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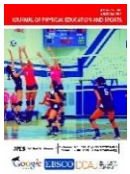

Differences in the Effects of Aerobic Exercise and HIIT Training on Body Fat in Adult Women

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Abstract

The background to this research is the influence of the environment, lifestyle and the impact on the health of women living in rural areas. Carrying out enjoyable physical activities is necessary to improve physical health. The aim of the research was to determine the effect of aerobic exercise and body mass index on reducing body fat and physical fitness in adult women. The research method uses purposive sampling. The research sample was 60 people, consisting of 20 people in the aerobic exercise experimental group, 20 people in the HIIT experimental group and 20 people in the control group. Data was obtained through a skin fold caliper test to measure fat percentage. The resulting data was analyzed with SPSS using Two Way ANOVA.This research found that there was a difference in the effect of providing aerobic exercise and HIIT training treatment on body fat in adult women with a significance level in the Body Fat PreTest and Post Test calculations of 0.000 and 0.006.The conclusion of this research is that there is a difference in the effect between providing aerobic exercise and HIIT training treatment. HIIT training is more likely to reduce fat than regular cardio training due to the high intensity of the training.

Keywords: *Aerobics, HIIT, Body Fat*

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INTRODUCTION

Looking back at the pandemic at that time, the whole world was in a pandemic period which had a tremendous impact on all sectors of human life. Coronavirus Disease 2019 (COVID-19) has been designated as a pandemic threat by the World Health Organization (WHO). According to the Big Indonesian Dictionary, pandemic means an epidemic that spreads simultaneously everywhere. The first case of Covid-19 occurred in Wuhan, China and began to spread to most regions around the world. The spread of this virus is very fast and it is difficult to predict when the Covid-19 pandemic will end (Ristyawati, 2020).

Restrictions on outdoor activities as a result of the Covid-19 pandemic have changed the lifestyle of most people in the world, such as decreasing physical activity and increasing consumption of unhealthy food (Pramesuari et al., 2021). Lifestyle during the pandemic causes obesity to easily occur (Ashby, 2020). In line with Ashby, several mass media have stated that obesity levels have increased with the Covid-19 pandemic due to lack of activity and poor diet, including the page www.republika.co.id which states that obesity is a big problem during the pandemic. , the www.antaranews.com page states that obesity has the potential to increase during the Covid-19 pandemic, and the healthynegeriku.kemenkes.go.id page states that the Covid-29 pandemic increases the risk of obesity. Research from Zachary et al., (2020), namely on 111 subjects aged over 18 years during quarantine, showed that 20% of the sample experienced a weight gain of 2.5-5 kg. In line with Zachary, research by Mustofa et al., (2021) showed that 25 of 44 respondents experienced weight gain during the pandemic. A survey by the Center for Disease Control and Prevention (CDC) stated that as many as 1478 patients in the United States were identified as positive for Covid-19 from March 1-30 2020, indicating that the prevalence of comorbidities ranging from the highest was hypertension (49.7%) then next is obesity (48.3%) (Center for Disease Control and Prevention, 2021).

Living a healthy life with an ideal body weight is every woman's desire. However, the desire to have an ideal body is often not balanced with a healthy lifestyle. This includes consuming 4 healthy 5 perfect foods of course with sufficient portions, getting enough rest and balancing it with exercise. Changes in the lifestyle of some people are leading to modern living patterns. During the Covid-19 pandemic, eating patterns have also changed. These foods are generally high in calories because they contain a lot of fat. This is a typical human lifestyle pattern of eating high-calorie foods while physical activity is decreasing. Too much energy coming in through food, minimal activity and rarely exercising make the body's metabolism poor. The fat that is burned for energy tends to be less, resulting in the accumulation of excess fat in the body which causes obesity or excess body weight and triggers the emergence of various diseases. In line with what was stated by Andini & Indra, Eka, (2016), people who are overweight are at great risk of developing various degenerative diseases, such as: coronary heart disease, diabetes, cerebral vascular disease, high blood pressure, joint disease and others. etc. Stopping physical activity for a long period of time, to prevent transmission of Covid-19, causes a decrease in VO2 max consumption or maximum oxygen volume, loss of strength and muscle mass, and a decrease in endurance (Little et al., 2020).

Excess weight that occurs in housewives often has psychological impacts such as feelings of guilt, uncertainty, a sense of lack of worth, feeling cornered so that they withdraw from social interactions and become depressed. From the problems mentioned above, the desire arises to go on a diet in various ways to get an ideal body without paying attention to the impact it will have on one's health. So there is a lot of confusion in society about how to lose weight which results in fatal mistakes. Due to lack of knowledge and guidance from someone who is an expert in that field.

The right way to lose weight apart from adopting a good diet is to exercise regularly. Exercise is the right effort to lose weight. Apart from losing weight, physical activity through exercise will definitely increase the body's immunity, which is very important during the Covid-19 pandemic (Bayu et al., 2021). Several literatures have suggested that the positive role of physical activity is to improve health, such as heart performance, respiration, blood circulation and increasing immune function (Wu et al., 2019). The most suitable form of exercise is the aerobic system because the energy obtained comes from carbohydrate and fat metabolism (Sugiarti & Noor, 2008).

One effort that can be made to make your body weight ideal is to do aerobic exercise using aerobic exercise or High Intensity Interval Training (HIIT) regularly and consistently. Aerobic exercise is a sporting activity that can provide many benefits for children's growth and development. The benefits of aerobic exercise can not only improve physical fitness but also make the body healthier. Aerobic exercise and High Intensity Interval Training (HIIT) are exercises that require a lot of oxygen to perform exercise movements. Movements in aerobic exercise and High Intensity Interval Training (HIIT) will be selected according to the needs and abilities of the participants. Aerobic exercise is a cheap sport, easy to do individually and in groups, it cannot be separated from that that gymnastics is also popular with many people, children, teenagers, adults and the elderly. Dewi & Rifki (2019). Meanwhile, High Intensity Interval Training (HIIT) is a training method where each session is a high intensity training method and is alternated with moderate or normal intensity training carried out at the same time. High Intensity Interval Training (HIIT) is better able to burn body fat. Meanwhile, cardio training aims to train heart movements, so it is not significant in reducing fat levels in the body (Hita, 2020).

There are many benefits that can be obtained from this activity, starting from improving heart function, increasing muscle strength, burning fat, and other benefits for the body. The reality shows that there is no empirical data that reports the differences in the influence of aerobic exercise and BMI on reducing body fat in adult women.

METHODS

The research sample was 60 people, consisting of 20 people in the aerobic exercise experimental group with normal BMI and higher BMI categories, 20 people in the HIIT experimental group with normal BMI and higher BMI categories and 20 people in the control group. The research was conducted for 6 weeks. Data was obtained through a skin fold caliper test to measure fat percentage.

There were four points measured in this study, namely bicep, tricep, subscapular and suprailiac.

Picture 1. Biceps Skinfold
Source : http://www.linear-software.com/femalesites.html.

Picture 2. Triceps Skinfold
Source : http://www.linear-software.com/femalesites.html.

Picture 3. Subscapular Skinfold
Source : http://www.linear-software.com/femalesites.html.

Picture 4. Suprailiac Skinfold
Source : http://www.linear-software.com/femalesites.html.

The data obtained were analyzed with SPSS using Two Way ANOVA.

RESULTS AND DISCUSSION

Results

Hypothesis testing can be seen from the "Tests of Between-Subjects Effects" output in the sixth column "Sig". If the significance value (Sig.) < 0.05, then there is a difference in the variables studied. On the other hand, if the significance value (Sig.) is > 0.05, then there is no difference in the variables studied. The following are the results of hypothesis testing using Tests of Between-Subjects Effects.

Table 1. Data Hypothesis Testing

Dependent Variable	df	Mean Square	F	Sig.
Body Fat Pre	2	211.005	17.395	.000
Body Fat Post	2	84.136	5.574	.006

Source : Researcher Data

Based on table 1, it shows that there is a difference in the effect of aerobic exercise and HIIT on body fat in adult women. It can be seen that the Body Fat PreTest and Post Test calculations get a significance value of 0.000 and 0.006, where the significance value is <0.05, so there is a difference in these variables.

Discussion

Based on hypothetical testing, the results show that there are differences in the effect of aerobic exercise and HIIT on body fat in adult women. These results were obtained after carrying out a pre-test and post-test to determine the effect of aerobic exercise and HIIT on body fat. It can be seen that the Body Fat Pre Test and Post Test calculations get a significance value of <0.05, so it can be concluded that there is a difference in these variables.

Aerobic exercise is very suitable for reducing or reducing body fat because when doing aerobic exercise the body will metabolize energy from fat by breaking down fat stores in the body. Regular aerobic exercise is also associated with aerobic fitness or general

endurance (cardiorespiratory). The decrease in body fat is caused by increased physical activity, with increased physical activity causing the burning of fat reserves to meet the body's energy needs during exercise (Wahid & Arimbi, 2021). In this study, the types of aerobic exercise used were aerobic exercise and high intensity interval training (HIIT).

According to Siska & Amrizal (2020), aerobic exercise that is carried out regularly and in a program is beneficial for the functioning of the body's organs more efficiently, especially the heart and lungs. Blood circulation is smooth throughout the body, muscles become strong, there will be an increase in muscle mass, a decrease in the percentage of body fat levels. Similar things to reducing body fat can also happen when doing HIIT activities. According to Putra et al (2018) stated that by giving HIIT treatment the percentage of fat in the body decreases more when compared to just giving regular cardio treatment. This is because HIIT provides a higher training intensity even though it lasts a shorter time. So burning fat is more effective compared to regular cardio.

CONCLUSION

There is a difference in the effect of providing aerobic exercise and HIIT training treatment on body fat in adult women with a significance level in the Body Fat PreTest and Post Test calculations of 0.000 and 0.006.

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