

DOI: <https://doi.org/10.54702/n4dyn35>**The effect of Strong's training on some health fitness variables among participants aged (25-30 years) at Zara Fitness Center****Ban Jihad Umran** ✉

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**Received: 11/01/2024, Accepted: 06/03/2024, Published: 30/04/2024**This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/), © Modern Sport**Abstract**

It can be said that the rate of decline in health fitness increases with increased reliance on amenities and luxury and increased lack of movement with a dietary pattern in which excessive amounts of energy that the body needs are available, which increases with weight and some diseases that affect health fitness in terms of the physiological and physical aspects, and in the other direction. Practicing sports activities has become one of the basic requirements of life for many women in society, and the aim of the research is to identify the effect of Strong's training on some health fitness variables among participants aged (25-30 years) at the Zara Fitness Center. The researcher used the experimental method with a single experimental group design with the same test. The pre- and post-test due to its suitability to the nature of the problem. The researcher tested the sample of participants in a deliberate manner and represented those whose ages ranged between (25-30 years). The researcher applied the training curriculum to a sample of (7 participants) and included (24) training units, three units per week, and the training intensity ranged from (70% - 95%) The exercises were applied in both high- and low-intensity interval training methods, and in light of the research results, the researcher concluded that strength training had a significant impact on bringing about an improvement in the physiological study variables (body mass index, Vo2max fat mass index, maximum aerobic speed In light of these conclusions, the researcher recommends the necessity of using strength training in fitness and health sports centers and working to increase the awareness of those in charge of the training process and participants of the importance of strength training, because of its physiological benefits.

**Keywords****Strong training, health fitness****Introduction:**

It can be said that the rate of decline in health fitness increases with increased dependence on comfort and luxury and lack of movement concurrent with a dietary pattern in which excessive amounts of energy that the body needs are available, which leads to an increase in weight and some diseases that affect health fitness in terms of the physiological and physical aspects, etc., and in the other direction. Practicing sports activities has become one of the basic requirements of life for many women in society, and this has increased the trend towards practicing sports activities in its various forms, and in light of the multiple reasons for the trend towards practicing sports activities, obesity and lack of exercise contribute greatly to the development of

some diseases, including heart diseases in females. These data emphasize the importance of maintaining a healthy weight and exercising regularly to prevent modern diseases. (Li, T. Y et al.) Strong is one of the sports in which females exert physical effort that depends on oxygen performance, which effectively contributes to influencing body weight by burning fat and raising physiological and physical fitness. Therefore, regular aerobic exercise can reduce body weight (19), (Chaudhary et al) and fat mass without resorting to restricting calories in diets for obese females, for a minimum of (60) minutes and preferably (80-90). One minute of moderate exercise daily; to avoid regaining weight and increasing health fitness in general among females who suffer from obesity or overweight (17). The

importance of research lies in practicing strength training because of its effective impact on many physiological and physical variables, including weight loss and increasing the efficiency of physiological fitness. accompanying physical fitness. Through the researcher's experience in the field of fitness training, she noticed that the participants' interest in exercising in closed halls is increasing as a result of the increase in obesity and lack of movement. The researcher attributes this to social customs and traditions, and the use of some trainers for traditional exercises and the lack of innovation and diversification in them, which It led to the participants feeling bored due to the routine followed in the physical fitness training unit. Therefore, the researcher believes that using strength training exercises will break the routine and add a spirit of fun and enjoyment by mixing martial arts movements with some strength exercises using body weight, which is surrounded by strong health benefits and excitement. And suspense. In light of the above, the research problem emerged, which can be summarized in answering the following question: "Does practicing strength training have an effect on the health fitness of obese females aged 25-30 years?" The research also aimed to identify exercises using strength exercises on health fitness variables (physiological, physical) among female participants aged (25-30) years in a fitness center, and that there are statistically significant

differences between the pre-test and post-test in health fitness variables (physiological, physical) among participants. Participants aged (25-30) years in a fitness center for the benefit of the post-test. The human field included a sample of female participants in health fitness centers with ages ranging from (25-30 years). As for the time field, it was the period extending from 4/1/2022 to 6/1/2022. The spatial field is a fitness center in Sulaymaniyah.

### **Research Methodology:**

The researcher used the experimental method with a single experimental group design with a pre- and post-test to suit the nature of the problem.

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

The research population was chosen intentionally, and they were the participants of a health fitness center in Sulaymaniyah Governorate, who numbered (10) participants. The researcher selected the sample of participants in the deliberate manner and represented those whose ages ranged between (25-30 years) to apply the research vocabulary, and their number was (7) participants. The researcher homogenized the sample on some variables, such as length, mass, and age, by extracting the means, standard deviations, and skewness coefficient, as shown in the table below.

**Table .1** shows the statistical parameters of the homogeneity of the experimental group

Variables	Measuring unit	Mean	Std. Deviations	Skewness
Length	Cm	172.142	3.670	0.300
Mass	Kg	70.857	3.338	0.654
age	Year	27.285	1.496	0.256
Training age	Month	9.571	2.370	0.124

It is clear from Table (1) that there is homogeneity among the sample members as a whole, because the skewness coefficient fell between ( $\pm 1$ ), and this indicates the homogeneity of the sample members with the above variables.

### **Devices, tools and tests used:**

The researcher used the following: (A stopwatch, a device for measuring height and weight (7) boxes with a height of (20 cm). Tests for the research.)

### **Exploratory experience:**

The researcher conducted an exploratory study in the period from (4/1/2022) to (4/15/2022) on a sample of (3 female participants) from outside the main research sample and representative of the research community. The study aimed to: determine the best methods for conducting measurements and recording data. Identifying the difficulties that may be encountered and how to overcome them, appropriate devices and tools for

the research sample, trying some selected exercises to determine their suitability during application, experimenting with the stepping box and how appropriate its height is for the research sample.

### **Tests used in the research:**

The researcher chose the tests after reviewing the sources, references, and research, which are as follows:

- Strength endurance of the arm muscles: a test of flexion and extension of the arms from the prone position (1 minute) (Fares Sami) (11).
- Strength endurance of the leg muscles: a test of flexion and extension of the legs for (1) minute (Qais Naji) (10).
- Strength endurance of the abdominal muscles: sitting test from lying down with knees bent and arms in front of the chest (1) minute (Raysan) (5).
- Flexibility of the spine: testing the trunk forward from standing (Ismail Salim) (2).

The fat mass index (IMG) was calculated according to the following equation: (- 10.8 x 0-5.4 age = 1.2 x BMI + 0.23 x (% for women))

- Body mass index according to the following equation:- (Tricia Li & others) (19)  
(Body Mass Index (BMI) = Weight (mass) / (Height x Height)

### **Main experiment procedures:**

- **Pre-tests:** Pre-test were conducted for the experimental group on Saturday and Sunday (April 17-18) as descriptive measurements for physiological and physical tests.

**Table .2** shows the statistical parameters of the physiological variables for the experimental group

Variables	Pre-test		Post-test		T value calculated	Level Sig
	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation		
BMI	34.857	1.345	30.001	1.914	4.599	0.004
Fat mass index	32.428	2.439	26.857	1.676	4.264	0.005
VO2max	33.002	2.645	38.142	2.267	3.576	0.012
(VMA)	12.149	1.676	15.129	2.410	2.469	0.039

It is clear from Table (2) above that there is a development in favor of the post-test for the experimental group in the physiological variables,

- **Application of the program:** The proposed strength training exercises were applied to the experimental group of the research sample under the supervision of the researcher and the fitness trainer at the Zara Fitness Center. The researcher implemented (24) training units distributed over a period of (8) weeks, with three units per week on (Sundays, Tuesday, Thursday), as the researcher began implementing the first training unit on Sunday (18/4) and ended with the last training unit (22/4). The time of the training unit was (60) minutes. The researcher adopted two methods of high- and low-intensity interval training in their training, which is appropriate for all the physical abilities studied, and the intensity ranged from 70% up to 95% of the participants' maximum ability, while rest between repetitions was until the pulse returned to (120 pulse per minute).
- **Post-tests:** They were conducted for all variables previously measured in the pre-tests, in the same order and conditions as for the experimental group, on Saturday and Sunday (4/22).

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

### **Result:**

**Presentation and analysis of the results of the experimental group's physiological variables:**

as the calculated (t) values were significantly significant when the error probability ratio was less than (0.05).

**Table .3** shows the statistical parameters of the physical variables for the experimental group

Variables	Pre-test	Post-test	T value	Level Sig
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	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation	calculated	
Strength endurance of the leg	24.428	4.353	44.142	7.244	6.594	0.001
Strength endurance of the arm	20.285	4.785	38.571	4.720	7.858	0.000
Strength endurance of the abdominal	17.857	2.478	30.000	5.291	8.444	0.000
Flexibility of the spine forward	18.857	3.132	37.142	7.128	9.385	0.000
Flexibility of the spine to the side	19.000	5.656	38.285	3.817	8.806	0.000

It is clear from Table (3) above that there is a development in favor of the post-test for the experimental group in the physical variables, as the calculated T-values are significantly significant when the probability of error is less than (0.05).

#### **Discussion:**

Through the tables above (2) to determine the significance of the differences between the pre- and post-tests, it appeared that the experimental group achieved significant results for all physiological variables and in favor of the post-test. The researcher attributes that the reason for obtaining this result is that the strength training exercises that continued for a period of (8 weeks) had an effect on the BMI variable, which expresses the relationship between height and mass. (Zayed) also pointed out that (BMI is affected by (by mass) (6), and the researcher attributes the decrease in body mass index resulting from increased fat burning during continuous physical performance for long periods of time and to the nature of the strength exercises of different intensities in the training program. This study agrees with both (Imad Abdel) and (Qais Nairat and Abdel Salam Hamarsha ) Each of them pointed out the close connection between continuous and regular physical efforts and their impact on low body mass index. (8), (9). With the technological development in the sports aspect and the emergence of modern methods in raising the level of health fitness, including its variable, the fat mass index, there have emerged new trends in sports training and sports activities, which depend on exerting physical effort in a way that contains a kind of excitement and suspense away

from traditional forms. Among them is (Muhannad Al-Qawasmi) the use of martial arts and indoor aerobics (strong exercises) as one of the forms of sports activity, which was used in fitness centers for multiple purposes. The practice of it has many health, respiratory and physical benefits, as it was used to maintain weight and get rid of fat, excess weight, etc. (15) This sport is considered an aerobic sport that activates all the body's systems, as these exercises are designed in a way that allows for increased reliance in energy production on burning fat, during what is called the metabolic process in the Krebs cycle ( Cycle Crib) The researcher attributes the decrease in the percentage of fat in the body as a result of continuing to perform strength training exercises for long periods of time exceeding (20) minutes, and this leads to an increase in dependence on fat for energy production and thus a decrease in the percentage of free fat in the body, (Ahmed Nasr) as It leads to an increase in the maximum oxygen consumption, taking into account the possibility of each participant controlling the intensity of performance in proportion to their level while maintaining collective performance, as the best period of time to burn a high percentage of fat and calories is between (20-30) minutes. Due to the nature of the change in hormones in the body, especially testosterone and cortisol, which have an inverse relationship linked to the duration of the period of physical exertion, as it activates the hormone testosterone, which is responsible for burning fat and producing energy. (1). With regard to the variable of maximum oxygen consumption (Vo2Max), it is known that performing exercises for periods of time exceeding (10) minutes and may reach (30)

minutes or more, this leads to a noticeable increase in the maximum limit of oxygen consumption, as it is considered an increase in the maximum limit of oxygen consumption. Oxygen is an indicator of the increase in energy production processes due to the increase in demand for oxygen. (Lounana et al) confirm that (the increase in the maximum oxygen consumption as a result of continuous and regular physical effort increases cardiac output and stroke volume in response to physical effort. The researcher attributes the increase in The maximum oxygen consumption required to continue strength training for long and continuous periods of time (16). On the other hand, the results of this study were consistent with the study (Urbina et al), including the use of exercises similar to the current study, which indicated (an increase in the maximum oxygen consumption at a rate of (35.28%) in reference to continuous training periods in addition to To the intensity of the exercises that caused this change. (20). (Smith et al) also add that (there is a statistically significant correlation between the maximum oxygen consumption and the decrease in the percentage of body fat in activities of long duration of time, as the correlation coefficient reached (83%) in males, while it reached 94% in females. (18). Through the tables above (3) to determine the significance of the differences between the pre- and post-tests, it appeared that the experimental group achieved significant results for all physical variables and in favor of the post-test. The researcher attributes the reason for obtaining this result to strength training exercises for a period of (12 weeks) which have an effect on strength endurance regarding (legs, arms, abdomen) (Raysan). When developing endurance, exercises of different nature and duration are used, as well as developing anaerobic capabilities, which helps in The process of performing exercises that do not exceed 20-30 seconds. Also, the length of the interval between exercises, their nature, and the number of repetitions affect the development of endurance. Therefore, they must be taken into account when forming the training unit (4). (Muhammad and Ihab) also confirm (that endurance of force means the ability to exert force repeatedly or over a long period of time, and this means the ability of the muscle to produce force continuously over a long

period of time) (14) and this is what influenced and caused the development of the experimental group. The second was in strength endurance performance, which was used for a longer time than the first experimental group. The variable of strength endurance is a complex physical characteristic that consists of a combination of endurance and strength. This characteristic has a clear and positive impact on the level of health fitness performance, especially the physical aspect of it that requires such a characteristic. (Hamid and Hassanein), citing Hara, see that “resisting fatigue during constant effort, which is characterized by an increase in muscle strength in some of its parts and components, leads to the development of strength endurance” (12). In order to develop strength endurance, this requires the use of exercises using body weight, and this is what the researcher did during the exercises used. (Abdul Jabbar) asserts, “Practical performance is nothing but the application of acquired knowledge and information” (7). Through the researcher’s experience, she sees that the various exercises during training require the strength of the upper and lower extremities and maintaining the same strength. The more the trainee has good endurance, the easier it is to continue physical performance for the longest period and in an appropriate time. As for the flexibility variable, the researcher believes that using martial arts skills in conjunction with Swedish exercises has an effective effect in increasing muscle and joint stretching and accelerating the healing process, and it has an effect in developing some aspects of strength, as (Bastawisi) confirms that “joint flexibility and then muscle lengthening affect every aspect of strength.” The elements of strength and speed have a positive effect” (3). As a result, strength exercises to stretch muscles and joints had an effect in increasing muscular ability, as the effectiveness of physical preparation for developing muscular ability increases significantly in the case of increasing the capacity of joint kinetic performance. Kinetic performance in Female trainees rely more on increasing the range of motion in some joints, (Muhammad Ibrahim Shehata, Sabah Al-Sayyid Farouz) as “the human ability to perform movements over a wide range” (13). As it is mentioned in the similar studies (21) and (22)

**Conclusions:**

According to the research results, the researcher concluded the following:

- Strength training had a significant impact on improving the physiological study variables (body mass index, fat mass index, VO<sub>2</sub>max, VMA).
- The strength training exercises had a significant impact on improving the physical study variables (strength endurance, flexibility).
- Strength training had a significant impact on improving health fitness.

**Recommendations:**

According to the research conclusions, the researcher recommends the following:

- The necessity of using strength training in fitness and health sports centers.
- Work to increase the awareness of those in charge of the training process and the participants of the importance of strength training, because of its physiological benefits.
- The need to encourage researchers in the field in Riyadh to conduct more scientific research that deals with the subject of strength training in fitness and health centers.
- Disseminate the results of the research to private fitness and health centers to benefit from the results of this research.

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## تأثير تدريبات سترونغ على بعض متغيرات اللياقة الصحية لدى المشاركات بعمر ( 25 – 30 سنة ) في مركز زارا للرشاقة

بان جهاد عمران

جامعة بغداد / كلية التربية للعلوم الصرفة – ابن الهيثم

يمكن القول بأن نسبة انخفاض اللياقة الصحية مع زيادة الاعتماد على وسائل الراحة والرفاهية وقلة الحركة المتزايدة مع نمط غذائي تتوفر فيه كميات زائدة عن الحاجة من الطاقة التي يحتاجها الجسم فيزداد مع الوزن وبعض الامراض التي تؤثر على اللياقة الصحية من حيث الجانب الفسيولوجي والبدني ، وفي الاتجاه الآخر اصبحت ممارسة الأنشطة الرياضية أحد متطلبات الحياة الاساسية عند العديد من سيدات المجتمع ، وان الهدف البحث التعرف على تأثير تدريبات سترونغ على بعض متغيرات اللياقة الصحية لدى المشاركات بعمر (25-30 سنة) في مركز زارا للرشاقة استخدمت الباحثة المنهج التجريبي ذو تصميم المجموعة التجريبية الواحدة ذات الأختبار القبلي والبعدي لملائمته طبيعة المشكلة وقامت الباحثة بأختيار العينة من المشاركات بالطريقة العمدية وتمثلت بمن تتراوح اعمارهم في (25-30 سنة) وطبقت الباحثة المنهج التدريبي على عينة عددها (7 مشاركات ) واشتملت على (24) وحدة تدريبية بواقع ثلاث وحدات اسبوعياً والشدة التدريبية تتراوح بين (70%-95%) وتم تطبيق التدريبات بأسلوب التدرج المرتفع والمنخفض الشدة ، وفي ضوء نتائج البحث استنتجت الباحثة أن تدريبات سترونغ كان لها الاثر الكبير في احداث تحسناً على متغيرات الدراسة الفسيولوجية (مؤثر كتلة الجسم ، مؤشر الكتلة الدهنية Vo2max ، السرعة القصوى الهوائية في ضوء هذه الاستنتاجات توصي الباحثة بضرورة استخدام تدريبات سترونغ في مراكز الرشاقة واللياقة الصحية الرياضية والعمل على زيادة وعي القائمين على العملية التدريبية والمشاركات بأهمية تدريبات سترونغ ، لما لها من فوائد فسيولوجية

مستخلص البحث

تدريبات سترونغ ، اللياقة الصحية.

الكلمات المفتاحية