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The effects of zumba and strong by zumba on body fat and circumference in women aged 20–40

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Abstract

This study aims to analyze the influence and analyze the differences between zumba and strong by zumba exercises limited to body fat and body circumference in women aged 20–40 years. This research method is a study using a quasi-experiment with a control group pretest and posttest design. Data analysis techniques are collected, processed, and analyzed statistically by calculating the average deviation and testing of normality requirements from the score distributor using SPSS version 15.00 for window evaluation. The results of the zumba exercise method had a decrease in the thickness of belly fat by -7.60, a decrease in the thickness of biceps fat of -5.60, and a decreased thickness of triceps fat of -5.30, while the strong by zumba exercise method had a decrease in belly fat thickness of -15.90, a decrease in biceps fat thickness of-9.80, and a decreased thickness of triceps fat of -9.20. The zumba exercise method had a decrease in abdominal circumference of -7.80, a decrease in thigh circumference of -4.20, and a decreased arm circumference of -5.50, while the strong by zumba exercise method had an average decrease in abdominal circumference of -11.40, a decrease in thigh circumference of -3.90, and decreased arm circumference of -7.60. Strong by zumba exercises are more effective for reducing body fat thickness as well as decreasing body circumference, and strong by zumba exercises are more effective for reducing body circumference.

Keywords: *zumba, strong by zumba, body fat, body circumference.*

INTRODUCTION

Overweight is a condition in which a person has excess weight compared to their ideal weight due to fat accumulation. (Wicaksono, 2011) Obesity has its own problems. Due to obesity, some parts of the body become fat, movements become passive and fat deposits increase, which results in several diseases and makes the condition of the body unfit. According to (Supriyanto, 2013) overweight occurs because the body becomes fat and because it is caused by the body's increased fat tissue. According to (Susantiningsih, 2015) obesity occurs due to inflammatory processes and excessive lipogenesis that affect the inhibition of liposis and increase adipose opoptosis.

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As (Riskesdas, 2010) shows, in Indonesia, about 21.7% of the adult category has increased weight or obesity. In Indonesia, the prevalence rate of women is higher (26.9%) compared to men (16.3%). (Riskesdas, 2018) shows Indonesia experiencing an increase in cases of obesity of 29.3% in the adult category. In Indonesia, the prevalence rate of women increased (46.7%) compared to men (15.7%). According to (WHO, 2018) in units of body index mass, overweight (overweight) is categorized as 25-30 kg/m2 in developing countries and even in developed countries today, about 60% to 85% of people do not have enough physical activity. (Millward et al., 2014) contend that women who engage in little physical activity are in poor health.

Changes in body circumference ratio are triggered due to a lack of physical activity (Mandal & Roy, 2017). Gymnastics, swimming, and jogging are some of the physical activities that can maintain a healthy lifestyle that can be done by the community. Zumba is a form of gymnastics that can burn 400–800 calories every hour and has many benefits for reducing body fat (Aji, 2016).

Exercise is one way that can be used as a destination in every country in the world, including Indonesia, to face the challenge of improving and maintaining physical fitness and reducing the risk of obesity. Exercise benefits include the ability to prolong life, nourish bones and muscles, and treat the heart, as well as the ability to prevent obesity, reduce anxiety and depression, and boost confidence (Kurnianto, 2015).

Zumba and Strong by Zumba exercise programs have become one of the alternatives to exercise to lose weight, reduce fat in the body, develop muscle health, improve heart health, and improve the quality of life. (Trieha, 2014) states the benefits of zumba are: (1) losing weight; (2) facilitating blood flow; (3) improving the respiratory tract; (4) overcoming insomnia; (5) relieving stress; and (6) restoring good mood. Zumba movements can burn fat and nourish the heart, and can improve balance and flexibility. Zumba exercises are carried out for one hour with about 12 tracks at a tempo of 91 BPM to 156 BPM that have been prepared by the

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7 (3) 2021 | 430-441

instructor. Unlike zumba, strongly influenced by zumba, there is no element of dance in the slightest when performed. This type of exercise falls into the category of high-intensity interval training (HIIT), which is divided into 4 sequences, and the intensity of movement gets higher in each sequence. Strong by Zumba, with high intensity, focuses on strong movements to do cardio and muscle conditioning. Common movements are squats, lunges, knee lifts, and planks. In addition, a combination of movements from boxing, such as punching and kicking, can also be done. According to (Linda, 2016) the form of strong by Zumba exercise involves several plyometric movements, body weights, as well as aerobic exercises synchronized with music.

The study aims to: (1) analyze the effect of zumba exercise on body fat and body circumference in women aged 20–40 years in Kudus Regency; (2) analyze the effect of strong zumba exercises on body fat and body circumference in women aged 20–40 years in Kudus Regency; and (3) analyze the difference between zumba and strong zumba exercises in body fat and body circumference in women aged 20–40 years in Kudus Regency. Zumba exercises use the concept of frequency, intensity, time, and type of exercise, commonly abbreviated as FITT (frequency, intensity, time, type). (Suharjana, 2013) explains that the amount of exercise is spelled out in the concept of FITT (frequency, intensity, time, type). More exercise frequency, with longer exercise programs, will have a better influence on physical fitness and body fat loss. (Haghjoo et al., 2016) Strong by Zumba exercises are combined with the principles of interval training, aerobics, and stretching exercises, increasing calorie consumption and improving the cardiovascular system and body strength in general, which can reduce body fat percentage. (Purwanto, 2011) explained that women who actively do aerobic exercise will have better physical endurance. Zumba is one form of aerobic exercise that provides many benefits (Schiff & Hermawijayawan, 2018) Zumba is able to have a significant influence on aerobic ability.

METHOD

The study was conducted using a quasi-experiment with a control group design pretest and posttest. The research was conducted at Centro Fitness Kudus Regency. Data collection was carried out for 1 (one) month, namely August 16, 2021-September 16, 2021. The study subjects were selected from 10 women ages 20–40 to take Zumba training and 10 women ages 20–40 to take Zumba exercises. The sampling technique used in this study is non-probability sampling. Purposive sampling is a sampling technique that has certain considerations that are looking for data sources that are considered to best understand what to expect (Sugiyono, 2013). The population in this study was women aged 20–40 years in Kudus Regency. The sample in this study has inclusion, exclusion, and dropout criteria, which include (1) women aged 20–40 years; (2) active members of Centro Fitness; (3) following a training routine for at least 4 weeks; and (4) being willing to participate in the research by signing informed consent. Exclusion criteria include: (1) respondents are not willing to follow anthropometric measurements; (2) respondents do not want to sign informed consent; and (3) they have a health disorder. Drop out criteria in this study include: (1) research respondents were unable to complete the entire process; (2) the respondent did not follow the procedure correctly.

Researchers' data collection techniques use quantitative methods using pretest and posttest design. The data analysis in this study results from tests measuring the thickness of body fat and body circumference that have been collected, processed and analyzed statistically, including mean calculation, standard deviation, and testing of the normality requirements of score distribution using SPSS version 15.00 for Windows Evaluation. Hypothesis testing uses independent data analysis techniques or Mann-Whitney tests at significant rates (p 0.05). To see the type of zumba and strong by zumba exercises, we used the thickness of body fat and body circumference, then performed a paired sample test. Before

another test is performed, a normality test is performed to ensure that the sample is under normal circumstances.

RESULT

a. The Difference in the Effect of Zumba and Strong by Zumba Exercises on Decreased Body Fat Thickness

The zumba exercise method had an average reduction in belly fat thickness of -7.60, a decrease in biceps fat thickness of-5.60, and a decreased triceps fat thickness of-5.30, while the strong by zumba exercise method had an average decrease in belly fat thickness of -15.90, a decrease in biceps fat thickness of-9.80, and a decreased triceps fat thickness of-9.20. The decrease in the thickness of body fat in members of the Holy District Centro Fitness gym who do Zumba exercises is greater than the members who do Zumba and have a significant difference, so the Zumba exercise method is better for reducing the thickness of body fat.

The subjects of the study on zumba and the strength of zumba exercises can be seen in table 1. The difference in the effect of zumba and strong zumba exercises on the decrease in belly fat thickness can be seen in table 2 and figure 1. The difference in the effects of zumba and strong zumba exercises on the decrease in biceps fat thickness can be seen in table 3 and figure 2. The difference in the effects of zumba and strong zumba exercises on the decrease in the thickness of triceps fat can be seen in table 4 and figure 3.

Table 1. Descriptive Data of Research Subjects

Variable	F	%	Mean ± SD	Median (min – max)
Group				
Strong By Zumba	10	50,0		
Zumba	10	50,0		
Age			29,70 ± 6,71	27 (23 – 40)
Height pre			157,85 ± 3,45	158 (153 – 164)
Weight pre			62,00 ± 3,51	62 (56 – 70)
IMT pre			24,87 ± 0,65	24,81 (23,92 – 26,67)

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7 (3) 2021 | 430-441

Table 2. Mann Whitney Test Results Variable Body Fat

Body Fat	Group		P
	SBZ	Zumba	
Pre test	50,30 ± 3,06	49,30 ± 4,60	0,574§
Post test	34,40 ± 3,81	41,70 ± 4,88	0,002§*
P	<0,001¶*	<0,001¶*	
Difference	-15,90 ± 2,03	-7,60 ± 1,35	<0,001§*

Information : * Significant (p < 0,05); § Independent t; ¶ Paired t

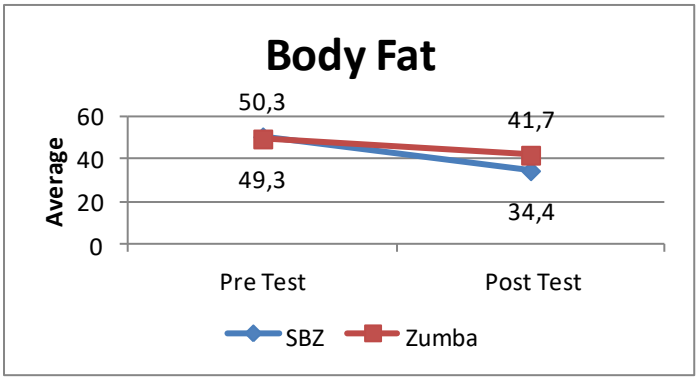

Figure 1. Body Fat Histogram

Table 3. Mann Whitney Test Results Variable Fat Biceps

Biceps Fat	Group		P
	SBZ	Zumba	
Pre test	35,30 ± 3,89	34,60 ± 2,72	0,674;
Post test	25,50 ± 4,60	29,00 ± 2,71	0,053§
P	0,005†*	<0,001¶*	
Difference	-9,80 ± 2,35	-5,60 ± 1,17	<0,001§*

Information : * Significant (p < 0,05); § Independent t; ‡ Mann whitney; ¶ Paired t; † Wilcoxon

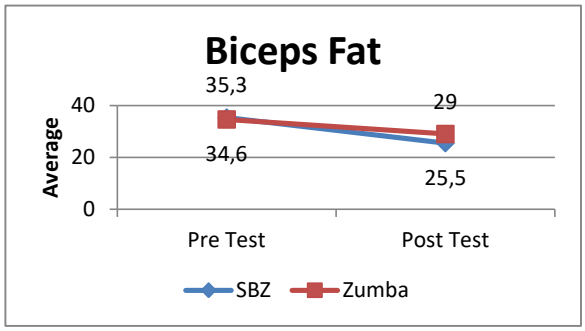

Figure 2. Biceps Fat Histogram

Table 4. Mann Whitney Test Results Variable Fat Triceps

Triceps Fat	Group		P
	SBZ	Zumba	
Pre test	31,50 ± 3,60	30,80 ± 2,25	0,819‡
Post test	22,30 ± 4,03	25,50 ± 2,95	<0,001§*
P	0,005†*	<0,001¶*	
Difference	-9,20 ± 2,04	-5,30 ± 1,42	<0,001§*

Information : * Significant (p < 0,05); § Independent t; ‡ Mann whitney; ¶ Paired t; † Wilcoxon

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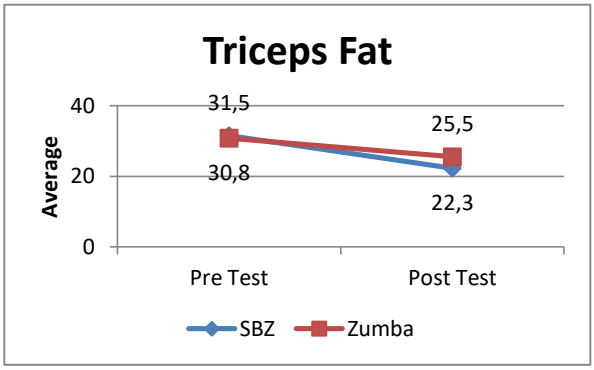

Figure 3. Triceps Fat Histogram

b. Differences in the Influence of Zumba and Strong by Zumba Exercises on Decreased Body Circumference

The zumba exercise method had an average decrease in abdominal circumference of -7.80, a decrease in thigh circumference of -4.20, and a decreased arm circumference of -5.50, while the strong by zumba exercise method had an average decrease in abdominal circumference of -11.40, a decrease in thigh circumference of -3.90, and a decreased arm circumference of -7.60. The decrease in body circumference in members of the Holy District's Centro Fitness gym who do Zumba exercises is greater than that of members who do Zumba and has a significant difference. The difference in the effect of zumba and strong zumba exercises on the decrease in the thickness of the abdominal circumference can be seen in table 5 and figure 4. The difference in the effects of zumba and strong zumba exercises on the decrease in the thickness of the thigh circumference can be seen in table 6 and figure 5. The difference in the effect of zumba and strong by zumba exercises on the decrease in arm circumference thickness can be seen in table 7 and figure 6.

Table 5. Mann Whitney test results on variable Stomach circumference

Stomach Circumference	Group		P
	SBZ	Zumba	
Pre test	93,00 ± 3,53	93,40 ± 4,77	0,833§
Post test	81,60 ± 3,57	85,60 ± 4,60	0,043§*
P	<0,001¶*	<0,001¶*	
Difference	-11,40 ± 1,08	-7,80 ± 1,23	<0,001‡*

Information : * Significant (p < 0,05); § Independent t; ‡ Mann whitney; ¶ Paired t

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7 (3) 2021 | 430-441

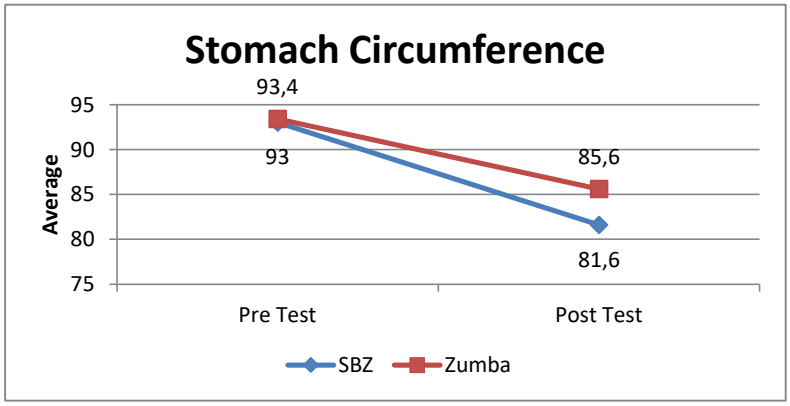

Figure 4. Histogram of Stomach Circumference

Table 6. Mann Whitney Variable Thigh Circumference Test Results

Thigh Circumference	Group		P
	SBZ	Zumba	
Pre test	59,80 ± 1,93	64,30 ± 1,64	<0,001§*
Post test	55,90 ± 2,28	60,10 ± 1,85	0,002‡*
P	0,005†*	<0,001¶*	
Difference	-3,90 ± 1,45	-4,20 ± 1,03	0,533‡

Information: * Significant (p < 0,05); § Independent t; ‡ Mann whitney; ¶ Paired t; † Wilcoxon

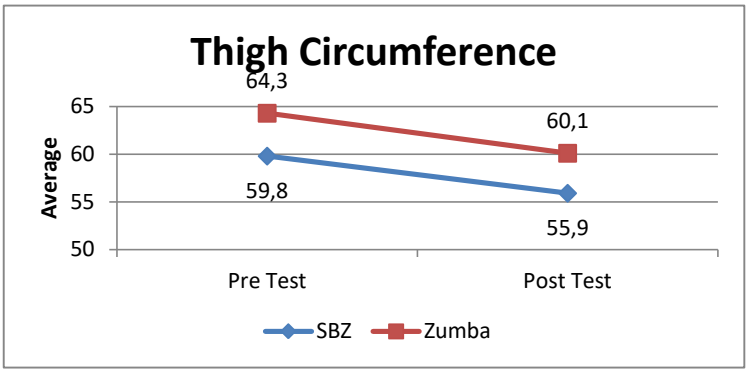

Figure 5. Thigh Circumference Histogram

Table 7. Mann Whitney Variable Arm Circumference Test Results

Arm Circumference	Group		P
	SBZ	Zumba	
Pre test	36,00 ± 1,16	33,90 ± 2,38	0,022§*
Post test	28,40 ± 3,34	28,40 ± 2,91	1,000§
P	<0,001¶*	<0,001¶*	
Difference	-7,60 ± 2,95	-5,50 ± 1,65	0,065§

Information : * Significant (p < 0,05); § Independent t; ‡ Mann whitney; ¶ Paired t

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7 (3) 2021 | 430-441

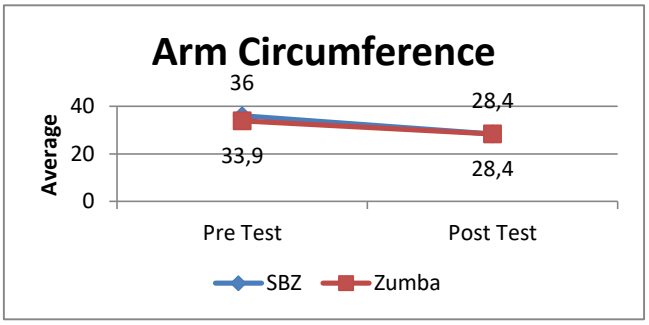

Figure 6. Arm Circumference Histogram

DISCUSSION

Body fat percentage and body circumference had a significant association after doing zumba and were strongly influenced by zumba variables, according to the findings. Increased energy use through physical activity such as exercise is an important part of weight loss programs, body fat loss, and reduced body circumference ratio. As revealed in the study (Listiandi et al., 2020) there is a significant association in aerobic capacity to body fat percentage and body mass index (BMI). Physical exercise, such as exercise, is generally done for people who will lose weight, body fat, and body circumference directed at increased burning of calories and fat (Sasmito, Y.G.L., 2020; Dianasari, S.A., 2020; Laksamana, R.H.K.K., 2020).

Body fat and body circumference ratio can be influenced by several factors, including age, genetics, race, food consumption, and physical activity. This study, after doing zumba exercises for one month as much as 3 times in one week with a duration of 45-60 minutes, obtained a decrease in body fat to body circumference ratio. Zumba exercises move the abdominal and gluteal muscles at light to moderate intensity with a duration of 60 minutes, breaking down fat deposits in the body. Zumba has quite a lot of spinning motion modifications that can make the contractions of musculus obliqus externus abdominis and musculus obliqus internus abdominis more difficult, where the two muscles connect the anterior part of the abdomen and the posterior abdomen (Indreswari et al., 2020). Not only is movement in the abdominal muscles, movements in

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7 (3) 2021 | 430-441

the muscles in the glutealis region such as opening and closing of the legs and squats make the contraction of musculus gluteus maximus and musculus gluteus minimus, which can also burn calories and break down glycogen in the hip area (Sharma & Suri, 2017).

Strong by Zumba belongs to the category of high-intensity interval training (HIIT), which can reduce fat deposits and lower the body's circumference ratio. This is because the energy source needed in sports, in addition to burning carbohydrates in the form of glucose, can also be based on the burning of fat or triglyceride reserves. Strong by Zumba exercise has a significant difference in body fat loss and body circumference, so strong by Zumba exercise methods are better for lowering body fat thickness and body circumference. High-intensity interval training (HIIT) is more effective at burning body fat (Putra et al., 2018). Treatment of high intensity interval training (HIIT) meant the percentage of fat in the body decreased more when compared to the control group that was only given the treatment in the form of regular cardio (Putra et al., 2018).

Zumba and strong by zumba exercises can be used to lower the thickness of body fat and decrease body circumference. When reducing the thickness of body fat, strong by zumba exercises are more effectively applied, and when decreasing body circumference, strong by zumba exercises are more effectively applied.

CONCLUSION

Zumba and Strong by Zumba can be used to lower the thickness of body fat and lower body circumference. Strong by Zumba exercises are more effectively applied in reducing the thickness of body fat, and in decreasing body circumference, strong by Zumba exercises are more effectively applied.

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