

AEROBICS – A WAY TO IMPROVE THE STUDENTS PHYSICAL FITNESS

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Abstract. Introduction. Aerobics is an attractive discipline that can be practiced at any age successfully. The purpose of the study was to identify the effects of practicing aerobics programs for 12 weeks for a group of 19 students (female, aged 19.5 years) who attended the aerobics program twice a week.

Methods. Research subjects were evaluated before and after implementing the work programs both in anthropometric terms, and on muscle strength and flexibility. The aerobic gymnastics session lasted 50 minutes, the means being selected so as to target mainly the abdominal area and the legs.

Results. At the end of the experiment, there have been significant advances in terms of muscle strength and flexibility, the statistical effects of the program were confirmed by the significant progress ($p < 0.05$) recorded.

Conclusions. Aerobics can thus be one of the subjects valued by students participating in the course and can bring positive effects on their physical condition.

Keywords: aerobic gymnastic, students, fitness.

Introduction

Aerobics is an extreme agreed discipline among students, especially by the female students. It can be practiced at any age, having positive effects on the development of motor abilities among children [1] and among adults [2].

There are numerous studies that have demonstrated that specific aerobic gymnastics means, properly applied can positively influence your body mass index (BMI) [3,4] thus contributing to maintaining an optimal body mass that ensures good health.

In a research that showed the effects of aerobic dance on body image and physical self-perception, the author [5] cited Chepyator-Thompson and Ennis concluded that aerobic provides a sense of social support, fulfils the participation motives and serves the importance of the attached body image and physical look.

Thus, aerobic exercise can have positive influences on both motor and functional potential. At the bachelor level, the aerobics can be practiced during physical education lessons or in fitness clubs.

Aim of the study

The purpose of the research was to track the effects that aerobic exercise has on some

components of physical fitness, especially on strength and body mass.

Method

The experiment was conducted over 12 weeks, during which, aerobics lessons lasting 50 minutes, 2 times per week were performed. The research subjects ($n = 19$, female, aged 19 ± 1 year) were tested before and after implementing the work programs.

To identify the role of specific aerobic gymnastics exercises we evaluated body mass, body mass index and motor tests for evaluating the force abdominal muscles, back and legs.

The tests were held in long jump - strength in the legs, torso bending forward - anterior-posterior mobility; Raising the trunk from lying - abdominal strength, trunk extension forward from lying - back strength lift the legs vertically from lying - abdominal strength.

All the subject agreed to take part at this research. None of them had any healthy problems.

The statistical analysis was performed using SPSS, version 21 and we used mean, average, minimum and maximum values. In order to validate the program, we used Paired T-test for the significant results pre and post intervention. The significance threshold was set at $p < 0.05$.

Results

Table 1. Evolution of anthropometrics variables

Variables	Height	Weight T1	Weight T2	BMI T1	BMI T2
MEAN	165	62,92	58,92	22,88	21,43
STDV	0,06	7,11	6,04	1,97	1,62
MINIMUM	1,55	48	48	20	21
MAXIMUM	1,75	74	68	26	24
T value		6,24		6,25	
p		0,001		0,001	

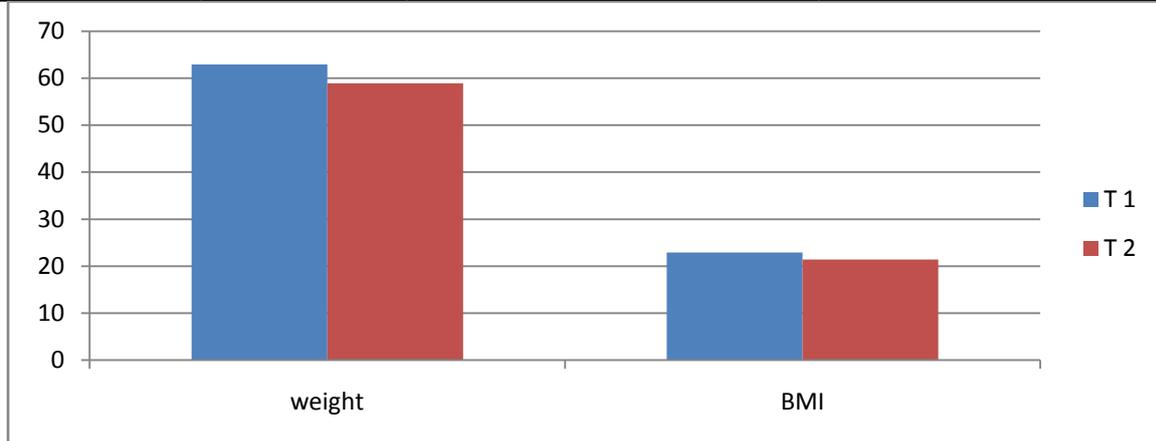


Chart no.1. Evolution of anthropometrics variables

On the first testing the body weight (Table 1), subjects experienced a mean of 62.92 (\pm 7.11) kg, the values were between 48-74 kg. BMI was on the first test of 22.88 (\pm 1.97). At the end of the experiment, the average body mass decreased to 58.92 (\pm 60.4kg) values ranging between 48-68 kg. Also, BMI / ul dropped to 21.43 (\pm 1.62). The efficiency program was confirmed statistically by t-test value of 6.24 / 6.25 at a threshold of $p < 0.001$.

Table 2. Evolution of the lower limbs strength and flexibility

Variables	Long jump T1	Long jump T2	Flexibility T1	Flexibility T1
MEAN	151,53	158,54	0,8	4,38
STDV	11,05	9,94	2,7	2,5
MINIMUM	130	142	-4	4
MAXIMUM	166	173	1	8
T value	-8,10		-16,39	
p	0,001		0,001	

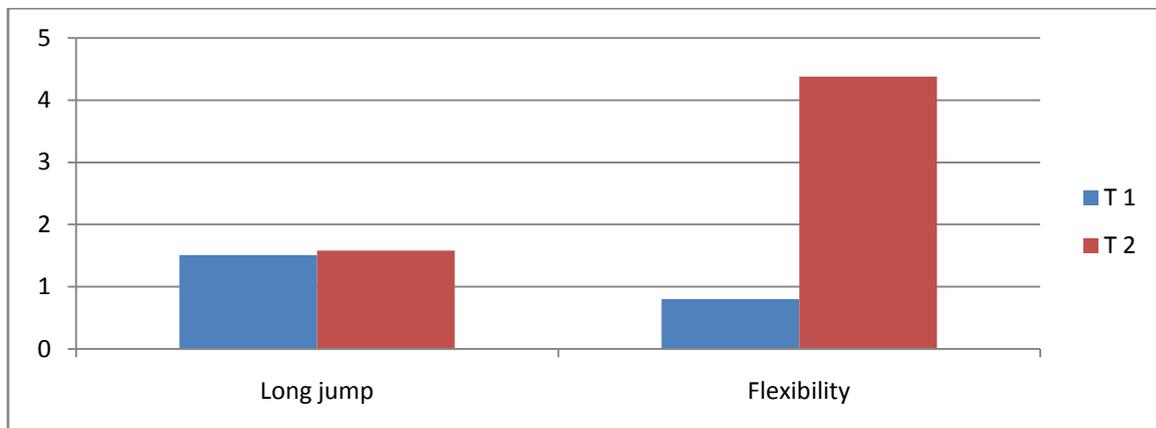


Chart no. Evolution of the lower limbs strength and flexibility

At the first test the lower limbs strength (Table 2), subjects experienced an average of 151.53 (\pm 11.05cm), the values were between 130-160cm. The antero-posterior Flexibility in the first test was 0.8 (\pm 2.7cm). At the end of the experiment, the average flexibility increased at 4.38 (\pm 2.5cm) being comprised between 4-8cm. Also, lower limb strength rose to 158.54 (\pm 9.94cm). The Efficiency of the program was confirmed statistically by the t-test value of 8.10 for abdominal strength and flexibility $t = -16.39$ for the anteroposterior values standing at a threshold $p < 0.001$.

Table 3. Evolution of the abdominal and back strength

Variables	Abdominal strength T1	Abdominal strength T2	Back strengthT1	Back strengthT2	Leg lift T1	Leg lift T2
MEAN	26,15	30,92	33,15	37,15	7,54	10,69
STDV	2,99	2,95	3,99	3,23	1,56	1,6
MINIMUM	22	28	27	32	6	8
MAXIMUM	32	36	40	42	11	14
T value	-13,922		-12,538		-12,653	
p	0,001		0,001		0,001	

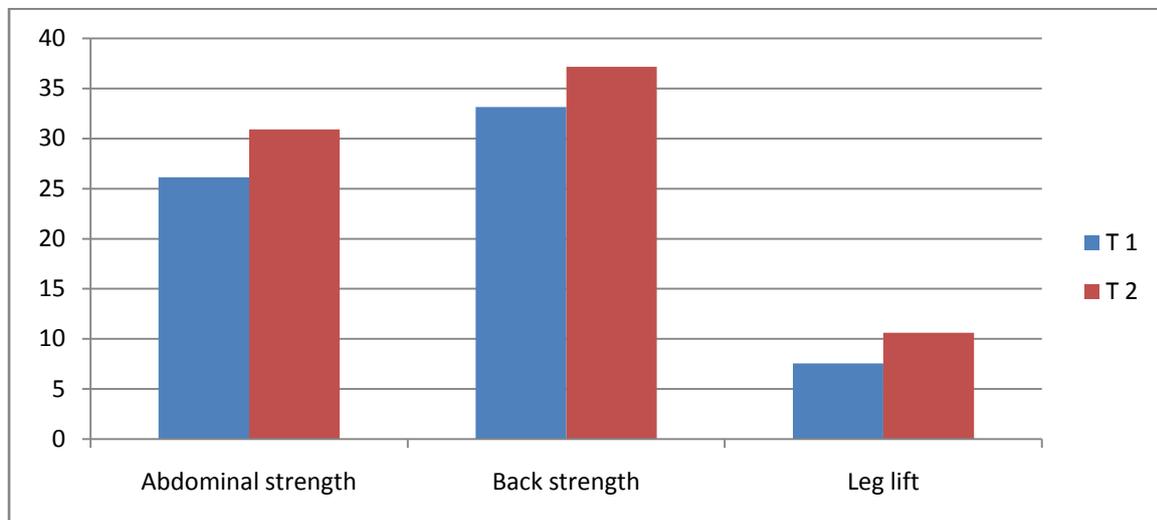


Chart no.3 Evolution of the abdominal and back strength

At the first abdominal strength test (Table 3), subjects experienced a mean of 26.15 (\pm 2.99 repetitions) with values that were between 22-32 reps. Raising legs from sitting at the first test was 7.54 (\pm 1.56 repetitions). Strength in the back of the first test registered 33.15 (\pm 3.99 repetitions) with values between 27-42 reps. At the end of the experiment, after applying specific aerobic gymnastics means, media crunch executions increased to 30.92 (\pm 2.95 repetitions) being comprised between 28-36 reps. And lifting legs lying recorded an average of 10.69 evolution (\pm 1.6 repetitions). Also, back strength rose to 37.15 (\pm 3.23 repetitions). The efficiency program was confirmed statistically by t-test 13.92 value for abdominal strength, $t = -12.53$ to back force the values standing at a threshold of $p < 0.001$.

Discussion and conclusions

Regarding the lower limb strength a progress of 4% was registered, most means used targeting this segment. Valuable progress has been registered in anteroposterior flexibility testing, the evolution of the end of the experiment is about 4 cm better. Abdominal strength has also registered an 18 percent improvement in crunch execution and 43% for raising the legs from lying, the latter requiring mainly the lower abdomen.

Our study is consistent with other studies that highlight the importance of aerobic gymnastics in obtaining an optimal physical fitness. Aerobics or aerobic dance rhythmic gymnastics has ways by which the positive effects of endurance exercise and gymnastics can be combined. [6]. Also, it has been demonstrated that through aerobic gymnastics can improve a number of physical parameters that influence mental health later. [7,8].

The research results validated the work program, so after participating in sessions of aerobic exercise there have been significant advances in the parameters targeting muscle strength in the legs, abdomen and back, but positive results have been recorded on the impact of aerobic exercise on BMI.

Acknowledgement

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