

THE EFFECTIVENESS OF AEROBIC GYMNASTICS MEANS IN PREVENTING AND FIGHTING OBESITY

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Abstract: *Aerobic gymnastics represents a system of physical exercises, applied analytically or globally, which influences selectively and commutatively the musculoskeletal system, aiming to perfect and harmonize the movements of the human body. The means of this gymnastic discipline contribute to the formation of a correct posture, to the improvement of one's fitness and health, being also an effective method for preventing and fighting obesity. Starting from this premise, this research aimed to study the probable effects the aerobic gymnastics can have on the body, in preventing the installment of various diseases, existing as an alternative for a healthy lifestyle. The main goal of the research was to identify the effects the aerobic gymnastics has in preventing and fighting obesity. This research was conducted on 205 subjects between 18 and 35 years old, who participated in aerobic gymnastics fitness-type lessons, three times a week. The programs comprised exercises of physical development, stretching and elasticity, of relaxation, of coordination, and not in the least, of muscle strengthening. In order to assess the effectiveness of the applied means we used somatic-functional measurements: height, weight, abdominal perimeter from standing, abdominal perimeter from supine position, thoracic perimeter, thoracic perimeter during inspiration, thoracic perimeter during expiration, hip perimeter, right arm perimeter, and left arm perimeter. After the measurements, we calculated the body mass index (BMI), the Erissman index, and the abdominal muscle tone index. The research data highlight the subjects' interest for their physical appearance through a dynamic activity, constituting an argument for the practice of aerobic gymnastics throughout one's entire life, as a mean to preserve one's youth and beauty.*

Key words: *aerobic gymnastics, effectiveness, prevention, fighting, obesity.*

1. Introduction

"Lifestyle represents a complex concept that includes norms, rules, routines, aiming to direct a person's life. The directions vary according to the persons' daily choices, regardless their gender, age, cultural level, or spiritual orientations" [4]. Considering that the "beneficial effects of practicing aerobic gymnastics are multiple, covering different aspects" (mental, physical, social,

and financial), it is believed that they play a significant role in creating the premises for the manifestation of the attributes of a healthy lifestyle [2], [3]. We can highlight through the means of aerobic gymnastics the favorable effects that physical exercises have on the body, and that it "represents an effective means of weight control, in parallel with a general strengthening of the body" [5].

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2. Research tasks

Starting from this premise, this research aimed to study the probable effects the aerobic gymnastics can have on the body, in preventing the installment of various diseases, existing as an alternative for a healthy lifestyle.

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The *research tasks* were to

- select certain exercises with an increased effect on muscle tone, as well as certain aerobic gymnastics complexes, applied through the circuit method;
- establish the groups of subjects for the experiment;
- measure and test the subjects at the beginning and at the end of the experiment;
- record the results;
- do a statistical analysis of the data resulted after the tests, and elaborate the paper;

3. Material and method

The *research methods* used were: study of the bibliographical material, the observation, the experiment, the tests, the statistical-mathematical method and the graphical representation method.

This research was conducted on 40 subjects between 18 and 25 years old, who participated in aerobic gymnastics fitness-type lessons, three times a week, for 6 months. At the beginning of the research,

anthropometric measurements of the female students were made, making recommendations for individual work and correct diet, to prevent and fight obesity. After the measurements, we calculated the body mass index (BMI), the Erissman index, and the abdominal muscle tone index.

The aerobic gymnastics programs comprised exercises aiming to achieve a specific feminine harmonious development, for strength, stretching, having permanently in view to work all the muscle groups, mainly the ones with deficiencies, and the regions of the body where there is adipose tissue. Throughout the program, guidance was given regarding the regulation of breathing with the movement, and the functionality exercises, in order to make the students aware and prepare them for independent activity. In order to prove the possibility of improving the role of aerobic gymnastics, we elaborated and applied during the Physical Education lesson a series of exercises aiming mainly the body areas that are predisposed to morphological modification during adolescence. To increase attractiveness, the exercises were performed with a musical background.

4. Results

After the measurements, the following body harmony indices were calculated: the Body Mass Index (BMI), the Erissman Index (EI), the Abdominal Muscle Tone Index (Ta).

Body harmony indices

Table 1

Statistical-mathematical indices	Body Mass Index BMI / I.T.	Body Mass Index BMI / F.T.	Erissman Index E.I. / I.T.	Erissman Index E.I. / F.T.	Ab. Muscle Tone Index Ta. I.T.	Ab. Muscle Tone Index Ta. F.T.
X	22.03	21.83	6.20	6.17	3.44	2.45
S	3.16	3.05	7.21	6.22	1.28	1.29
VC%	14.49	13.84	116.40	100.71	52.60	37.30
Min	18.20	16.00	-15.00	-3.00	-3.00	1.00
Max	34.80	30.90	27.00	27.00	6.00	6.00

The Body Mass Index, as it can be seen in Table 1 and Figure 1, recorded an average value of 22.03 in the initial testing; comparing this average with the standard values, one can observe that the group average value is not a satisfying one. The measurements show that 22.44% of the subjects have a normal weight, 10.24% are underweight, 65.37% have an excess in

weight, while 1.95% have mild obesity. The final tests show that the average group value has improved, reaching 21.83. The maximum values in the initial tests were 34.80, arriving at 30.90 in the final tests, representing a 3.9% progress, which means that the aerobic gymnastics programs have had beneficial effects on the subjects. R.

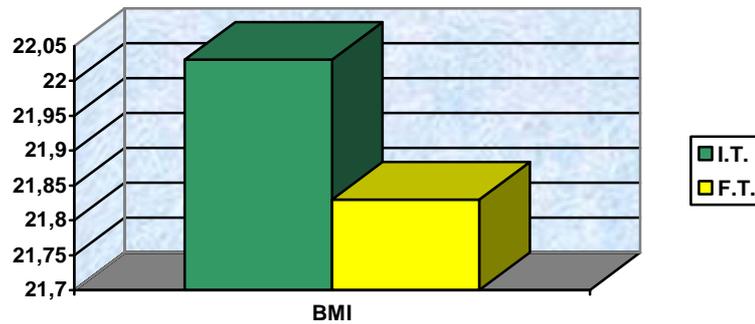


Fig. 1. *Body Mass Index (BMI) values*

The Erissman index expresses body harmony, representing the height-thoracic perimeter ratio. The measurements show that in the case of the 18 to 25-year old subjects, 56.63% of them are well developed, 30.24% are very well developed, 1.95 are normally developed, 12.68% have a narrow thorax, and 0.49% are insufficiently developed. According to

the Erissman index scale, values over 8 cm show an excess of adipose tissue on the core. By looking at the subjects' arithmetical mean, one can see that it has good values, both in the initial testing (6.20%), and the final one (6.17%), the progress being of 3%, as seen in Table 1 and Figure 2.

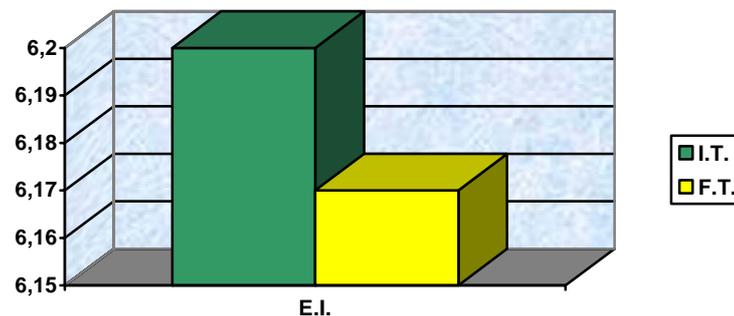


Fig. 2. *Erissman Index (EI) values*

The arithmetical mean for the abdominal muscle tone (Ta) is of 3.44 cm in the initial testing, a progress being recorded in the final testing, the average value being of

2.45 cm (Table 1 and Figure 3). The experts believe that in order for a person to have a well developed abdominal girdle, the normal value for this index is between

1 and 2 cm. A relatively high percentage, 42.93% of the subjects, recorded values above the normal ones, reaching even 6 cm, which shows a well developed abdominal girdle. The experts believe that the normal difference of the abdominal

muscle tone index is of 1-2 cm; 35% of the subjects, representing a number of 72 students, had a value of 2 cm, 38 subjects (18.54%) - 1cm, and 1 subject - 1.5 cm.

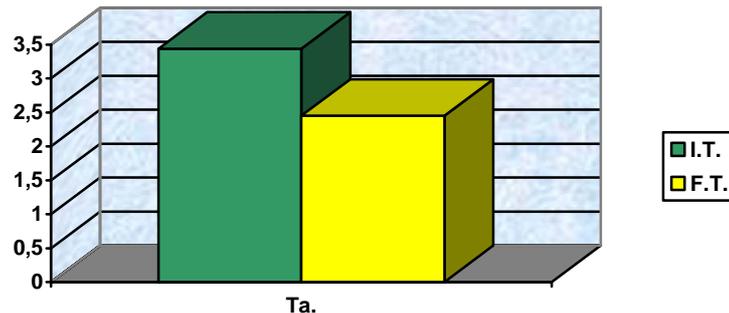


Fig. 3. *Abdominal Muscle Tone Index (Ta) values*

5. Conclusions

At the end of the research we observed that a large number of adolescents are practicing gymnastic activities, which shows the fact that they have a favorable attitude toward exercise.

Due to its scientifically proven effects, and also due to the fact that these effects are starting to be more and more known by the young people, aerobics has become a basic means in fighting and preventing obesity.

The subjects have knowledge regarding diets for losing weight, which means that they are aware of the necessity for combining physical exercises aiming to have a harmonious body, and a state of good health, most of them saying that they want to have good body harmony indices, meaning that they wish to have a pleasant physical appearance.

After analyzing the results recorded by the subjects of this research, one can say that they have body harmony indices close to normal values.

An increasing number of adolescents are aware that ensuring a "high quality of life implies exercising," this being a trend, but a good one. "A society that promotes

sports and understands its value in life is one that ensures the optimism and wellbeing of its citizens" [1].

References

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