The effect of special exercises to rehabilitate affected abdominal muscles in women after childbirth

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Abstract

The purpose of the study is to develop specific exercises for women who have had childbirth to help heal their injured abdominal muscles and to determine the effectiveness of these exercises in doing so. Women between the ages of 23 and 27 comprised up the population and sample of the study, with a maximum of 20. The researcher came to the conclusion that, in light of the data, specific workouts have a part in strengthening the abdominal muscles in the afflicted muscles following childbirth. Additionally, a drop in the recommended abdominal circumference was discovered. The outcomes of the suggested test demonstrated this. Given that the primary objective was to reduce the suggested skin folds in the triceps muscle and upper pelvis, it seemed as though those folds had decreased. The researcher's most significant advice center on the need for women to exercise and engage in physical activity following childbirth in order to prevent abdominal fat accumulation and to increase awareness. Women know how important it is to gradually resume exercise and physical activity during the postpartum period, especially for the areas of the back, pelvis, and abdomen. The study advises fitness facilities to take precautions to guarantee that a mother's postpartum health continues to improve.

1- Identifying the Research

1-1 Introduction and Importance of the Study

Experiments and research aimed at achieving greater benefits for humans as a whole demonstrate the progress made in a variety of spheres of life. The sports world is no exception, as new avenues for exploration have been made available to scholars and researchers in a variety of sports to investigate all things novel, as well as practical development and technical advancements to the point where sports are now considered interventions. One of the most significant features that sets these technologies apart in all significant spheres of life is their ease of use. Thanks to current technology, tasks that once required lengthy, arduous workdays can now be accomplished quickly.Due to the general muscles' expansion and the body's ligaments' relaxation, a person's lack of motor activity throughout life has limited his motor activity and thereby threatened his general health, particularly in the post-pregnancy and postpartum period, which adversely affects a woman's shape and figure. Women are also subject to hormonal and motor changes at this time. to permit the fetus's growth inside the mother's womb; these modifications last until the baby is born. Utilizing specific exercises to strengthen the woman's weakened and stretched abdominal muscles during childbirth, as well as to rehabilitate those harmed during pregnancy, highlights the significance of research.

1-2- Problem of the study

By working in physical fitness centers and visiting these facilities, the researcher gained some experience, but she also noticed that most of the facilities lacked curricula based on sound scientific principles. For this reason, the researcher decided to help solve the problem by creating unique exercises that target abdominal muscle rehabilitation.

1-3- Aims of the study

-Creating specific workouts to help mothers who have given birth heal their injured abdominal muscles.

-Becoming knowledgeable about the benefits of specific workouts for women who have given birth and want to restore their weakened abdominal muscles.

1-4 Hypothesis of the Study

-Special workouts to help women recover from childbirth with their injured abdominal muscles.

-For the tests being examined, there are no statistically significant differences between the pre- and post-test scores within the research population.

1-4 limits of the research :

1- human limits: A sample of newborn women.

2- The spatial limits: SenariaFitness Center hall in DhiQar.

3- Time limits: from 9-1-2024 to 21-3-2024

2- Research methodology and field procedures.

2-1 Research methodology.

The researcher used the experimental method by designing equal control and experimental groups to suit the research problem.

٢-٢ Research sample.

The research sample was determined intentionally from women aged between(23-27) years old, as their number reached (20). The researcher relied on homogeneity for the research sample by using the coefficient of variation, as "it is used to compare the dispersion of groups in the case of different units of measurement used in each group, and the closer the coefficient of variation is to (1%) Homogeneity is considered high, and if it exceeds (30%), it means that the sample is not homogeneous. Table (1) shows this.

Table (1)

Variables	Arithmetic mean	median	standard deviation	skewness coefficient
Weight	٦٦.٣٥	٦٦.٣٠	٥.٠٢٢	٠.٠٨١
Height	١٦٢.٣١	١٦٢.٣٢	٦.٢٣	٠٤١٢
Age	٢٥.٣٥	٢٥.٠٠	١.٣٦	٠.٢٠٩

2-3 Methods, devices and tools used in the research.

Research tools are the means by which the researcher can solve his problem, whatever those tools, data, samples, and devices may be", and choosing the appropriate devices and tools for collecting data is a necessary issue to achieve the research goals.

2-3-1 Means of collecting information.

1- Arab and foreign sources.

2- Observation and experimentation.

3- Personal interviews.

4- Measurements and tests.

2-3-2 Devices and tools used in the research.

1- Measuring tape

2- Medical scale

3- Electronic stop watches

4- Caliper device to measure the thickness of skin folds and the percentage of grease

5- A wooden ruler attached to the wooden box with chalk.

2-4 Exploratory experience:

The researcher carried out a reconnaissance experiment to determine the challenges that arose during the main experiment. The exploratory experiment was defined as "a preliminary experimental study carried out by the researcher on a small sample before conducting his research with the aim of choosing research methods and tools". On January 9, 2024, the researcher carried out an exploratory experiment to

find out how long the tests would take, how smoothly they would go, how safe the tools and devices are, how big the sample experiments are, how simple the tests are, and what drawbacks or difficulties might arise.

2-5 Scientific foundations:

2-5-1 The test's validity/ is determined by whether or not it measures the intended outcome; in other words, a valid test is one that measures the function it is intended to assess and does not measure any additional or substitute variables., and a validity approach was utilized to derive the measurement's validity that was used to assess the foundational tests. content by putting the scale in front of a panel of professionals and experts in the field of sports training and measurement, who gave their approval for both the scale's appropriateness for this age range and its ability to measure what it was intended to.

2-5-2 Reliability: “A good test is characterized by stability, and a stable test is the test that gives close results or the same results if applied more than once in identical conditions.” To calculate the reliability coefficient, the method of re-application of the test (Rest Method Test) was chosen. A sample of five women was retested after seven days, as it proved that the tests had a high degree of reliability.

2-5-3 Objectivity/ One of the important factors that must be met in a good test is the condition of objectivity, which means freedom from bias or fanaticism. To confirm the objectivity of the scale, two judges were used to record the test scores in order to indicate the objectivity factor, which means “the correlation coefficient between the first arbitrator’s rating and the arbitrator’s rating.” Second, the results of the test law have proven that the scale has a high degree of objectivity.

Table (2)

Variables	Unit	correlation coefficient	reliability coefficient	sig.	Honesty coefficient	sig.	Objectivity factor	sig.
Weight	kg	٠.٩٧	٠.٩٩٢	sig.	٠.٩٩٥	sig.	٠.٩٨٩	sig.
Abdominal circumference	cm	٠.٩٦١	٠.٩٧٢	sig.	٠.٩٨٩	sig.	٠.٩٩٣	sig.
Abdominal muscle stretching	times	٠.٩١٩	٠.٩٥٠	sig.	٠.٩٥١	sig.	٠.٩٨٢	sig.

6- Determine measurements and tests:

2-6-1 Physical measurements:

2-6-1-1 The lipid component.

Using a holding device, the measurement is done by holding the device with the right hand and the measuring area with the left hand's fingers, creating a collection of skin layers that are pulled out and locked by the device's two ends. The device's lever or indicator expresses the thickness of the measured area directly. The reading is recorded in millimeters, where the reading is recorded in millimeters, and this reading is recorded to the nearest (0.5) millimeters. This process is repeated until we have three readings for each location. The device is kept for a duration of (1 - 2) A second after that, and the average of the three readings is recorded.

2-6-1-2Measuring weight/unit of measurement: (kg) The tool, a medical scale. Instructions: The trainee stands in a straight position without wearing shoes on the scale until the indicator is completely stable. Recording: The weight is read and recorded to the nearest 100 grams.

2-6-1-3 Length measurement/measurement unit: (cm) Tool: Numbered ruler mounted on the wall

Instructions: The experimenter stands with her head, back, and hips close to the wall, with her hands facing down, and her body to be stationary without movement.

Recording: The length of the descending column is recorded from the top of the head to the bottom of the feet on the ground.

٢-٦-٣Physical tests:

2-6-3-1 Sitting from lying down test with bent knees:

-Test presentation: measuring the muscular elongation of the abdominal muscles.

-Performance instructions: The trainee takes the position lying on her back with her knees bent and her feet planted on the ground so that the heels are 30-45 cm away from the pelvis, and the arms are crossed on the chest and the palms are touching the shoulders.

- Calculating grades: The trainee begins by bending the torso to reach a sitting position while keeping the hands on the chest and the chin inward when the elbows touch the top of the thighs. This is repeated, as many times as possible, until the trainee stands or the elbows do not reach the top of the thighs and counts the number of times.

3-7 Pre-tests.

The pre-test was conducted on the research sample on 1/14/2024 in the Senaria Fitness Hall. All members of the sample (22) women attended the test, and it included physical tests and physical measurements.

3-8 The approach followed.

The researcher designed special exercises that serve the work of the abdominal muscles:

The first training unit was conducted on 1/15/2024 after pre-tests.

2- Determine the goal to be achieved through each training unit.

4- Through these exercises, you aim to rehabilitate the abdominal muscles damaged after childbirth

5- It took (8) weeks to implement the exercises at a rate of (3) training units per week§ .

6- The total number of training units is (24) units.

7- The intensity (80%) was determined as a starting point for applying the exercise vocabulary.

8- The high-intensity interval training method was adopted.

3-9 Posttests.

The researcher conducted the post-test on 3/21/2024, under the same temporal and spatial conditions, and on the same tests and physical measurements that took place in the pre-test.

3-10 Statistical methods.

After the researcher obtained the necessary data in the pre- and post-tests on the research sample and used the computer statistical system (Spss) for the purpose of processing the data statistically.

3 - Presentation, analysis and discussion of results.

3-1 Presentation, analysis and discussion of the results of the physical variables of the study.

Table No. (3) shows the arithmetic mean, deviation, and standard for the pre- and post-tests for testing physical variables (weight - abdominal circumference), where the (t) law was used for symmetrical samples.

Table (3)

It shows the arithmetic means, standard deviations, and the (t) value calculated for the pre- and post-tests of the physical tests of the research sample.

Physical tests	unit of measurement	measurement	arithmetic mean	standard deviation	calculated t-value	Significance

weight	kg	pre-test	٦٥.٦٥	٥.٠٣١٦	٤.٣٦١	Moral
		posttest	٦٣.٥	٦.٠٦٥		
Abdominal circumference	cm	pre-test	٩٠.١٠	٧.٠١	٦.١٢	Moral
		posttest	٨٢.٥	٧.٤٣٢		

The tabular t value is (2.09) with a significance level of (0.05) and a degree of freedom (19).

The arithmetic mean for the weight measurement in the pre-test was (65.65) with a standard deviation of (5.0316), while the arithmetic mean value in the post-test was (63.5) with a standard deviation of (6.065), and the calculated (t) value was (4.361), which is greater than the (t) value. The tabulation of (2.09) is below the level of significance (0.05) and with a degree of freedom (19), or this indicates that there is a significant difference in favor of the post-measurement, while the arithmetic mean for the abdominal circumference measurement was (90.10) and with a standard deviation of (7.01) for the pre-measurement. While the arithmetic mean reached (82.5) with a standard deviation of (7.432) for the post measurement, the calculated (t) value reached (6.12), which is greater than the tabulated (t) value of (2.09) under the significance level (0.05) and with a degree of freedom (19), and this indicates There is a significant difference in favor of the post measurement.

3-2 Discussion of the results.

The researcher attributes the emergence of these differences to the fact that the members of the research sample were affected by the surroundings of their bodies in the nature of the physical activity that they practiced, and this shows that the special exercises prepared by the researcher to rehabilitate the muscles of postpartum women have a positive impact on the physical variables under research, as there is an improvement. This improvement appeared in the decrease in the value of its arithmetic mean in the post-measurement, as this decrease was certainly at the expense of a decrease in the amount of fat in these areas, if it is taken into account that the abdomen is like a cavity that is fixed in circumference, especially in adults, and that any increase that occurs in this circumference is Calculating muscle mass or increasing the percentage of fat in this area. Therefore, a decrease

in the percentage of fat is a positive phenomenon in the health of the individuals in the research sample.

3-3 Display and analyze the results of physical tests.

Table No. (4) shows the results of the pre- and post-tests for the abdominal muscle strength and back extension tests.

Table (4)

It shows the arithmetic means, standard deviations, and (t) value calculated for the pre- and post-tests of the physical tests for the research sample.

Physical tests	unit of measurement	measurement	arithmetic mean	standard deviation	calculated t-value	Significance
Abdominal muscle strength	Repetition	pre-test	١٥.٢١	٣.٢١٣	– ٢.٤٨٧	Moral
		posttest	١٨.٠١	٤.١٥٣		

(*) The tabular t value is (2.09) under a significance level of (0.05) and a degree of freedom (19).

By looking at Table No. (4), we notice that the arithmetic mean of the abdominal muscle strength test for the pre-measurement was (15.21) with a standard deviation of (3.213), while the arithmetic mean for the post-measurement was (18.01) with a standard deviation of (4.153). The calculated (t) value was (2.472), which is greater than the tabular (t) value of (2.09), with a significance level of (0.05) and a degree of freedom (19), and this indicates that there is a significant difference in favor of the post-test.

3-4 Discussing the results of physical tests.

Through the results, it was shown that there was a clear improvement in the level of the physical test, as the difference for all the options was significantly significant, and this shows the effect of the special exercises prepared by the researcher in rehabilitating the woman's muscles affected after childbirth, as it affected the results of the strength of the abdominal muscles positively, as these

exercises work. It expands the blood vessels, which results in a smooth flow in the volume and movement of oxygen-laden blood, thus achieving an increase in the force exerted. (1)

4-5 Presenting the results of some physical measurements under study.

Table No. (5) shows the results of the pre- and post-measurements of skin thickness of the triceps and upper pelvis.

Table (5)

It shows the arithmetic means, standard deviations, and t-value calculated for skin thickness tests for the research sample

Physical tests	measurement	arithmetic mean	standard deviation	calculated t-value	significance
Skin thickness of the triceps muscle	pre-test	٣٥.١	٥.٣١٤	٩.٥٢٨	Moral
	posttest	٢٤.٦	٤.٦٢٥		
Skin thickness in the upper pelvic area	pre-test	٢٠.٣١	٥.٨٣٢	٨.٦٣٦	Moral
	posttest	١٢.٤٣	٣.٥٧١		

(*) The tabular t value is (2.09) under a significance level of (0.05) and a degree of freedom (19).

We note that the arithmetic mean for measuring skin thickness in the triceps muscle reached (35.1) with a standard deviation of (5.314), while the arithmetic mean for the dimensional measurement reached (24.6) with a standard deviation of (4.625), and the calculated (t) value reached (9.528), which is greater than the (t) value. The tabulation of (2.09) is below the level of significance (0.05) and with a degree of freedom (19). This indicates that there is a significant difference in favor of the post-measurement. The arithmetic mean for measuring the thickness of the skin at the top of the pelvis for the pre-measurement was (20.31) with a standard deviation of (5.832), while the arithmetic mean was (20.31). For the post-measurement (12.43), with a standard deviation of (3.571), the calculated (t) value was (8.636), which is greater than the tabulated (t) value of (2.09) under a significance level of

(0.05) and with a degree of freedom (19). This indicates that there is a significant difference in favor of the measurement. Al-Baadi

4-6 Discussing the results of the physical measurements of the study.

The special exercises prepared by the researcher had a positive effect, as they reduced the percentage of fat in the skin folds. The exercises that were used were comprehensive for the muscle groups in the abdomen, as stomach exercises helped burn a lot of calories at the expense of fat. The decrease in the fat component as a result of performing exercises using the high-intensity interval training method was at the expense of increasing the muscle component resulting from these exercises.

5- Conclusions and recommendations.

5-1 Conclusions

1. Special exercises have a role in developing the strength of the abdominal muscles in the affected muscles after birth.

2. It was found that there was a decrease in the proposed abdominal circumference, and this was shown by the results of the proposed test.

3. It appeared that there was a decrease in the proposed skin folds, which are the triceps muscle and the upper pelvis, as the main goal was to decrease those folds.

5-2 Recommendations

1. It is necessary for women to practice exercise and physical activity after giving birth in order not to accumulate fat in the abdominal areas.

2. Educating women about the importance of gradually practicing exercise and physical activity after childbirth, especially for the abdominal areas.

3. The researcher recommends that fitness centers follow thoughtful approaches to ensure the development of the mother’s health condition after giving birth.

Arabic sources

1. Wajih Mahjoub: Scientific Research Methods and Curricula, 2nd edition, University of Mosul, Dar Al-Kutub Directorate for Printing and Publishing, 1988.

2. Muhammad Nasr al-Din Radwan and Kamal Abdel Hamid: Introduction to Evaluation in Physical Education, 1st edition, Cairo, Dar al-Fikr al-Arabi, 1994.

3. Duqan Obaidat and others, Scientific Research, Its Concept, Tools, and Methods, Amman, Dar Al-Fikr Al-Arabi, 1988.

4. Osama Kamel Al-Lala: The relationship of fat percentage and its variation to some physiological variables related to physical effort in children, unpublished doctoral thesis, College of Physical Education - University of Baghdad - 2000 AD.

5. Wadih Yassin Al-Takriti, Taha Yassin: Physical Preparation for Women, Dar Al-Kitab for Printing and Publishing, University of Mosul, 1986.

6. Muhammad Sobhi Hassanein, Ahmed Kasri Maani: Encyclopedia of Applied Sports Training, Cairo, Al-Kitab Center for Publishing, 1988.