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**Original research article**

# THE EFFECT OF AEROBIC EXERCISE PROGRAM ON THE CARDIORESPIRATORY FITNESS AND BODY COMPOSITION OF FEMALE COLLEGE STUDENTS

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**Abstract**. *The research included 50 female students aged from 22 to 25, 25 of whom made up the experimental group, and 25 participants who made up the control group. We studied the effects of an aerobic exercise model on cardiorespiratory fitness and body composition. The exercise model was realized three times a week, with an overall number of 36 training sessions. Each individual training session lasted 60 minutes, consisting of a warm-up (10 minutes), the aerobic part (35 minutes), strength increasing exercise (5-10 minutes) and the cool-down (10 minutes). To evaluate cardiorespiratory fitness, systolic and diastolic blood pressure were measured, along with resting heart rate and heart rate under strain, and VO2max. Body composition was measured using the following parameters: BMI, ∑ skinfolds, Body Fat %, Muscle Mass % and Lean Body Mass %. The basic statistical parameters were calculated, and to determine the differences between the initial and final measuring we used the Cohen effect size (EC). The effects of the realized program were determined using a univariate analysis of covariance (ANCOVA). The evaluation of the data was performed using Statistica 6.0. Between the initial and final measuring, a statistically significant difference was determined among the applied variables for the evaluation of cardiorespiratory fitness and body composition among the participants of the experimental group, while in the case of the control group no statistically significant difference was found. The implemented model of aerobic exercise had positive effects on cardiorespiratory fitness and body composition of the participants of the experimental group. This research has confirmed that the existing conclusions about the positive effects of aerobic exercise, if it is realized with the appropriate intensity, time and duration.*

**Key words**: *aerobic exercise, effect, cardiorespiratory fitness, body composition*.

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## INTRODUCTION

Physical fitness is defined as any type of movement made by the skeletal muscles, which causes energy consumption (Caspersen, Powell, & Christenson, 1985).

The lack of physical activity is considered one of the most important health issues of modern society, and insufficient movement is the most pronounced health problem of a nation (Pedišić, Jurakić, Rakovac, Hodak, & Dizdar, 2011).

Hypokinesis (reduced movement) leads to the development of various chronic illnesses and disorders, as well as an increase in risk factors for the onset of cardiovascular disease (Warburton, Gledhill, & Quinney, 2001; Blair, La Monte & Nichaman, 2004). In addition, physical inactivity is related to other chronic illnesses such as diabetes and osteoporosis (Katzmarzyk, Gledhill, & Shephard, 2000). The onset of illness can to a great extent be reduced through regular physical exercise (Mišigoj-Duraković et al., 1999). An increase in aerobic capacity (VO2max), can to a great extent reduce morbidity, both among people who do not have or people who are suffering from cardiovascular disease (Myers, Prakash, Froelicher, Partington, & Atwood, 2002).

The possibility for the realization of certain models of physical activities today are available to most citizens, and fitness centers offer a wide variety of choices. One of the models used most frequently is the model of aerobic exercise to music. A characteristics of aerobic exercise is music of a certain rhythm, tempo and exercise intensity, where all the participants exercise to the same rhythm and tempo. The most frequently implemented programs of physical exercise among women are precisely different group aerobic fitness programs – aerobics to music.

The primary aim of this type of exercise is the development of cardiorespiratory fitness (through various movement structures - walking, running, etc.). However, except the aforementioned, there are other goals such as the satisfaction of a motive for the preservation of health, improvement of one's physical appearance, and reduction of body mass (Mandarić, 2005). Obradović (1999) cites that aerobic exercise can be used to fulfill the following aims: motor-functional goals; health goals; esthetic goals and socio-psychological goals. Taking part in this type of physical activity can influence the work of all of the systems of organs, and the preservation of functional abilities of the cardiovascular, locomotor and nervous system. This type of exercise conforms to the recommendations of certain institutions and researchers (Astrand, 1999; ACSM, 1998).

A certain number of studies have shown the positive influence of aerobic physical activities on fitness and body composition (Mišigoj-Duraković et al., 1999; Kraemer et al., 2001; Bassulk, 2003; Kostić, Đurašković, Miletić & Mikalački, 2006), but also asked the question of whether various models of aerobic physical exercise will have the same influence on certain physical parameters.

The aim of the research was to determine the effects of an aerobics exercise program to music on the cardiorespiratory fitness and body composition of female students.

## THE METHOD

### The sample of participants

The sample of female participants included in the study consisted of female students aged 23,02±1,86. The overall sample consisted of 50 female students who through the random sample method were divided into an experimental (25 students) and a control group (25 students). The participants of the experimental group were included in a program of aerobic exercise, while the participants of the control group were not included in the exercise program. The experimental group did not take part in any additional physical activities, and during the experiment continued with their daily activities. The participants of the control group, except for their daily activities, did not take part in any organized form of physical exercise, unlike the experimental group, and during the experiment took part in their daily activities.

### The sample of variables

Cardiorespiratory fitness was established using the following parameters: resting heart rate and heart rate under strain (beats/minute), systolic and diastolic arterial blood pressure (mmHg) and maximum oxygen uptake (ml·kg-1·min-1) estimated with the help of the Queen's College step test, whose reliability has already been confirmed. Body composition was estimated using the Bioelectrical Impedance Analysis – BIA, using the Body Composition Monitor, TANITA UM-72 model. For the purpose of this research, the statistical analysis of the data for body composition was carried out with the help of the Body Mass Index (BMI), subcutaneous fatty tissue, percentage of fatty and muscle tissue and percentage of lean body mass (lean tissue - skinny, dry body mass - Lean Body Mass). BMI was determined using the equation provided by the World Health Organization (WHO, 2000). The determination of the subcutaneous fatty tissue was realized using anthropometric measurements (according to the IBP method, Weiner & Lourie, 1969), while the sum of measured five skinfolds was taken as the result for the subcutaneous fatty tissue (abdominal skinfold, back skinfold, upper arm skinfold, upper leg skinfold, lower leg skinfold). Lean Body Mass was determined based on the formula designed by Ellis (2001).

### Experimental model of aerobic exercise

The implemented experimental model of aerobic exercise was Hi/Lo aerobics. In relation to the part of the training session, speed, intensity and tempo were different. Table 1. shows the characteristics of the model.

**Table 1** The characteristics of the model of aerobic exercise

| | |
|---|---|
| Overall number of training sessions | 36 |
| Number of training sessions during the week | 3 |
| Number of weeks | 12 |
| Duration of individual training sessions | 60 minutes |
| Duration of the aerobic part of the training session | 35 minutes |
| The structure of every individual training session | Warm-up<br>Main part<br>(cardio and strength exercises)<br>Cool-down (stretching) |

The overall number of training sessions in the implemented model was 36, with a frequency of 3 times a week, and a duration of 60 minutes for each session. The structure of the session was tripart (Warm-up, Main part and Cool-down). In the warm-up the participants did exercises with the aim of preparing their muscles and joints for the main part of the class. The duration of the warm-up was 10 minutes, performed to a music tempo of 120 to 135 beats per minute (Brick, 1996).

The main part of the training session was conditionally divided into two parts: 1) an aerobic part and 2) strength exercises. The aerobic part lasted for approximately 35 minutes. Choreographies were prepared, and the music tempo ranged from 135 to 155 beats per minute. The female participants who were not able to fully follow the choreography continued to march in step and/or run in place (to the beat of the music), and when there was an opportunity to once again synchronize their movements to the movements of the group, they joined in and continued exercising. During the realization of the model, not for a moment did the female participants stop being active. The duration of the part of the session meant for strength exercises ranged from 5 to 10 minutes. Complexes of exercises were performed which had as their aim to strengthen leg muscles, the back, abdomen, gluteal region, arms and shoulders. Each exercise was repeated 10 to 15 times. The goal of the cool-down was stretching and muscle relaxation, and during this part of the session, static stretching exercises were also performed. The cool-down lasted for 10 minutes. The content of this part of the session were relaxation exercises with the aim of calming the body.

### Data processing method

The statistical data processing method was carried out using Statistica 6.0. The basic parameters of descriptive statistics were also calculated: arithmetic means and standard deviation. The differences between the initial and final measuring among the participants of the experimental and control group were determined using the Cohen effect size (EC) (Cohen, 1988; Ellis, 2009). The effects of the realized program were determined using a univariate analysis of covariance (ANCOVA) with the equation of the differences which exist between the groups at the initial measuring.

## RESULTS

The results shown in Table 2 presents the basic descriptive parameters of the participants from the experimental and control group at the initial and final measuring. Numerical differences were noted between the initial and final measuring among the female participants of the experimental group. Based on the obtained data, at the final in comparison to the initial measuring, we can conclude that there was a decrease in the following variables : body mass (62.1 to 59.9), BMI (22.9 to 22.1), $\sum$ skinfolds (81.9 to 71.5), Body Fat % (22.4 to 20.2), systolic TA (120.9 to 118.6), diastolic TA (78.5 to 76.2), resting heart rate (74.8 to 71.0), heart rate under strain (155.8 to 161.0) which in this case represent better results. For the variables Muscle Mass %, Lean Body Mass % and VO2max a numeric increase occurred during the final, in relation to the initial measuring (31.4 to 32.3; 77.5 to 79.7; 36.1 to 37.1).

For most of the variables during the initial measuring of the participants of the control group numerically lower values were noted in relation to the participants of the experimental group. The results of the final measuring in comparison to the initial one indicate numerically very small differences.

**Table 2** The basic descriptive parameters of the experimental and control group at the initial and final measuring

| | Experimental group | | Control group | |
|---|---|---|---|---|
| | Initial | Final | Initial | Final |
| | Mean ±St.Dev | Mean±St.Dev | Mean±St.Dev | Mean±St.Dev |
| Body mass (kg) | 62.1 ± 5.9 | 59.9 ± 5.5 | 57.5 ± 4.3 | 57.9 ± 4.3 |
| Body height (cm) | 164.7 ± 6.1 | 164.8 ± 6.2 | 167.8 ± 6.2 | 167.8 ± 6.2 |
| BMI ($kg/m^2$) | 22.9 ± 2.2 | 22.1 ± 2.1 | 20.4 ± 1.1 | 20.5 ± 1.0 |
| SF of the back (mm) | 12.8 ± 4.3 | 12.2 ± 4.2 | 12.8 ± 4.4 | 13.1 ± 4.6 |
| SF of the upper arm (mm) | 21.6 ± 6.1 | 18.6 ± 4.1 | 20.9 ± 5.6 | 20.9 ± 5.2 |
| SF abdominal (mm) | 16.4 ± 6.4 | 13.5 ± 4.9 | 15.4 ± 5.6 | 15.7 ± 5.7 |
| SF of the thighs (mm) | 19.4 ± 4.6 | 16.8 ± 4.0 | 33.8 ± 11.2 | 34.3 ± 11.3 |
| SF of the lower leg (mm) | 11.6 ± 3.6 | 10.2 ± 3.0 | 18.1 ± 5.5 | 18.5 ± 5.5 |
| ∑ skin folds (mm) | 81.9 ± 15.7 | 71.5 ± 12.6 | 101.2 ± 25.1 | 102.7 ± 25.9 |
| Body Fat % | 22.4 ± 4.1 | 20.2 ± 4.3 | 18.6 ± 3.8 | 18.9 ± 3.7 |
| Muscle Mass % | 31.4 ± 4.1 | 32.3 ± 3.6 | 33.0 ± 3.6 | 30.5 ± 3.6 |
| Lean Body Mass % | 77.5 ± 4.3 | 79.7 ± 4.3 | 81.3 ± 3.8 | 81.0 ± 3.7 |
| Systolic TA (mmHg) | 120.9 ± 8.3 | 118.6 ± 7.0 | 116.8 ± 9.7 | 117.6 ± 8.1 |
| Diastolic TA (mmHg) | 78.5 ± 8.0 | 76.2 ± 6.9 | 74.2 ± 7.0 | 74.8 ± 7.4 |
| Resting heart rate (bpm) | 74.8 ± 4.6 | 71.0 ± 5.1 | 77.5 ± 6.2 | 76.8 ± 7.9 |
| Heart rate under strain (bpm) | 161.0 ± 7.0 | 155.8 ± 8.1 | 150.6 ± 13.9 | 148.5 ± 16.7 |
| VO2max ($ml \cdot kg^{-1} \cdot min^{-1}$) | 36.1 ± 1.3 | 37.1 ± 1.5 | 38.1 ± 2.5 | 38.4 ± 3.0 |

In order to determine the differences between the initial and final measuring of the experimental group on the one hand, and the control group on the other, the Cohen effect size was used. Graph 1 shows the differences between the initial and final measuring of the cardiorespiratory fitness and body composition of participants of the experimental group, and in Graph 2, the differences among the participants of the control group can be seen.

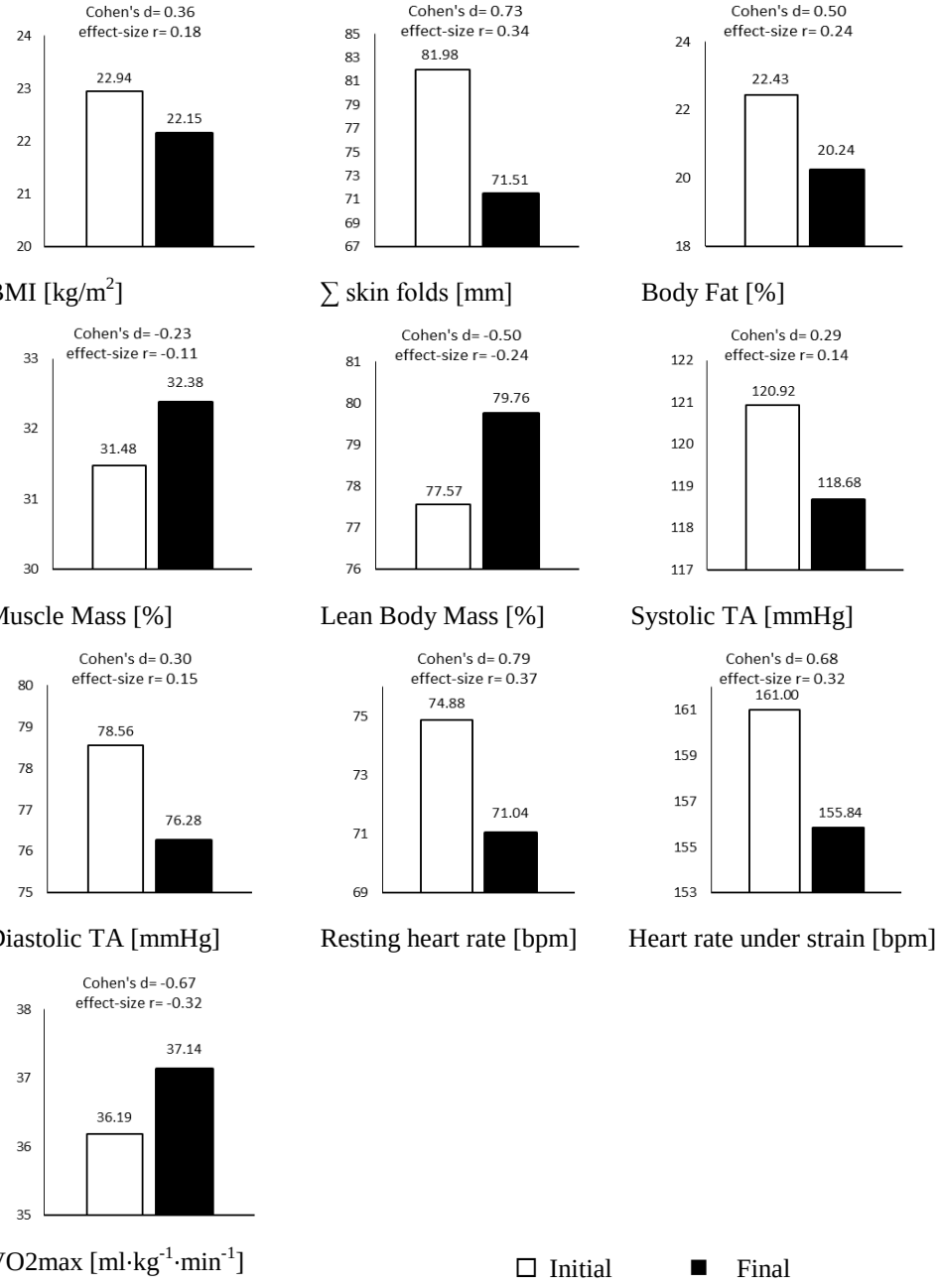


**Fig. 1** Differences between the initial and final measuring of the experimental group

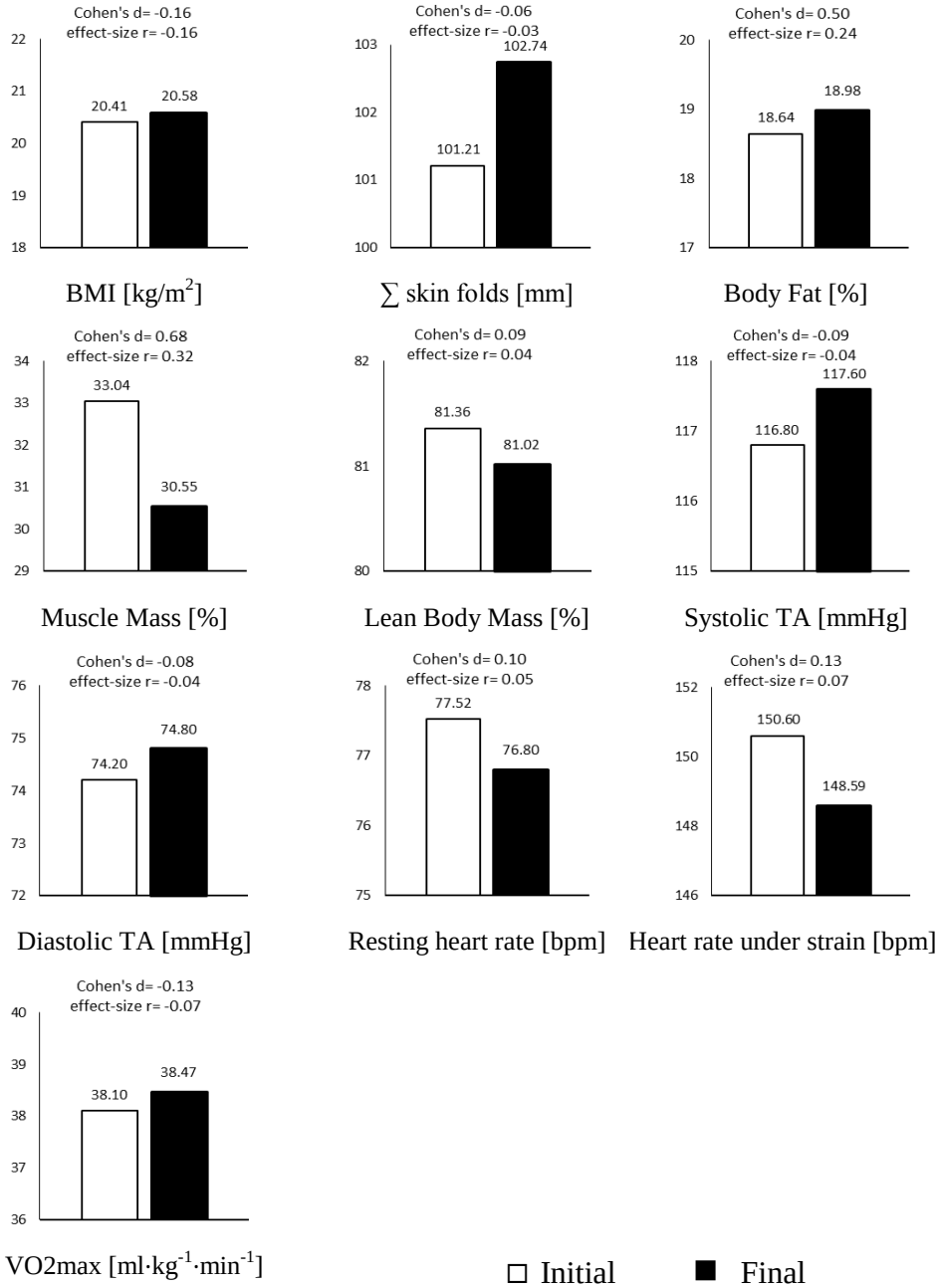


**Fig. 2** Differences between the initial and final measuring of the control group

Based on the obtained d values of the Cohen effect size, moderate changes to cardiorespiratory fitness and body composition between the initial and final measuring among participants of the experimental group were noted for ∑ skinfolds (d= 0.73), Body Fat % (d= 0.50), Lean Body Mass % (d= 0.50), diastolic blood pressure (d= 0.30), resting heart rate (d= 0.79), heart rate under strain (d= 0.68), VO2max (d= 0.67).

For most of the implemented measures and tests for the participants of the control group between the initial and final measuring, no differences were determined. The lack of a difference was noted for the BMI (d= 0.16), ∑ skinfolds (d= 0.06), Body Fat % (d= 0.09), Lean Body Mass % (d= 0.09), systolic blood pressure (d= 0.09), diastolic blood pressure (d= 0.08), resting heart rate (d= 0.10), heart rate under strain (d= 0.13) and VO2max (d= 0.13). It is necessary to note that the results of the final measuring were not as high as the results of the initial measuring.

The effects of the implemented aerobic model of exercise, were determined using the univariate analysis of covariance, where the intergroup differences were determined at the univariate level (ANCOVA method, Table 3).

**Table 3** The univariate analysis of covariance (ANCOVA method)

| | Experimental group | Control group | F | p |
|---|---|---|---|---|
| | Adj. Mean | Adj. Mean | | |
| BMI | 21.19 | 21.53 | 0.76 | .388 |
| ∑ skinfolds | 80.09 | 94.16 | 19.20 | .000** |
| Body Fat % | 18.32 | 20.90 | 32.948 | .000** |
| Muscle Mass % | 32.58 | 30.34 | 3.504 | .070 |
| Lean Body Mass % | 81.68 | 79.10 | 32.95 | .000** |
| Systolic TA | 116.6 | 119.7 | 4.25 | .047* |
| Diastolic TA | 73.80 | 77.28 | 3.21 | .082 |
| Resting heart rate | 73.42 | 74.42 | 0.28 | .599 |
| Heart rate under strain | 148.3 | 156.2 | 6.44 | .016* |
| VO2max | 38.53 | 37.07 | 6.44 | .016* |

Legend: Adj. Mean – adjusted means; BMI – body mass index; Body Fat % - percentage of body fat; Muscle Mass % - percentage of muscle mass; Lean Body Mass % - percentage of lean body mass; VO2max – maximum oxygen uptake; * – level of significance .05; ** – level of significance .01.

Based on the results of the univariate analysis of covariance (ANCOVA method) (Table 3) between the experimental and control group at the final measuring, with a neutralization and partialization of the results at the initial measuring, it can be concluded that determined statistically significant differences for the ∑ skinfolds (p= .000), Body Fat % (p= .000) and Lean Body Mass % (p= .000), at the .01 level of significance. Statistical significance at the .05 level was determined for systolic blood pressure (p= .047), heart rate under strain (p= .016), and VO2max (p= .016).

## DISCUSSION

Based on the obtained descriptive parameters, it can be concluded that the female participants of the experimental and control group at the initial measuring have similar values in the cited parameters like the participants of the same age who took part in other studies (Mišigoj-Duraković, Hajmer, & Matković, 1998). The values of the amount of fatty tissue (Body Fat %) and BMI among the female participants of the experimental group are higher in comparison to the participants of the control group, with the addition that in the case of both samples these values are within the range of normal values for the predicted population (Heyward, 2006). The values of Muscle Mass % and Lean Body Mass % are lower for the participants of the experimental group in comparison to the control group. The results for cardiorespiratory fitness at the initial measuring among the participants of the experimental and control group indicate that the obtained values are within the normal range for the cited sample (Mišigoj-Duraković et al., 1998; Đurašković, 2002). It can be concluded that the participants of the experimental groups scored smaller results in comparison to the female participants of the control group.

The results of the measured descriptive parameters at the final measuring indicate that among the female participants of the experimental group there was a numerical decrease in the measures for the evaluation of body composition, primarily for the BMI, ∑ skinfolds and Body Fat %, while in the case of Muscle Mass % and Lean Body Mass % an increase was noted. The obtained results were expected, since the reduction in the body mass index, skinfolds and body fat can be ascribed to the influence of the realized experimental program (Ross et al., 2000; Pantelić & Mladenović, 2004). In addition, through the realization of certain physical activities, we can influence the increase in the muscle mass and lean body mass component, and so the assumption is that these changes occurred under the influence of the realized experimental exercise program. At the final, like at the initial measuring, numerical differences were determined between the experimental and control group in terms of body composition, which is in agreement with the results of other studies (Wilmore & Costill, 1999). In the space of cardiorespiratory fitness of the female participants of the experimental group for all the measured parameters there was a numerical reduction at the final in comparison to the initial measuring, except for VO2max, for which an increase was noted. The noted results are in accordance with other studies (Heyward, 2006; Jakičić, Marcus, Gallagher, Napolitano, & Lang, 2003; Kostić & Zagorc, 2005). Also, numerical changes were noted among the female participants of the control group at the final measuring, with the added note that they were not as pronounced among the female participants of the experimental group.

Based on the obtained results of the Cohen effect size between the initial and final measuring among the female participants of the experimental group, it can be concluded that the realized experimental program led to moderate effects on most of the parameters. The moderate changes in the sense of a decrease during the final in relation to the initial measuring among the participants of the experimental group was noted for ∑ skinfolds and Body Fat %, while changes in terms of a decrease were determined for the BMI. Small changes in the sense of an increase were determined for Muscle Mass % during the final in comparison to the initial measuring. An increase in the values at the final in comparison to the initial measuring was noted for Lean Body Mass %, among the participants of the experimental groups, and these changes were also moderate. Vissers et al. (2013) cite that aerobic exercise of a moderate or high intensity has the greatest potential for a reduction in

visceral fatty tissue among men and women. The results of the study which was realized by these authors indicate that aerobics programs, without any hypocaloric dietary regimes, can have positive effects on the decrease of fatty tissue, whether we are dealing with men or women. Other studies as well (Ross et al., 2000; Jakicic et al., 2003) have shown that irrespective of the type of exercise or type of training session being used, if the intensity of the load is optimal, a change in body composition takes place. In the studies of Janssen, Fortier, Hudson, & Ross (2002) it was proven that exercise programs in combination with a dietary regime have a significant influence on the loss of fatty tissue, and that the overall reduction in fat, depending on the type of exercise, can range from 15% to 24%. In addition, in the studies of Heydari, Freund, & Boutcher (2012) it was proven that the reduction of fatty tissue comes as a result of decreased body mass. The results obtained for the female participants of the experimental group are in agreement with other similar studies. In the studies of certain authors (McTiernan et al., 2007; Kostrzewa-Nowak et al., 2015) it was proven that aerobic exercise programs lead to changes in body composition and in the sense of a decrease in subcutaneous and overall fatty tissue, as well as an increase in muscle and lean body mass. In addition, changes were determined in the systolic blood pressure, diastolic blood pressure, resting heart rate and heart rate under strain, in the sense of a decrease in the final in comparison to the initial measuring, while in the case of VO2max an increase was noted. Certain studies have shown that the programmed aerobics program can be used to influence cardiorespiratory fitness among women, in the sense of improving results (Wilmore & Costill, 1999; Pantelić et al., 2007; Kostić & Zagorc, 2005). Through proper planning, programming and dosing of load intensity during a training session we can influence changes in the parameters for the evaluation of cardiorespiratory fitness. Donnelly et al. (2009) cite that intensity during exercise has to be at least 50% of maximum capacity and be of a satisfactory duration so as to lead to positive changes. Considering the fact that the experimental program exceeded the recommended 50% and had a satisfactory duration (60 minutes per training session) the obtained results are expected. Tanaka & Swensen (1998) cite that adaptive changes to cardiorespiratory fitness during aerobic exercise are reflected in the increase in maximum minute volume, blood volume, number of erythrocytes, concentration of hemoglobin, capillarization, increase in VO2 max, the lactate threshold, peak volume, etc., with a decrease in the submaximum heart rate frequency and arterial blood pressure.

Between the initial and final measuring among the female participants of the control group we can conclude that most of the measured parameters for the evaluation of body composition there is no difference, and no changes were recorded between the initial and final measuring. The obtained results are in agreement with other realized studies, where it was confirmed that if exercise programs are not realized, that certain parameters of body composition do not change at the final, in comparison to the initial measuring (Schmidt, Biwer, & Kalscheuer, 2001). Nor were significant changes recorded in cardiorespiratory fitness at the final in comparison to the initial measuring among the participants of the control group. The values of the measured parameters are within the range predicted for the cited population (Zagorc, Zaletel, & Ižanc, 1998; Đurašković, 2002)

The results of the ANCOVA indicated that the realized experimental models of aerobic exercise had significant effects on body composition and cardiorespiratory fitness among the participants of the experimental group. The obtained values of the corrected arithmetic means, following the neutralization and partialization of the results at the initial measuring, showed that at the final measuring better results were scored by the participants

of the experimental group. The obtained results are in accordance with similar realized studies (Kyrolainen, Santtila, Nindl, & Vasankari, 2010; Nikić & Milenković, 2013; Nemoto, Gen-no, Masuki, Okazaki, & Nose, 2007; Rogers & Gibson, 2009; Kraemer et al., 2001; Osei-Tutu & Campagna, 2005; Kin–Isler & Kosar, 2006; Akdur, Sozen, Yigit, Balota, & Guven, 2007). In the study of Porcari, Chapek, Huntley, Brice, Price (1995) the aim was to determine the effects of a 10-week step aerobics training on individual fitness components (aerobic power and body composition). It was proven that the experimental program leads to an improvement in maximum oxygen uptake, while in this extent does not have any positive effects on body composition. In the study of Taghian, Kargarfard, & Kelishadi (2011) which lasted for 12 weeks, and where the aim was to determine the effects of a 12-week aerobic training on body composition, statistically significant differences were determined in weight, percentage of fatty tissue, the body mass index, hip volume and certain biochemical parameters between the two groups. The conclusion is that a 12-week moderate aerobic exercise program leads to control of body weight among overweight individuals and a reduction in cardiovascular factors of risk of disease. Sloan, Shapiro, DeMeersman, Bagiella, Brondolo et al., (2011) cite that regular aerobic exercise improves fitness parameters if the exercise is carried out as recommended of the American College of Sports Medicine. Their recommendations include aerobic activities of moderate intensity, with a duration of exercise of at least 30 minutes during the day, with a frequency of five days a week. If the activities are performed with high intensity, then the recommendation is that they be realized with a frequency of 3 times a week, lasting for at least 20 minutes. The aforementioned recommendations hold for individuals aged 18 to 65 (Haskell et al., 2007). Considering the fact that the realized program was within the guidelines, the obtained results justify the application of the aerobic model of exercise, as one of the models of improvement of certain fitness components, cardiorespiratory fitness and body composition.

## Conclusion

The realized research confirmed the hypothesis that the implementation of aerobic exercise can lead to changes in the space of fitness abilities, including cardiorespiratory fitness and body composition. The aerobic exercise model which was realized confirmed the hypothesis that exercise in the zone of moderate intensity can influence certain fitness parameters. Statistically significant changes were noted for the variables for the evaluation of cardiorespiratory fitness, precisely systolic arterial blood pressure and heart rate under strain, in the sense of a reduction and increase in VO2max. In the case of body composition a reduction in $\sum$ skinfolds and Body Fat occurred, with a significant increase in Lean Body Mass. The model of realized aerobic exercise can be recommended as a part of the program for the reduction of body mass of female college students

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# EVALUACIJA PROGRAMA AEROBNOG VEŽBANJA NA KARDIORESPIRATORNI FITNES I TELESNU KOMPOZICIJU STUDENTKINJA

*Istraživanjem je obuhvaćeno 50 studentkinja starosti od 22 do 25 godina, od kojih je 25 činilo eksperimentalnu, a 25 ispitanica kontrolnu grupu. Istraživani su efekti modela aerobnog vežbanja na kardiorespiratorni fitnes i telesnu kompoziciju. Model vežbanja realizovan je učestalošću od tri puta nedeljno, i ukupno 36 treninga. Svaki pojedinačni trening trajao je 60 minuta, u okviru koga je realizovan uvodni deo (10 minuta), aerobna celina (35 minuta), vežbe jačanja (5-10 minuta) i završni deo (10 minuta). Za procenu kardiorespiratornig fitnesa meren je sistolni i dijastolni AKP, puls u miru i opterećenju i VO2max. Telesna kompozicija procenjivana je sledećim parametrima: BMI, ∑ кожних набора, Body Fat %, Muscle Mass % i Lean Body Mass %. Izračunati su osnovni parametri deskriptivne statistike, a za utvrđivnje razlika između inicijalnog i finalnog merenja primenjen je Cohen effect size (EC). Efekti realizovanog programa utvrđeni su univarijantnom analizom kovarijanse (ANKOVA). Obrada podataka vršena je pomoću Statistica 6.0. Između inicijalnog i finalnog merenja utvrđena je statistički značajna razlika kod primenjenih varijabli za procenu kardiorespiratornog fitnesa i telesne kompozicije kod ispitanica eksperimentalne grupa, dok kod ispitanica kontrolne grupe nije postojala statistički značajna razlika. Realizovani model aerobnog vežbanja imao je pozitivne efekte na kardiorespiratorni fitnes i telesnu kompoziciju ispitanica eksperimentalne grupe. Ovo istraživanje je potvrdilo postojeće zaključke o pozitivnim efektima aerobnog vežbanja ukoliko se ono realizuje odgovarajućim intenzitetom, vremenom i trajanjem*

Ključne reči: *aerobno vežbanje, efekti, kardiorespiratorni fitnes, telesna kompozicija*