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مجلة جامعة ذي قار لعلوم التربية البدنية

مجلة علمية محكمة تصدرها كلية التربية البدنية وعلوم الرياضة

Effect of HIIT cardio on endorphins and total cholesterol (TC) level in women aged (20-25) years

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Abstract

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The research aims to design a HIIT cardio exercise program tailored to the capabilities of the research sample to examine its impact on the levels of endorphins and total cholesterol in the sample. The research hypotheses suggest statistically significant differences between pre-and post-tests, favoring the post-tests in terms of endorphin and total cholesterol levels among women aged 20–25 years.

Research Scope Human Domain: A sample of women aged 20–25 years, consisting of 5 participants.

Methodology: The researcher employed the experimental method with a single experimental group.

Conclusions:

The study concluded that HIIT cardio exercises contributed to an increase in endorphin levels and a decrease in total cholesterol levels in the blood. The researcher recommends incorporating this type of exercise in gym routines.

1-Introducing the research

1.1 Introduction

HIIT Cardio is a modern exercise regimen that combines high intensity for short periods of exercise with periods of rest or light exercise. The exercises aim to improve physical performance - reduce fat and increase cardio endurance.

In this context, the impact of hit cardio on hormone levels is an important aspect worth considering, especially endorphins, which are known to be a natural anti-stress and contribute to mood and happiness. These exercises also affect total cholesterol (TC) levels which are a factor in cardiovascular disease.

This study aims to explore the impact of hit cardio on endorphin and total cholesterol levels in a sample of women aged 20-25 years, to understand the relationship between exercise and the types of biological changes that accompany it.

Research problem:

Many women in this age group between 20-25 years old face public health problems, especially with regard to cholesterol levels , the impact of psychological stress and life stress on body shape. At this age, some studies show high levels of total cholesterol (TC) and many of them are exposed to psychological pressures that negatively affect the quality of life. HIIT Cardio, on the other hand, is an effective method for improving health and promoting cardiorespiratory health, as well as its potential impact on improving endorphin levels which in turn is known as the happiness hormone that reduces stress and improves mood.

Therefore, this problem highlights the need for a scientific study that contributes to clarifying the relationship between the practice of hit cardio and its impact on biological indicators associated with public health.

Research objectives:

1- Preparing a program of hit cardio exercises that are compatible with the capabilities of the research sample.

2- Identifying the effect of exercise on the level of endorphins in the research sample.

3- Identifying the effect of exercise on the percentage of total cholesterol (TC) in the research sample.

4. Research hypothesis

- There are statistically significant differences between pre- and post-tests in favor of post-tests in the level of endorphins and total cholesterol (TC) in women aged (25-20) years

Research fields

Human field: A sample of women aged (25-20) years, and their number is (5)

Time Range: for the period 30/6/2024 to 29/8/2024

Spatial domain: synergy hall

Identifying terms

It is short for high intensity interval training, which are high-intensity exercises that are interspersed with short breaks and promote aerobic and anaerobic work.

Endrofen:

It is the hormone responsible for eliminating pain. Part of human happiness is related to not feeling pain. It represents the natural morphine that the human body makes, so its composition is similar to opioids. 12:4).

Total cholesterol:

is a measure of the total amount of cholesterol in the blood, including cholesterol associated with low-density lipoprotein (LDL) and high-density lipoprotein (HDL), as well as part of other lipoproteins such as triglycerides. This measure is used to assess the potential risk of cardiovascular disease.22:3).

2. Research methodology and field procedures:

3-1 Research Methodology

The researcher used the one-group experimental approach to suit the research problem, as this approach can solve the problem and can be best understood through the results that the researcher can reach in a practical way.

2-2 Sample research:

The sample was deliberately selected from women, in the research sample (5) and those who meet the conditions for the selection of the sample at the ages of (20-25) years with excess weight.

2-2-1 Homogeneity of the research sample:

Before starting the implementation of the Hit Cardio exercise program, the researcher made homogeneity between the members of the research sample in the variables (age, height, weight), where the chronological age of the members of the research sample was calculated to the nearest (year), the length was calculated to the nearest (cm), and the weight was to the nearest (kg), as shown in Table No. (1)

4. Characteristics of the research sample

Variables	Unit of measure	You will	W	Modulus of torsion
Length	cm	167.2	1.63	53.
Chronological age	.	22.2	1.10	0.87
Weight	kg	77.8%	1.92	40/0

2-3 Devices and tools used in the research:

2-3-1 Tools used in the research:

Measuring tape (Surv.)

Simple?

–step terraces

– Stopwatch

–Electronic Calculator

–Measuring weight (kg) and length (cm) Rest Meter.

– Stopwatch.

–Stop watch.

– Blood collection and preservation tubes containing the anticoagulant substance Vacuum tube edat.

– Ice Box to store blood samples until they are transported to the laboratory.

– A set of sterile plastic syringes for single use to draw a blood sample (10ml).

– Medical cotton – adhesive strips (plaster) – topical disinfectant. Antis

2-4-Means of collecting information

Arab and foreign sources.

Internet

Interviews

Information collection list to record data for each laboratory.

2-5 Steps to carry out the research:

The researcher prepared a special list for each of the members of the research sample in which all the information required for the research results is fixed. There are special fields to fix the name, age, weight and height, as well as special fields to fix the results of the endorphin hormone and total cholesterol.

2-5-1 Tests and measurements used in the research:

The researcher chose a set of hit cardio exercises through which it is possible to know their impact on endorphins and total cholesterol on the extent of the application of these tests and the difference after the end of the specified period of application of the curriculum as follows:

2-5-1-1 Measuring the percentage of endorphins in the blood

2-5-1-2 Measuring total cholesterol.

2-5-2 Exploratory experiment: -

The researcher conducted the exploratory experiment on 30/6/2024 on (2) participants from the research community. In this experiment, the sample was introduced to the exercises that will be applied and how they will be performed. This experiment is a training for the work team. During the experiment, one training module was applied. The purpose of the experiment is to know the time required to conduct the measurements, to know the validity and possibility of the devices used, to know the capabilities of the assistant work team, then to identify the obstacles that the researcher can face to avoid them.

2- 6 Field research procedures:

2-6-1 Pre-tests

Pre-tests and measurements of the research sample were conducted in a hall in (synergy). Conducting physical tests for the research, including measuring the percentage of endorphins and measuring the percentage of total cholesterol in the blood and fixing them within the special list for each individual of the research sample.

2-6-2: Hit Cardio Exercise Program: -

The researcher prepared a training curriculum, including hit cardio exercises. The intensity of the training unit ranged from (80-60) % for a period of (8) weeks, including each week three units - the total number of units (24) training units and the time of the training unit (30) minutes.

2-6-3 For Dimensional Tests

Post-tests were conducted under the same conditions as the pre-tests and on 29/8/2024, which included measuring the percentage of endorphins and total cholesterol. After the end of the period prescribed for the application of the curriculum and installing it within the form for each individual.

Statistical means

The researcher used the statistical portfolio program (spss) that performs the required statistical operations.

3-1 Presentation and discussion

The results were showing the values of the arithmetic media, standard deviations, the calculated value in addition to the level of significance between the pre and post-tests in the percentage of endorphins and total cholesterol (TC) of the research sample.

Variables	Unit of measure	Pre-test		Post-test		* Calculated T-value	Statistical significance
		You will	W	You will	W		
Endrofen	picocram/ml	53.6	14.3	80.2	8.1	22:35	Legal
Total cholesterol	mg/dL	219.8	9.37	189.6	7.27	7.82	Legal

The above table shows the difference in the concentration of endorphins in the research sample before and after physical exertion. The pre-arithmetic mean was (53.6) with a standard deviation of (14.3). The post-arithmetic mean was (180.2) with a standard deviation of (8.1) and the calculated (t) was (-22.35), which is greater than the tabular value (2.77). It explains the emergence of significant differences. The researcher attributes this difference as a result of practicing hit cardio exercises for about (30) minutes. As (amir) stated that endorphins respond significantly to physical exertion and help relieve pain in practitioners and players .

Herbert and Sutton also mentioned the response of endorphins to exercise and acute exercise for an average period of time (6:71)

Holman stated that regular physical activity has great value in improving both total and HDL cholesterol.

The above table shows the difference in the concentration of total cholesterol (TC) in the research sample before and after physical effort. The pre-arithmetic mean was (219.8) with a standard deviation of (9.37), while the post-arithmetic mean was (189.6) with a standard deviation of (7.27) and the calculated (t) was (7.82), which is greater than the tabular value (2.77).It explains the emergence of significant differences. The researcher attributes this difference as a result of practicing hit cardio exercises, where (Hellstrem) indicates that regular physical activity has a great value in improving the ratio of both total cholesterol and high-density and low-density cholesterol and is considered a contributing factor in reducing the incidence of heart disease (547:5)

This was confirmed by both (Maher and Abbas) that aerobic physical exercises improve the percentage of blood fats, especially total, high and low-density cholesterol 21:1))

conclusions

The use of hit cardio exercises led to an increase in the hormone endorphins and their use led to a decrease in total cholesterol.

Recommendations

The researcher recommends the use of this type of exercise because it has a good effect in increasing the hormone endorphins in addition to reducing the total cholesterol in the blood .The researcher advises the use of this type of exercise in gyms

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