



THE EFFECT OF ALTERNATING INTENSITY EXERCISES TO DEVELOP SOME ELEMENTS OF PHYSICAL FITNESS AND HORMONAL AND ANTHROPOMETRIC VARIABLES FOR FEMALE PARTICIPANTS IN GYMS

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Abstract

The importance of the research lies in revealing the effect of alternating intensity exercises in the development of some elements of physical fitness and hormonal variables among the participants in order to provide information or scientific facts and accurate indicators of those effects, which can be of assistance to workers in the field of sports training and support what has been extracted from information related to the impact of physical fitness. And the researcher believes that the active and active use of exercise as a method of physical balance, this is what prompted the researcher to think about this study in order to know the effect of alternating intensity exercises in developing some elements of physical and hormonal fitness as an indicator of the obese status of women in gyms. The aim of the research is to prepare exercises Alternating intensity in developing some elements of physical and hormonal fitness for female participants in gyms, and identifying the effect of exercises of alternating intensity in developing some elements of physical and hormonal fitness for female participants in gyms.

The researcher used the experimental method (and the design of the two equal groups) for its suitability to the nature of the research problem. The research community was determined by a deliberate method and represented the research community of the participants in the gymnasiums at ages (25-30), where the research sample was chosen with a number of (16) participants and (2) were excluded Participants for the exploratory experiment and by dividing the research sample into two groups (experimental and control) and the distribution was (5) participants for each group. After obtaining the results, they were processed statistically.

The researcher concluded that alternating intensity exercises prepared by the researcher affected the development of some elements of physical and hormonal fitness for female participants in gyms.

The researcher recommends the necessity of paying attention to exercises of alternating intensity and working on developing training curricula based on



these exercises in gyms because of their importance in developing the elements of physical fitness.

Keywords: alternating intensity exercises, physical fitness, hormonal , anthropometric variables

1- Introduction to Research

Introduction and importance of research

Sports is an important part, not only to get rid of excess weight, but to prevent diseases of all kinds, and any diet list that does not recommend exercising is deficient, and sports play a role in giving health fitness, muscle tightening, and the balance between food intake and energy expended, thus reducing or preventing flabbiness in the muscles of the body. Exercising daily or at least 4 times a week, it is possible to get rid of excess weight gradually while giving the body the appropriate physical fitness, and physical activity is the main key to reducing weight, and an effective way to reach and maintain a healthy weight, and physical activity helps to promote the balance of hormones, as well Aerobic exercise helps develop the elements of physical fitness because it plays a prominent role in human health, personality and psychological traits, and that poor physical fitness will lead to negative effects on women's health.

The various opinions differed on the extent to which women are affected by sports through their participation in physical activities and achievements and participation in gyms through exercises of alternating intensity that they are going through. The assignment in the field of sports training and sports physiology

Hence the importance of research in revealing the effect of alternating intensity exercises in developing some physical fitness and hormonal variables for female participants in gyms in order to provide information or scientific facts and accurate indicators of those effects, which can be of assistance to workers in the field of sports training and support what has been extracted from information related to Affected by physical fitness and health and the accompanying hormonal changes.

Research Problem

The physical nature of the woman in terms of morphological and physical specifications and the nature of her hormones in addition to other factors that



may cause her health and physical problems, and through observation, a frequent case was observed in women, which is the irregular work of hormones in addition to the presence of an increase in weight, which is the main factor that brings women to fitness halls from obtaining On less weight as well as on better physical fitness elements, and through previous training units and different programs that the researcher used on the participants, where it was found that there are positive results in this aspect, that these factors are linked together physiologically, and the researcher believes that the active and active use of exercise as a method of physical, physiological and hormonal balance This prompted the researcher to think about this study in order to find out the effect of alternating intensity exercises in developing some physical fitness and hormonal variables for female participants in gyms as an indicator of the health status of women.

Research Objectives

-Preparing alternating intensity exercises to develop some elements of physical fitness and hormonal variables for female participants in gymnasiums. .

Recognizing the effect of alternating intensity exercises to develop some elements of physical fitness and hormonal variables for female participants in gyms.

Research Hypotheses:

There are statistically significant differences between the tribal and remote tests of the experimental and control groups in some elements of physical fitness and hormonal variables for female participants in the gyms. .

There are statistically significant differences between the post tests of the experimental and control groups in some elements of physical fitness and hormonal variables for female participants in gyms.

Research Areas:

The human domain: gymnasium participants

Time range: for the period from 12/1/2021 to 1/4/2022

Spatial domain: Gym Center Rafal Fitness Center, Dubai Specialist Laboratory

-Research methodology and field procedures



Research Methodology

The researcher used the experimental method (and by designing the two equal groups) for its suitability to the nature of the problem to be solved, and the experimental method means (trying to control all the variables that affect the phenomenon except for the experimental variable in order to measure its impact on that phenomenon ((131:2).

The research community and its sample

The research community was determined by the intentional method and represented the research community from the participants in the gymnasiums, where the research sample was selected with a number of (16) participants and (2) participants were excluded for the exploratory experiment and by lottery and by the method (even and single), and by dividing the sample of the research individuals into two groups (experimental). The distribution was (7) shared for each group. The researcher conducted homogeneity in some anthropometric measurements for the members of the research sample in each of the variables (height - mass - age) torsion coefficient, which showed the homogeneity of the sample according to what is shown in Table (1).

Table (1) shows the homogeneity tests (height - mass - age) for the research sample. see index

It appears from Table (1) that the skewness coefficient for all members of the research sample is homogeneous, with evidence that the value of the skew coefficient for all the variables under study is within (± 1), which indicates their homogeneity.

2-3 Devices, Research Tools and Data Collection Means:

2-3-1 Means of data collection:

1. Arab and foreign sources.
2. Information Network (Internet)
3. Test and measurement
4. Observation and experimentation
5. Personal interview
6. Data dump form

2-3-2 Devices and tools used in research

The researcher used the following tools to obtain the required information and data:

1. A device for measuring height and weight, a Spanish-made type, with a unit of weight (kg) and length (cm) number (1).



2. TREAD MILL (Japanese EC-T220.CATEYE) type (1).

3. DIAMOND TYPE STOP WATCH (1)

2-4 Determination of physical and hormonal variables and their tests

1- Zigzag running test to measure agility

2- Flexibility test to measure the flexibility of the torso range of motion

3- A sitting test from lying down to measure the endurance of the muscular strength of the abdominal muscles.

2-4-1 Zigzag Running Test (329:13)

The purpose of the test: to measure agility

Tools used: Five high jump posts or poles (five chairs can be used instead of bars or balls), a stopwatch, and a rectangle (10 * 16 feet) in length.

Description of performance: The laboratory stands at the starting position (next to one of the four legs marked for the rectangle, and upon hearing the start signal, the laboratory conducts the shuttle run in the form of (8) in English, and the laboratory performs this work three times until it reaches the starting point after cutting the three courses)

General directions:

- The specified itinerary must be followed, and in the event of a violation, the attempt is repeated after rest.
- Do not touch the uprights while running

The laboratory must perform three (3) complete cycles

The laboratory starts running from a standing position

Recording: records the time the lab cuts the three cycles and we choose the best time.

2-4-2 Flexibility Test

Objective of the test: To measure the flexibility of the torso range of motion (65:1).

Tools used: a device designed to measure range of motion, assistants, a registration form.

Test description: The device measures the range of motion caused by body parts between two points, where the first point is the fixed lever indicator, and the second point is the moving arm indicator from degrees (zero to 360) degrees through the geometric protractor indicator in white, which gives the amount of the angle difference that forms it. The joint with the fixed engineering protractor.



2-4-3 Endurance test: Test run (800) meters (108:9)

The objective of the test: To measure stress (the efficiency of the circulatory and respiratory system).

Equipment used: running track, stopwatch, assistants, registration form, start line and finish line

Test specifications: The participant takes the high starting position behind the starting line in the place designated for her and the call is made (Get ready, go) and when the participant hears the command to run, she runs at full speed in a straight line and continues to run two full cycles 800m until the finish line, and when they reach the finish line, the timer stops time clock.

Recording: A timer for each laboratory records the time of each laboratory in seconds.

2-4-4 Drawing blood and measuring hormonal levels (LH, FSH)

Hormone analysis method:

To perform the analyzes of these hormones in any governmental or private laboratory, the following steps must be strictly followed:

1. Blood drawing method:

We draw blood from the clearest vein available in the amount of (3) ml, and the hand can be connected to the tornica to increase the clarity of the vein, as the withdrawal process must be quick and organized to avoid the breaking of red blood cells and their spread in the serum, which leads to errors in the results.

2. After the blood is drawn, we put the blood in a special tube to separate the blood serum from the rest of its components. This tube is better to be of the type that contains gel and is called (Gel Tube), as this gel works on the speed of blood clotting and also acts as a barrier between the blood serum and the rest of the components after separating it

3. Separation process: We put the gel tube in the centrifuge and put the device at a speed of (3000-4000) revolutions per minute for a period ranging from (5-10) minutes in order to ensure a good separation of blood components from the serum.

4. After the separation process, we take the serum from the tube and use one of the available devices to measure hormones, such as (Tosoh), (Minividas) or (Cobas) devices. We put the serum in the device and according to the mechanism of the available device, as the devices differ from each other in the way of work and also differ in the mechanism of their interactions and the principle of Each work according to its different degree of development.



5. Save the blood

When storing, all samples after separating the serum or plasma are kept refrigerated for the purpose of delaying chemical reactions and thus preventing the proportions of components from changing.

2-5 Experimental Experiments:

2.5-1 The first reconnaissance experiment:

The exploratory experiment is considered (a practical training for the researcher to identify the negatives and positives during the test and to avoid the negatives) (52:5). Therefore, the researcher considered conducting the test as an initial experiment on a representative sample of the community to be tested. And recording the various observations about the tests with regard to the validity of the instructions and the extent to which the sample members understood them, "and taking notes from this experiment in preparation for amending them if necessary" (25:3). The researcher conducted the reconnaissance experiment on Saturday 11/12/2021 at four o'clock Afternoon at Gym Center Rafal Fitness Center with the assistant team.

The purpose of the pilot experiment is to:

- To verify the validity of the tools in the exercises and the availability of safety to work on them.

Knowing the extent of the place suitable for these ages for the purpose of training.

Adequacy of the assistant work team and knowing the time taken to perform the tests.

- Knowing the difficulties that the researcher faces in the course of his work and developing appropriate solutions.

- Ensuring the sufficiency of the time used for exercises and the sufficiency of rest times used for the sample.

2-6 Tribal tests:

The test (it is a means of evaluation, measurement, diagnosis and guidance in the various curricula, programs and plans for all levels and age stages, it clearly indicates the extent of progress and success in achieving the objective goals) (10:267). The researcher conducted the tribal tests on Friday, 17/12/2021 at exactly Four o'clock in the afternoon in the Gym Center Rafal Fitness Center with the assistant work team on the experimental and control groups after clarifying the tests for the research sample.



Table (2) It shows the equivalence of the sample in the research variables. See index

At the significance level (0.05), the degree of freedom $(N1 + N2 - 2) = 14$

It is clear from Table (3) that the Sig value of all variables is greater than the value of (0.05), meaning that there are no significant differences between the two groups, which indicates that the two research groups in all physical variables are equivalent.

7-2 The main experiment (alternating intensity exercises)

The researcher counted the exercises based on some variables and the sports training literature, the elements of physical fitness, stress mode, repetitions, and appropriate rest periods, depending on the scientific physical ability in the field of specialization, and reviewing the opinions of some experts and specialists in the field of training and fitness, as the approach prepared and used for the group. The research differs in terms of the exercises in the curriculum used by the trainer, and the difference in the use of exercises of alternating intensity during the training units, and the application of the special exercises was as follows:

- Conducting the first training unit on Sunday 19/12/2021 after the tribal exams and the last training unit on Thursday 10/2/2022.

- The exercises included when training on simple and auxiliary tools, according to the kinesthetic guidance of the trainer.

- The period of applying the special exercises took two months, with an average of three training units per week (Sunday, Tuesday, and Thursday), during the two months it is (24 training units).

- The intensity of the exercises used (75-90%).

- The researcher also used the gradient and the upward wave for a period of two months.

- The researcher used the high-intensity interval training method for its suitability for the participants and for exercises of alternating intensity. , and maintain that the player does not reach the overload.

How to do an alternating intensity exercise The first time you do an alternating intensity exercise, warm up for five minutes at a relatively low speed, then switch to a moderate pace for five to ten minutes, then switch to a high intensity pace for 30 seconds, then slow down to moderate for 1-3 minutes to regain strength. Repeat 2 or 3 times for 30 minutes during a practice session. As you become accustomed to alternating intensity, switch between high-intensity and



moderate-intensity exercise to five or six times per session. You can also increase the staying time. At a high-intensity pace for a minute or two if you're able, and as you get fitter, do the alternating intensity exercise in only two or three of your weekly workout sessions, not on consecutive days (43:15).

Post-tests:

After the end of the training curriculum, the post-test was conducted on the research sample on Friday, February 12, 2022 at four o'clock in the afternoon. The same conditions for the test in terms of time, place, the same auxiliary work team (in the pre and post tests), tools and devices in order to stabilize the variables as much as possible.

Statistical means:

After obtaining the data, the statistical bag system (SPSS) was used and each of the values of:

Arithmetic mean, standard deviation, median, skew coefficient, T law for correlated samples T law for independent samples.

-Presentation, analysis and discussion of the results

-Presentation and analysis of the test results (pre and post) of the physical fitness elements and hormonal variables of the (experimental) group.

3-2 Presentation and analysis of the test results (pre and post) for the physical fitness elements tests of the control group

3-4 Discuss the results

From Table (4) it is clear that there are significant differences between the pre and post tests of the control group in the physical variables. With something that is not new, which gave development, which is performed in a single style and with a stable performance, as well as the neglect of the curriculum followed by the group, the correct distribution of the load as it did not depend on the correct scientific foundations, as well as the use of similar exercises that are free of excitement among the participants in the control group, as shown in the table (3) There are significant differences between the pre and post tests and in favor of the post test for the experimental group in all the variables of physical abilities and this is due to the quality of the exercises that were applied to the members of this group

The researcher attributes the reason for this to the use of exercises of alternating intensity, which helped to perform reciprocal and intersecting shuttle movements and steps backward, side and forward..etc. It should focus on the quality of movement and its technique to increase the agility of the individual



and the agility of his movement, and (Sari Ahmed and Norma Abdel-Razzaq) pointed out to "Agility is closely related to the factors of speed, muscular strength, and compatibility, and it contributes greatly to the acquisition and mastery of motor skills. The more agile the player is, the more he can improve his level quickly" (4:50). As for Ali bin Saleh, he points out that agility is "the most difficult traits." The kinetic physical is due to the multiplicity of its components and the comprehension and awareness of the complex compatibility of the motor duty. As much as the kinetic experience is rich, the individual's ability to determine the fine motor pathways within the central nervous system is great, which is positively reflected on the harmonic and fluid ability in performance and implementation of new motor duties in the best way. (219:8) The researcher attributes this development to the effectiveness of the exercises that the researcher used in developing agility, as the preparation of these exercises was according to the correct scientific foundations in terms of size and intensity The reason and the duration of the interfacial rest, as it showed its effect on the muscles of the legs and arms, as (Muhammad Sobhi and Ahmed Kesri) indicate that agility is an important factor in various sports activities "it is the ability to change the positions of the body, whether it is in the ground or the air" (362: 12), and as indicated by (Muhammad Hassan Allawi and Muhammad Nasr al-Din Radwan) that agility is "one of the most important motor components that require changing the direction of the body, changing its positions in the air or on the ground, starting and stopping quickly, or trying to integrate several motor skills into a framework. One movement and motor performance, which is characterized by variable and different conditions with large proportions of compatibility and accuracy" (278:11). Training by taking the participants in different movement positions, which led to the work of the joints with different ranges of movement, each according to the permissible physiological limit. The flexibility gained from kinetic stretching exercises is applied and used when performing kinetic performance. The purpose of kinetic stretching exercises is to increase the range in which body parts move by the force inherent in the muscles (112:7). Hossam El-Din points out that "increasing the level of flexibility leads to an expansion of the range of motion." It contributes greatly to increasing the ability of tendons and ligaments to elongate and stretch and ease movement in the joints of the body, thus increasing the speed and amount of movement required for performance, in addition to producing great strength while retaining the resulting energy" (252:5). The researcher attributes the



development that occurred to the experimental group in the post test. To bear strength to the nature of exercises of alternating intensity, which was prepared by the researcher based on studied scientific foundations in order to improve the physical variables, as exercises of alternating intensity play a major role in developing special endurance, including strength endurance, and this was confirmed by Mark Jones (2014) that alternating intensity exercises work to develop endurance and increase strength. The ability to work (i.e. the ability to withstand a high degree of intensity for a longer period) (52:16), and the researcher attributes the development that occurred to the control group in the test. The dimensional approach indicated that the participants continued training with the trainer's exercises, which aimed to develop strength endurance for the trunk muscles. Continuous training in a programmed manner works to develop special physical abilities, and the training load must be programmed to develop strength endurance and link between physical exercise with the training level (270:6).

4- Conclusions and recommendations

4.1 Conclusions

From the results presented, analysis and discussion of those results, the researcher reached the following conclusions:

- 1- Alternating intensity exercises have had an effect on each of the elements of physical fitness (agility, endurance of the strength of the trunk and flexibility).
- 2- The effects of alternating intensity exercises prepared by the researcher in reducing the proportions of hormonal variables among female participants in the gyms.
- 3- The use of the training curricula, alternating intensity exercises accompanying the musical rhythms, contributed to increasing the desire, suspense and excitement of the trainees to practice the training units.

4.2 Recommendations

In light of the conclusions reached by the researcher recommends the following:

- 1- The need to pay attention to exercises of alternating intensity and to work on developing training curricula based on these exercises in gyms because of their importance in the development and some hormones.
- 2- The necessity of preparing special training curricula using alternating intensity exercises for advanced age stages because of their impact on raising the efficiency of the functional organs in the body.



3- The necessity of conducting similar research and studies using alternating intensity exercises for different age groups and for both sexes and using other types.

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indication	Sig	Values T calculated	Experimental		control		lonliness measurement	processors statistic
			±	°	±	°		
moral	0.000	6.098	1.39	8.27	1.57	8.66	second	agility
moral	0.000	5.261	0.082	5.05	0.203	5.19	minute	endurance
moral	0.000	8.863	0.377	145.8	0.951	149.2	Degree	Flexibility
moral	0.000	5.732	1.67	4.52	1.17	8.97	mlU/ml	LH . hormone
moral	0.004	3.578	1.43	3.45	1.64	6.41	mlU/ml	FSH_

indication	Sig	ValuesT calculated	Experimental		control		lonliness measurement	Statistical processors
			±	°	±	°		
random	0.803	0.255	1.59	9.03	1.67	8.8	second	agility
random	0.07	1.998	1.70	6.71	1.77	4.85	Number	Bearing strength to the torso
random	0.412	0.850	9.23	161.71	8.36	157.7	Degree	Flexibility
random	0.587	0.557	3.38	17.21	2.49	16.32	mlU/ml	LH . hormone
random	0.792	0.269	2.30	9.65	2.26	9.32	mlU/ml	FSH_

skew modulus	Mediator	standard deviation	Arithmetic mean	measruing unit	Variables
0.852	158	7.038	160	cm	height
0.058	85	17,869	85.35	kg	Bloc
0.117 -	28	055 . 2	27.92	year	the age



indication	Sig	T . value calculated	q o	q	post test		pretest		lonliness measurement	processors
					±	°	±	°		
moral	0.002	5.384	0.374	0.762	1.39	8.27	1.59	9.03	second	agility
moral	0.001	6.632	0.091	0.228	0.082	5.05	0.143	5.28	minute	endurance
moral	0.004	4.556	2.60	15.85	0.377	145.8	9.23	161.7	Degree	Flexibility
moral	0.000	17.267	1.943	12.68	1.677	4.52	8.38	17.21	mlU /ml	LH . hormone
moral	0.001	5.516	2.973	6.20	1.438	3.45	2.30	9.65	mlU /ml	FSH_

exercise time	Rest between groups	groups	Rest between repetitions	Repetition	performance time	intensity	the exercise
d 12	seconds 60	2	sec 30	6	30Tha	%75	Beginning with a 90° knee bend, the joint will just sit at the bottom of the squat and pulse 1 to 2 inches up and down
d 12	seconds 60	2	30Tha	6	30Tha	%75	The joint begins by standing on one straight, with the arms attached to the body. The joint begins by leaning on the right foot and bending forward with the left leg extended back with the intertwining of the legs and arms bent in front of the chest Switch legs each time, keeping the back straight and chest up
d 12	seconds 60	2	30Tha	6	30Tha	%75	The joint begins by standing on one line and looking forward and begins by bending the foot back to reach the hip from the back alternately between the feet and arms bent to the chest, a quick movement in an attempt to kick in place
d 12	seconds 60	2	30Tha	6	30Tha	% 75	The joint begins by standing on one line and looking forward and begins by raising the knee forward to reach the level of the hip from behind, alternately between the feet and the arms Keeping the back straight and chest up, a quick movement with the knees raised to the chest or as high as you can