Weight Reduction and Body Fat Through Zumba Dance Training and Aerobic High Impact

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Abstract. This paper embarks from the modern technological advancements that have negative impacts on society i.e. the lack of physical activity which resulting in high obesity rates and poor health. Studies have shown that Zumba dance and high impact aerobics as a way to reduce weight and body fat. The purpose of this study is to determine the effect of Zumba dance exercise and high impact aerobics to reduce weight and body fat. In addition, this study also aims to evaluate differences in the effect of both forms of exercise on the percentage of body weight and fat. The population of this study is IBAF SMEs and SME woman gymnastics at UPI Bandung. While the sample is 10 women from each group. The research method used is experimentation with pre-test and post-test group design. Data were analyzed by paired t-test using SPSS. The results indicate differences in the Zumba dance workout in weight loss is significant at P < 0.05, (P = 0.010) as well as fat content (P = 0.007). Differences of high impact aerobic exercise on weight loss is also significant at P < 0.05, (0.00) and fat content (0.00). While, the differences of both groups in reducing body weight are not significant (0.334) and fat content (0.146) at P < 0.05. This study concludes a significant difference from Zumba dance training and high impact aerobics in weight loss and there are no significant differences of both groups in improving results. In other words, both methods equally produced significant reductions.

1. Introduction
The presence of globalization and modernization can bring rapid progress in the field of sports, such as; the presence of foreign players and coaches in Indonesia, simply look for quality seeds in the various regions, to help find a facility that supports achievement etc. Conversely, it can also give adverse effects, such as; local athletes displacement due to the presence of foreign players (achievement competition). In general, for ordinary people, it can also reduce the effects of direct physical work, in other words, a lot of physical work which was originally done by walking, can be solved only by simply using your mobile phone. Lack of physical work such as sitting for long periods will give a negative effect on health. Sayed Ahmed Khashaba (2015, p 1) states that; Physical exercise is vital for a healthy life and has several positive influences on the body. On the other hand, physical inactivity adversely influences body weight and is associated with obesity.

One result of the lack of physical activity is overweight or obesity. According to Rizky (2013), obesity is excess weight as a result of 'hoarding' excess body fat. Scientifically, obesity caused by consuming more calories than needed by the body, they are not burnt through physical activity / exercise. One of the diseases of inactivity is obesity or overweight, this is more common in children...
up to adult women. To avoid overweight Simone V. Gill and Ya-Ching Hung (2013, p. 1) advocated 'Current Recommendations are for children to Participate in a minimum of 60min of daily physical activity'.

If the above conditions are allowed to continue, it will result in the emergence of some diseases, such as diabetes, heart disease, stroke and various other diseases. Besides disease, obesity also affects a person's appearance. Therefore, the efforts to achieve the ideal body weight basically cannot be separated from the components of the ideal body, this is expressed as a percentage of body weight. To achieve the ideal weight, some important body components should be taken into account, one of which is the percentage of body fat and body weight of components other than fatty / Lean Body Weight (LBW). LBW can be bone (skeleton), muscles, organs, and extracellular fluid. While, on the other hand, the percentage of fat (fat in the body) is a comparison of the percentage of fat and the composition of the body (LBW). The measurement of ideal body weight can be determined in various ways such as using body mass index (BMI) as an initial measurement using the following formula, BMI = Weight (kg) / height (m)². Then after that, the result can match the BMI table in Table 1 below.

**Table 1.** The International Classification of adult underweight, overweight and obesity according to BMI

| Classification         | Principal cut-off points | Additional cut-off points |
|------------------------|--------------------------|--------------------------|
| Underweight            | <18.50                   | <18.50                   |
| Severe thinness        | <16.00                   | <16.00                   |
| Moderate thinness      | 16.00 - 16.99            | 16.00 - 16.99            |
| Mild thinness          | 17.00 - 18.49            | 17.00 - 18.49            |
| Normal range           | 18.50 - 24.99            | 18.50 - 22.99            |
| Overweight             | ≥25.00                   | ≥25.00                   |
| Pre-obese              | 25.00 - 29.99            | 25.00 - 27.49            |
| Obese                  | ≥30.00                   | ≥30.00                   |
| Obese class I          | 30.00 - 34.99            | 30.00 - 32.49            |
| Obese class II         | 35.00 - 39.99            | 35.00 - 37.49            |
| Obese class III        | ≥40.00                   | ≥40.00                   |

*Source: Adapted from WHO, 1995, WHO, 2000 and WHO 2004.*

In an effort to reduce rates of obesity, researchers conducted follow-up research associated with obesity, by trying to choose two forms of exercise, namely Zumba aerobic dance and high impact. Both forms of exercise is deliberately chosen, for reasons that they can be made in the form of weight-bearing exercise program that is homogeneous in an attempt to lose weight by exercise in the right dose. Lately, Zumba dance workout has been highly in demand by the women and young mothers, as it is evident from the increasing amount of participation in gym. In such case, it appears that high moving motivation overtake fatigue and directly influence the reduction of body fat. Meanwhile, high-impact aerobics are usually performed by a quick, long movement, with a concussion and adjusted with the ideal proportion, it also has the same goal to maintain of a ideal body weight. Moreover, high impact existing in both practices was also able to maintain the strength of the joint. K. Aleisha Fetters (2015, p. 2) states that the process of strengthening the joints as a result of the exercise was as follows; High-impact exercise Strengthens the joints Because It trains all the muscles around that joint to
Become functionally stronger. For example, when you hop up, you powerfully fire up a plethora of muscles to launch you off the ground. And when you land, those muscles need to contract eccentrically to brace for and soften that impact.

Both forms of exercise were selected in this study generally performed as well as an effort to avoid obesity, it is in line with: "Sport creates a place to be physically active, which leads to improved physical health. Concern over physical health is on center stage as obesity rates have reached an all-time high worldwide. This preventable disease is affecting people of all ages, in part because of physical inactivity ". Furthermore, the World Health Organization reported that over 1.4 billion adults and 40 million children (under the age of five) were obese in 2008. However, youth who engage in sports reduce their chances of becoming obese and are more likely to become physically healthy adults who continue to engage in sport across the lifespan (US Anti-Doping Agency, 2012).

2. Method
The method used in this research is experimental research methods. This method is selected based on the consideration that the researchers tried out treatment (Fraenkel, 2012) that are considered capable of giving influence or effect on body weight and body fat percentage in adult women. Treatment used is Zumba dance training and high-impact aerobics, to two forms of exercise this is considered capable of significantly in the control of body fat, and can directly lose weight.

The study population of the study consists of 25 people; they are female students who follow gymnastics SAUs and 30 female students who follow the SAU IBAF (ideal body and fitness). The approach used in the sample selection sampling is purposive (Fraenkel, 2012). This approach is considered as the most appropriate technique, because it was preceded by measurement of fat and body weight. From the measurement, those who are considered overweight were the selected as the sample. From the measurement results, the researcher found as many as 10 people from each group i.e. the respondents who are overweight or who achieve fat content > 30.

The instrument used to determine the amount of body fat is the Body Fat Monitor (HBF 306), and to measure BMI weight scales was used to measure the weight and height meter was used to measure the height. The exercise programs for both sample groups were made 16 times practice during which evaluation were added up twice as shadow test. the research design used in this study is described as follows

| Treatment group | O₁ | X₁ | O₂ |
|-----------------|----|----|----|
| Treatment Group | O₁ | X₂ | O₂ |

**Figure 1. Pretest-Posttest Group Design (Fraenkel, 2012, p272)**

Description
O₁: pretest measurements of body weight and body fat
O₂: posttest measurement of body weight and body fat
X₁: Experiment (Zumba Dance)
X₂: Experiment (High Impact Aerobic)
3. Result and Discussion

Table 2. Significance Improvement Test Results Group A and Group B Using Paired Samples Test

| groups               | Tes                | Sig (2-tailed) | A   | Description |
|----------------------|--------------------|----------------|-----|-------------|
| Group A Zumba Dance  | Fat level          | 0.007          | 0.05| significant |
| Group B Aerobik High Impact | Fat level         | 0.00           | 0.05| significant |
| Group A Zumba Dance  | Body weight        | 0.010          | 0.05| significant |
| Group B Aerobik High Impact | Body weight    | 0.00           | 0.05| significant |

From the statistical calculation results shown in Table 2, it was found that there is a significant increase in exercise Zumba dance to decrease the fat content. There is also a significant increase in high-impact aerobics exercise to decrease fat level. It was also found that there is a significant weight loss due to Zumba dance. And there is a significant weight loss due to high impact aerobic exercise.

Table 3. Significant improvement test on both groups Using Independent Sample t Test

| Groups         | Tes                | Sig (2-tailed) | A   | Description            |
|----------------|--------------------|----------------|-----|------------------------|
| Group A and B  | Fat level          | 0.146          | 0.05| Not significant        |
| Group A and B  | Body weight        | 0.334          | 0.05| Not significant        |

From the results, it can be concluded that there is no significant difference between these two forms of exercise to decrease fat level and there is no significant difference between these two forms of exercise on weight loss.

4. Conclusion
In general, this study suggested the following conclusions:
1. Zumba dance exercise has a significant influence on weight loss
2. Zumba dance exercise has a significant influence on the decrease in body fat percentage.
3. High impact Aerobic Exercise gives significant effect on weight loss.
4. High impact aerobics exercise has a significant influence on the decrease in body fat percentage.
5. Zumba dance exercise and high impact aerobics has no significant difference on weight loss.
6. Zumba dance exercise and high impact aerobics has no significant difference to decrease body fat percentage.

5. Closing
This study has proved that; zumba dance training and high-impact aerobics should be done continuously more than 30 minutes without stopping, thus, it can affect on body fat burning. Swathi
Priya, and Dr. R. Annadurai (2015, p. 1) says that; Aerobics Refers to the group exercise classes, that are Generally high impact, high intensity set to music the which are designed to increase of the fitness and burn fat.

Attractive movement pattern in zumba dance is able to trigger the whole body move up and helps the process of burning fat more quickly, thus, it will directly reduce the number of various diseases. Jill Inouye, MD, et, al (2013, p. 2) says; Standard Zumba classes use high-energy Latin and international beats, and usually last 1 to 2 hours. As a popular form of exercise, Zumba can be a very important part of improving health and reducing obesity-related diseases, such as diabetes and hypertension. Similarly, the motion pattern contained in high impact aerobic with a concussion which refers to the movement of the feet leaving the floor with the motion of hopscotch, jump, jerk, jump, power move, split, twist, etc. can maximize fat burning in the body. This opinion was confirmed from the results of the study at Duke University Medical Center (2012, p. 2) reported that; Aerobic exercise was Also a more efficient method of exercise for losing body fat.

From all the research findings, weight loss and body fat percentage can not be separated from several factors such as diet, rest and activity patterns. In this study, researchers focus on motion activities only, not controlling the regulation of diet and rest. For the control diet and the rest is only done through verbal information alone, by providing a list of low-calorie diet and and sufficient rest patterns, and consulted each subsequent experiments. If the whole patterns (diet, work and rest) can be done in a complete experiment, the loss of body fat and weight balance can be seen clearly as the result of zumba dance training and high-impact aerobics.

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