

ZUMBA FITNESS CARDIO EXERCISE: THE EFFECTS ON BODY FAT MASS REDUCTION OF WOMAN

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Abstract

The aim of this research was to determine the effects of Zumba fitness model of exercise on reduction of women body fat mass. 45 women aged 25-35 participated in the conducted research. The Zumba fitness program was estimated after eight weeks of exercise, total 24 training sections. The effects of applied Zumba fitness were analyzed by using Paired sample T test. The obtained result showed that Zumba fitness exercise achieved statistically significant improvement in body weight loss ($p=.01$), body mass index ($p=.00$), fat percentage ($p=.01$), fat mass ($p=.00$), right leg fat percentage ($p=.01$), left leg fat percentage ($p=.00$), right arm fat percentage ($p=.02$), left arm fat percentage ($p=.00$) and trunk fat percentage (.03). The study results clearly indicated that the Zumba fitness exercise can be used as effective group fitness exercise for total body fat mass reduction of women.

Keywords: **Female, dance, training, transformation, exercise**

Introduction

The popular Zumba fitness is a new kind of dance workout, inspired by Latin American music and Latin American dances. This group fitness program exercise combines the basic of dance merengue, salsa, samba, cumbia, reggaeton and other Latin American dances, uses basic aerobic steps, but also enriches their composition of the other dance like hip-hop, belly dancing, Indian, African dance, etc (Hižnayova, 2013). It is fusion of basic principles of aerobic interval training and strengthening exercises which promote consumption of calories, improve cardiovascular system and strength of the whole body (Perez and Greenwood-Robinson, 2009).

The body fat mass reduction is the most common reason for joining group fitness programs. The researches confirm that the implementation of various forms of group fitness program can contribute statistically significant effects in changes of body composition (Wong, et al., 2002; Donges, Deuffield, & Drinkwater, 2010; Stasiulis, et al., 2010). Especially, the latest researches separated dance aerobic as the most effective group fitness program to achieve improvements in motorical characteristics, functional abilities and changes in body composition of women (Luetzgen, et al., 2012; Donath, et al., 2013; Ljubojević, Jakovljević, & Popržen, 2014). Motivating music and various dance steps with different intensity of exercising in dance aerobic are the main reason why all the participants are dedicated to training. This is very important from the aspect of maintaining interest for continuous exercise that provide the

achievement effects on body fat mass reduction. The aim of this research is to reveal the effects of Zumba fitness program on body fat mass reduction of women.

Methods

Participants

The study was conducted on a sample of 45 women aged 25 to 35 who participated in all training sections during eight weeks of implementation of Zumba fitness program. During this research they did not practice any other kind of physical exercises continuing with a normal nutrition. They were tested before and after the implementation of Zumba fitness program. All 24 Zumba trainings were performed by a professor of physical education and sport and licensed Zumba fitness. Both instructors were with long-term experience in coaching various groups of fitness programs.

Variables sample

The variables sample were: body weight (TM), body mass index (BMI), fat percentage (FAT), fat mass (FATMASS), right leg fat percentage (FATRL), left leg fat percentage (FATLL), right arm fat percentage (FATRA), left arm fat percentage (FATLA) and trunk fat percentage (FATTR).

Zumba fitness program

Zumba fitness exercise was performed three times per week (Monday, Wednesday, Friday) in the evening time (19:00h-20:15h pm). Each Zumba training contained basic principles of Zumba exercise: warm-up (8-10 minutes), main part of the workout - Zumba party section (40-50 minutes), cool down (5 minutes) and stretching (10 minutes) (Perez and Greenwood-Robinson, 2009). Warm up contained basic dance steps (march, step touch, side to side etc.) with gradually accelerating tempo of music, without leaps and jumps (120-135 bpm). In the second part of the warm-up the muscle toning exercises were performed with soft intensity through dance variations, slightly squats were allowed (tempo 125-140 bpm). The main part of the Zumba training was performed with 8-10 original Zumba fitness songs. The dance choreographies and movements intensity was created in accordance with tempo changing of music (tempo between 140-160 bpm). Each dance last 3-7 minutes, with pause 15-30 sec between dances. All Latin American dance choreographies (Merengue, Salsa, Samba, Belly dance, Chachacha, Tango etc.) with their differences in character and dynamic of the movement (Lukić, 2006) provide dosing of exercise intensity.

Measurement description

All body parameters were measured by TANITA body analyzer BC-418MA III. Examinees were tested in sports equipment, barefoot, in woman's fitness pants and shirts. During the data collection they were standing on the bottom of body analyzer and held electrodes in both arms. Data input contains body height and age, and for the testing recreationist's category were selected. After signal reports the direct current goes through the body and analyzed necessary body parameters: body mass, body mass index, fat percentage, fat mass, right leg fat percentage, left leg fat percentage, right arm fat percentage, left arm fat percentage and trunk fat percentage.

Data analysis

Data gathered during this research were analyzed using statistic programs for personal computers IBM SPSS 20.0. for Windows. For analysis of basic statistic data and distribution of results on initial and final measurement, basic descriptive parameters have been calculated: arithmetic mean, minimal value, maximal value and standard deviation. The differences between initial and final measurement were analyzed using Paired sample T test. The level of statistical significance was set at $p < 0.05$.

Results

Descriptive statistics in Table 1 indicates changes of values in all testing parameters after eight weeks of Zumba fitness program. On average, the body mass index de-

creased for 0.37, the body mass was reduced for 0.77kg, fat percentage reduced for 1.05%, fat mass was reduced for 1.01kg, right leg fat percentage was reduced 1.04%, left leg fat percentage was reduced 0.92%, right arm fat percentage was reduced 0.86%, left arm fat percentage was reduced for 1.25% and trunk fat percentage was reduced for 1.14%.

Table 1. Results of descriptive parameters of initial and final body composition measurement

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	TMIni	66.85	45	8.30	2.39
	TMFin	66.08	45	8.35	2.41
Pair 2	BMIIni	23.15	45	2.85	0.82
	BMIFin	22.78	45	2.73	0.78
Pair 3	FATIni	30.05	45	4.59	1.32
	FATFin	29.00	45	4.08	1.17
Pair 4	FATMASSIni	20.38	45	5.49	1.58
	FATMASSFin	19.37	45	4.90	1.41
Pair 5	FATRLIni	32.94	45	3.74	1.08
	FATRLFin	31.90	45	3.72	1.07
Pair 6	FATLLIni	32.89	45	3.69	1.06
	FATLLFin	31.97	45	3.65	1.05
Pair 7	FATRAIni	29.30	45	5.78	1.66
	FATRAFin	28.44	45	5.06	1.46
Pair 8	FATTRIni	28.23	45	5.40	1.56
	FATTRFin	27.09	45	4.64	1.34
Pair 9	FATLAINi	30.32	45	5.71	1.65
	FATLAFin	29.07	45	5.18	1.49

Legend: TM-body mass initial; TMF- body mass final; BMI-body mass index initial; BMIF- body mass index final, FAT-fat percentage initial; FATF-fat percentage final; FATMASS- total fat mass initial; FATMASSF-total fat mass final; FATRL-fat percentage right leg initial; FATRLF-fat percentage right leg final; FATLL-fat percentage left leg initial; FATLLF-fat percentage left leg final; FATRA-fat percentage right arm initial; FATRAF-fat percentage right arm final; FATLA-fat percentage left arm initial; FATLAF-fat percentage left arm final; FATTR-fat percentage trunk initial; FATTRF-fat percentage trunk final; Mean -means; Min - minimal value; Max --maximal value; StdDev. (Standard Deviation)-average deviation of gained results from their arithmetic mean.

Table 2 shows the effectiveness of applied Zumba fitness program on reduction in women fat mass. The reductions of total body fat mass are reflected in all observed parameters: body mass ($p = .01$), body mass index ($p = .00$), fat percentage ($p = .01$), fat mass ($p = .00$), right leg fat percentage ($p = .01$), left leg fat percentage ($p = .00$), right arm fat percentage ($p = .02$), left arm fat percentage ($p = .00$) and trunk fat percentage ($p = .03$).

Table 2. The effects of Zumba fitness program exercise on body fat mass reduction of women

	Paired Differences			95% Confidence Interval of the Difference		t	df	Sig.
	Mean	Std. Dev.	Std. Error Mean	Lower	Upper			
TMIni -TMFin	0.77	0.97	0.28	0.15	1.39	2.75	11	0.01
BMIni - BMIFin	0.36	0.30	0.08	0.17	0.56	4.15	11	0.00
FATIni-FATFin	1.05	1.20	0.34	0.28	1.81	3.00	11	0.01
FATMASSIni-FATMASSFin	1.00	0.92	0.26	0.42	1.59	3.78	11	0.00
FATRLIni-FATRLFin	1.04	1.21	0.35	0.26	1.81	2.96	11	0.01
FATLLIni-FATLLFin	0.91	0.94	0.27	0.31	1.51	3.35	11	0.00
FATRAIni-FATRAFin	0.86	1.16	0.33	0.12	1.60	2.58	11	0.02
FATLAIni-FATLAFin	1.25	1.31	0.38	0.41	2.08	3.28	11	0.00
FATTRIni-FATTRFin	1.14	1.69	0.48	0.06	2.21	2.33	11	0.03

Legend: TM-body mass initial; TMF- body mass final; BMI-body mass index initial; BMIF- body mass index final, FAT-fat percentage initial; FATF-fat percentage final; FATMASS- total fat mass initial; FATMASSF-total fat mass final; FATRL-fat percentage right leg initial; FATRLF-fat percentage right leg final; FATLL-fat percentage left leg initial; FATLLF-fat percentage left leg final; FATRA-fat percentage right arm initial; FATRAF-fat percentage right arm final; FATLA-fat percentage left arm initial; FATLAF-fat percentage left arm final; FATTR-fat percentage trunk initial; FATTRF-fat percentage trunk final; Sig.-level of significance

Discussion

Applied Zumba fitness program, with its specific form of fusion of aerobic exercise, body toning workout and Latin American dances, has caused statistically significant changes on body fat mass reduction. When program was constructed it was considered that intensity of exercising can be changed according to previous adaptability. The intensity of exercise is dosed by using toning sticks (Zumba toning program) as well as the by changing character and dynamic of the dance moves in presenting choreographies. The results showed that reductions of total body fat mass were almost equally distributed in all observed parts of the body (legs, arm, and trunk). By observing these results, it can be concluded that the intensity of exercise during Zumba fitness was in the aerobic level where the energy is released by fat burning process. The Zumba choreographies were included synchronously upper and lower body moves with configured intensity. Comparing Zumba fitness workout with tae-bo aerobics trainings Hižnayova (2013) examined differences in the intensity of exercise. The results show that the intensity of exercise during the warm-up and the main part of the training statistically significant increased in all 6 Zumba trainings compared to tae-bo aerobic trainings ($p < 0.05$). Energy consumption (measured in kilocalories) during all trainings was also significantly higher in favor of Zumba fitness model exercise ($p < 0.01$). Similar results were obtained in the studies of Barene, et al.

(2013) who investigated the effects of twelve-week Zumba fitness program at the percentage of fat mass and the total amount of fat mass. The results showed that the group that exercised Zumba fitness reduced total body fat mass (-0.6kg; $P < 0.05$) in comparison to the control group. They concluded that Zumba fitness training program outside of working hours can lead to certain health benefits for women employed in health care. The research by Sternlicht, Frisch, & Sumida (2013) focuses on a Zumba fitness related to use of chronic aerobic exercises for prevention of diseases like obesity and heart disease in comparison to running or cycling. The study shows that aerobic exercises are the best alternative which is used to maintain healthy body weight and minimizing the risk of disease. The study also shows that the fitness workout was used to evoke high amounts of caloric expenditure and appropriate workout for health benefits. The popularity of Zumba fitness exercise, among other things, is based on the variety of Zumba programs (Zumba classic, Zumba gold, Zumba toning, Zumba sentao, Zumba kids, etc.) in which the complexity of dance choreographies and intensity of exercise are adapted to age and the goals that wanted to be achieved by practicing. In particular, it should be stressed that the conducted research on the effects of Zumba fitness program in a relatively short time period of eight weeks caused a significant reduction of body fat mass of women. So it can be confirmed positive effect Zumba fitness cardio exercise on

body fat mass reduction of women. This is very important if it is known that the most common motive for joining the group fitness programs is reduction of fat mass and body weight loss. Further, the benefits of practicing Zumba fitness are reflected in its applicability to all ages and gender. Especially is recommended for obese adolescents because it provides exercise and fun. It should be noted that the researches about the effects of Zumba fitness exercise are very rare because the Zumba fitness is the latest "hit" that appeared in the domain of group fitness exercise.

Conclusion

The aim of this research was to determine the effects of Zumba fitness model of exercise on reduction of women body fat mass. The research of eight-week Zumba fitness program on women showed statistically significant effects on body fat mass reduction. The obtained result showed that Zumba fitness exercise achieved statistically significant improvement in body weight loss, body mass index, fat percentage, fat mass, right leg fat percentage, left leg fat percentage, right arm fat percentage, left arm fat percentage and trunk fat percentage. Zumba fitness for its specific form of exercising can be applied for various purposes: to improve motor skills, improve functional capacity, regulation of body weight and body composition, but also for the different categories of trainees: beginners, athletes, convalescents, children and adults. Its actual effects on different populations and for different purposes are yet to be examined. This paper is a contribution to the clarification of its actual effectiveness in the body fat mass reduction of women in recreational exercise.

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