
    - Tools used: five indents, an electronic stopwatch.
    - Test procedures: The first pole is placed at a distance of (1 m) from the starting line, and five other poles are placed at a distance of (1 m) between them, and the player starts running fast between the person back and forth.
    - Recording method: When the signal to start is given, the clock starts with the timing from the moment of starting until reaching the finish line, and the time is calculated to the nearest millisecond.
- Second: Flexibility (kinetic) test (8: 270)
  - Test name: bottom and side touch
  - Purpose of the test: To measure kinetic flexibility, as it measures flexion, extension and rotation of the spine.
  - Tools: stopwatch, wall.
  - Performance specifications: Mark [X] is drawn on two points: - The first: on the ground between the laboratory feet.
  - The second: On the wall behind the back of the laboratory (in the middle). When the tester hears the start signal, the tester bends the torso forward “down to touch the ground with the tips of the fingers at the [X] mark between the feet, then extends the torso high” while turning to the left to touch the [X] mark. X) located behind the back with the tips of the fingers, then he rotates the torso and bends it down to touch the [X] mark between the feet a second time, then extends the torso while turning to the right to touch the [X] mark behind the back. Repeat this action as many times as possible in (30) seconds. Noting that touching the mark behind the back once on the left and the other on the right
  - Test conditions:
    - The feet should not be moved during the performance.

- The specific sequence of touching must be followed according to what was mentioned in the specifications
- The knees should not be bent at all during the performance.
- Recording: The laboratory records the number of touches made on the two marks within (30) seconds.
- Third: Compatibility (Numbered Circuit Test) (7: 103):
  - The purpose of the test: To measure the compatibility of the legs and eyes.
  - Tools used: a stopwatch. Eight circles are drawn on the ground, each with a diameter of 60 cm, numbered and without sequence.
  - Test instructions: The tester stands inside Circle No. (1) and when he hears the start signal, he jumps together to Circle No. (2), then Circle No. (3) and so on until Circle No. (8) and this is done at maximum speed.
  - Calculation of scores: The time it takes for the tester to move through the eight circles is recorded to the nearest tenth of a second. The number of attempts is 3, and in case the player makes a mistake in any of the circles, he repeats the test.
- Fourth: Balance from standing on one leg (3: 134)
  - The objective of the test: To measure the individual's ability to balance.
  - Tools used: stopwatch.
  - Performance specifications: The tester stands on one of his favorite feet and puts the other leg on the knee of the fixed foot from the inside and the hands to the side. When the start signal is heard, the laboratory raises the heel of the fixed foot to stand on the tips of his foot instead of the whole foot, and stay as long as possible. The laboratory is given three attempts and the best is calculated. , as shown in Figure (10).
  - Recording: Lab equilibrium time is an indicator of an individual's ability to balance.

#### ***Research tools and means of collecting information***

- Arab and foreign sources.
- International electronic information network.
- Testing and Measurement.
- Personal interviews.

#### ***Steps to implement the main experiment***

##### ***The exploratory experience***

The researcher conducted the reconnaissance experiment on 4/1/2022 on three female trainees from the research sample in the Yarmouk Recreational Club, to apply the tests to them, to know what comes to determine the difficulties and obstacles that will appear during the implementation and conduct of the tests and to identify the appropriate devices and tools for the implementation of the experiment and tests.

##### ***Pre measurements***

The researcher conducted pretests in the sports hall in the Yarmouk Recreational Club / Baghdad Governorate.

##### ***The main experience***

The researcher prepared the updated stretching and callanetics exercises according to the plan developed in a scientific manner, taking into account the ages of the trainees in a way that suits the goals planned to be reached, using exercises that do not constitute high loads that may exhaust the trainees and cause problems and the exercises that the researcher finds appropriate to achieve the objectives of the training program:

- Implementation of the exercises began on 8/1/2022 until 26/2/2023.
- The duration of the exercises set in weeks: (8) weeks.
- Weekly training days: (Saturday - Tuesday - Thursday).
- Number of weekly training units: (3) units.
- Total number of training units: (24) training units.
- The training method used iteratively:
  - The group of exercises begins after warming up (jogging and doing exercises) for a period of (10) minutes.
  - Exercises are stretching exercises, or so-called stretching exercises.
  - They are exercises to lengthen the skeletal system such as muscles, ligaments, and tendons, thus increasing the movement of the joint.
  - These exercises use pressure on the muscles from tension and tension, and muscle flexibility depends on the degree of fibers
  - Aims to raise the level of elasticity of the muscles
  - They are movements dedicated to straightening the limbs as much as possible, with the aim of lengthening them,
  - They are of two types: fixed lengthening and movable lengthening
  - Performing callanetics for deep muscles
  - Carrying out the clavicles exercises in a very slow motion.

### Posttests

The researcher conducted pretests in the sports hall in the Yarmouk Recreational Club / Baghdad Governorate.

## Results

- **Presentation and analysis of the results of the experimental group in motor abilities**

**Table 3.** Shows the statistical treatments for the two measurements, the pre and post measurements of the experimental group in the biomotor abilities

Variables	Pretest		Posttest		STDEV Diff.	Mean Diff.	(t)* Calculated	Error Level	Result
	Mean	STDEV	Mean	STDEV					
Agility	14.14	2.146	13.77	1.095	0.471	0.120	8.148	0.000	Sig.
Flexibility	11.85	7.1345	14.71	4.487	2.857	1.214	6.222	0.001	Sig.
Compatibility	12.17	0.144	11.70	0.115	0.470	0.075	16.568	0.000	Sig.
Balance	6.00	0.816	8.285	0.487	2.285	0.487	12.394	0.000	Sig.

\*Below the degree of freedom (6) and the level of error (0.05).

## Discussions

Through what is presented in Table (3), it is clear that the two measurements, before and after, that there are statistically significant differences after comparing the value of (t-test) computed for symmetrical samples between the two tests, before and after, and in favor of the post test. (t) calculated through the application of the corresponding samples test in the motor abilities. The motor abilities are an important and logical relationship with the training situation or the level of physical and functional ability. It represents a reflection of it. The concept of motor ability is "a reflection of the emergence of new skills within the results of motor and skill behavior" (2:1) The researcher believes that the updated callanetics and lengthening exercises can be considered special exercises and the main element in building the bio-kinetic

capabilities of swimming practices at the ages (35-40) and here (Abbas Al-Samarrai, Bastawisi Ahmed) indicate that “choosing the appropriate means and this cannot be achieved. Except through exercise, through it we can develop the individual’s physical and motor capabilities” (5:235).

Therefore, the researcher’s adoption of this type of exercise, which was adopted, is the priority in developing muscle lengthening and flexibility, and thus This result indicated the effectiveness of this type of special exercises by using them in a scientific manner appropriate to the ages of the experimental sample associated with swimming training exercises, which contributed to the development of the trainees’ ability to exert the highest rates of performance, as the use of special training has an important and fundamental role in the movements of the basic trainees, and this is what Reflected by raising the bio-kinetic capabilities because these exercises target the basic and auxiliary working muscles and thus created an adaptation in the muscles of the body according to the use of the mechanism of the maximum kinetic range based on the application of the principles of sports training in acquiring the bio-kinetic capabilities in a distinctive way, and these exercises led to the creation of adaptations especially. Therefore, the results were logical in the post-tests.

## **Conclusion**

1. Adopting the updated callanetics and stretching exercises develops some of the kinetic abilities of swimming practices at ages (35-40).
2. The adoption of the updated stretching and callanetics exercises develops the kinetic agility of swimming practices at ages (35-40).
3. The adoption of the updated stretching and callanetics exercises develops the kinetic flexibility of swimming practices at the ages of (35-40).
4. The adoption of the updated stretching and callanetics exercises develops the kinematic compatibility of swimming practices at ages (35-40).
5. The adoption of the updated stretching and callanetics exercises develops the kinetic balance of swimming practices at ages (35-40).

## **Recommendations**

1. The necessity of adopting the updated callanetics and lengthening exercises for swimming practices aged (35-40).
2. Generalizing this type of exercise to fitness centers.
3. Conducting developmental courses for trainers of fitness centers, stretching and updated callanetics exercises.

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