

The Influence Of Superset Training Model And Circuit Training On Fat Mass Changes And Muscle Mass Increase In Men

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ABSTRACT

The purpose of this study was to determine the difference in the effect of superset and circuit training models on changes in fat mass and increased muscle mass in men. The research design used in this study is an experimental The Randomized Pretest-Posttest Control Group design. The sample of this study amounted to 20 men, In this study, the sample was selected using the Purposive Sampling technique on members of SOSI SPORTS CLUB Bandung City. Collecting data in this study using Karada Scan Body Composition HBF-375. Statistical calculations in testing the hypothesis were carried out using SPSS 21.0 with Independent Sample T-Test testing to see a comparison between the experimental group and the control group. The results of data analysis and calculations reveal that there is an effect of superset training on reducing fat mass, There is an effect of superset training on increasing muscle mass, There is an effect of circuit training on reducing fat mass, There is an effect of circuit training on increasing muscle mass, There is a difference in the effect of the comparison of superset and circuit training models on fat mass reduction, There is a difference in the effect of the comparison of superset and circuit training models on increasing muscle mass. This study concludes that the superset and circuit training models affect reducing fat mass and increasing muscle mass in men.

Keywords: *Exercise Model; Superset; Circuit Weight Training; Fat Mass and Muscle Mass.*

INTRODUCTION

In today's modern life, humans cannot be separated from sports activities, both to improve achievement and the need to maintain body condition to stay fit and have an ideal body shape. Physical fitness related to health has several components, namely, heart-lung endurance, muscle endurance, strength, flexibility, and body composition (Rauner, 2013). With these components of fitness, a strong and healthy body will be achieved, but many people find it difficult to keep their bodies fit because they are too busy. So there is no time to exercise. Good and correct exercise will influence body composition (Thibault, 2012).

The composition of the human body consists of four main components, namely

total body fat tissue (total body fat), fat-free tissue (free fat mass), bone minerals (bone minerals), and body fluids (body water). water, when analyzed, its chemical composition consists of an average of 60% water content or about 45 liters per person (Ellis, 2000).

Being overweight describes a body composition that is not ideal and poses a risk to health (Frediani et al., 2013). Lack of physical activity can cause various health problems, one of which is being overweight. Lack of physical activity is one of the risk factors for coronary heart disease, type 2 diabetes, and cancer (Marques et al., 2019). One way to improve health/physical fitness is through regular, measurable, programmed, systematic, and always increasing exercise (Nazeer et al., 2016). Sport is the foundation to improve physical fitness so that you can move well. Physical needs can be obtained with regular exercise and adequate and regular nutritional intake (Clark, 2015).

The circuit weight training model is a form of aerobic exercise consisting of posts. Exercise is done by moving from post one to post two until the last post because some people think that lots of posts with a fast rhythm and short rest time make fat burning faster. It is also described Circuit Weight Training to emphasize the cardiovascular system by requiring participants to lift weights, varying the muscle groups involved to avoid fatigue in one muscle while maintaining the load on the cardiovascular system. This workout consists of 8-10 exercises, each with 1 & 15 reps performed three times and a total of about 20 minutes (Taylor et al., n.d.) with some of the assumptions above Circuit training is a type of exercise that consists of several training posts using time.

One of the training models, in addition to the circuit weight training model, is the Superset, which has an implementation procedure by doing 2 back two back exercises without resting, after 2 exercises then resting for 60 seconds before repeating the superset for the desired number of sets (Mcgill et al., n.d.). Because by using this method, namely agonists and antagonists, you can burn fat and optimize the target muscle because this method uses the front muscle and then uses the opposite muscle depending on the target muscle and the opposite partner muscle.

Fat is a source of nutrition that contributes 60% of the total energy needed at rest and is also needed in greater amounts during exercise. Total fat mass is distributed unequally in our body depending on gender, hormonal, environmental, genetic, age, ethnicity, and physical activity. Fat is stored from the body and comes from the food consumed which is called reserve fat. Reserve fat can be distributed in the subcutaneous tissue as subcutaneous fat and around the visceral organs contained in the chest cavity and abdominal cavity as visceral fat (Sudibjo,2012).

Two types of fat in the body are essential fats and nonessential fats or storage fats, essential fats are required for normal physiological and biological functions. These are found in the bone marrow, brain, spinal cord, cell membranes, muscles, and other internal organs. The level of essential fat is about 3% of total body weight for men and 12% of total body weight for women, the need for essential body fat is higher due to fat deposits.

In addition, according to Lee, et. al. (2015) on the other hand, excess body fat associated with various diseases, in general, has increased significantly in recent decades. By definition, weight loss occurs when there is a reduction in body fat relative to total body mass, that is, the percentage of body fat decreases, and this condition is positive for health (Ribeiro, et. al. 2010). This means that if the percentage of fat in the body is reduced, this is certainly positive for health.

METHOD

This research is using the experimental method. The research design used in this study was an experimental The Randomized Pretest-Posttest Control Group design. In Fraenkel & Wallen, (2009), the research design is described as follows:

Table 1
 Research Design

The Randomized Pretest-Posttest Control Group Design				
Treatment Group	<i>R</i>	<i>O</i>	<i>X</i>	<i>O</i>
Control Group	<i>R</i>	<i>O</i>	<i>C</i>	<i>O</i>

In this study, the sample was selected using the purposive sampling technique with BMI criteria (18-25) Kg/m², age 19-35 years. Based on the sampling using the purposive sampling technique, a sample of 20 people was obtained, after which they were divided into 2 groups, namely the experimental group of 10 people (superset) and the control group of 10 people (circuit training).

Body composition was measured through Karada scan body composition monitor HBF-375. Is a tool that can effectively analyze the physical body starting from body weight, body fat percentage, Subcutaneous fat percentage, Visceral fat level, and body muscle mass (Sandeep et al., 2016). This tool can be used as part of a weight management program. This tool uses the basic calculation of ITM (Body Mass Index) to determine whether you are ideal weight or not. ITM bases its calculations on the ratio between weight (kg) and height (m²).

RESULTS AND DISCUSSION

Results

Based on the findings of research in the field, that the superset and circuit training models influence changes in fat mass and muscle mass. This is evidenced by an increase in each variable in the pretest and posttest. The increase is then analyzed through statistical calculations and described in the findings. After the data is obtained, then the data is processed using IBM software (SPSS) Statistics version 21.0. Data processing is carried out so that the data obtained contains meaning for research. Furthermore, the results of the data processing the authors describe as follows:

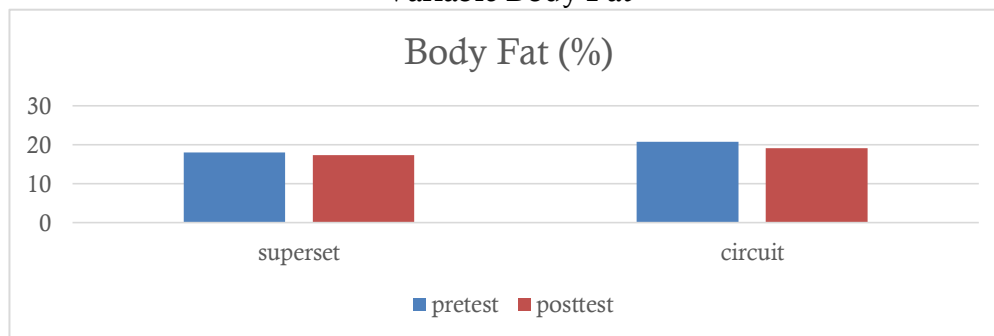
Tabel 2

Description of body composition of pre-test and post-test data of each variable

Body Composition Variable	Superset		Circuit	
	Pre-Test	Post-Test	Pre-Test	Post-Test
Bodyweight (Kg)	69,5	68,8	68,66	67,3
Height (Cm)	172,6	172,6	171,5	171,5
BMI (Kg/M ²)	23,6	22,9	23,40	22,56
Body Fat (%)	18,0	17,3	20,83	19,2
Viseral Fat (%)	7,6	7,1	7,35	6,6
Subcutan All Body (%)	14,5	13,6	14,79	13,4
Sekeletal Muscle All Body(%)	34,9	35,7	34,72	36,2
BMR (Kcl)	1610,0	1586,0	1609,7	1586,4

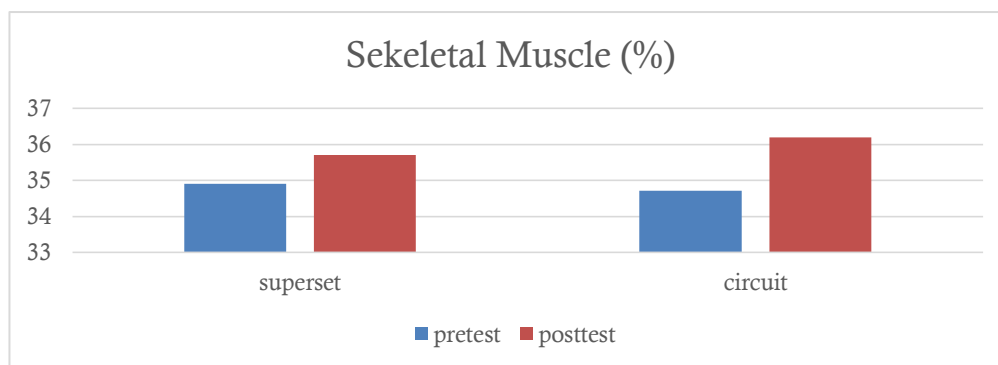
Table 2 is the average value of the pretest and posttest of the superset group and the circuit group. The table shows that the average value of the superset group from pretest to posttest has a decrease in body fat variables and an increase in skeletal variables. Bodyweight (69.5 vs 68.8), BMI (23.6 vs 22.9), Body Fat (18.0 vs 17.3), Visceral Fat (7.6 vs 7.1), Subcutaneous (14.5 vs. 13.6) and Skeletal (34.9 vs. 35.7). While in the circuit group there was an increase in skeletal variables and a decrease in other variables. Bodyweight (68.66 vs. 67.3), BMI (23.40 vs. 22.56), Body Fat (20.83 vs. 19.2), Visceral Fat (7.35 vs. 6.6), Subcutaneous (14 .79 vs. 13.4) and Skeletal (34.72 vs. 36.2).

Figure 1
 Variable Body Fat



Comparison of changes in body fat (body fat) pretest and posttest experimental and control groups In the Equal variance assumed section, it is known that the value of sig. (2-tailed) $0.002 < 0.005$, then as the basis for decision making in the independent sample t-test test it can be concluded that H_0 is rejected and H_a is accepted. Thus, it can be concluded that there is a significant (significant) difference between the superset and circuit training models for reducing fat mass. Based on Figure 1, it is known that there is a significant difference between the superset and circuit training models on the variable muscle mass (body fat).

Figure 2
 Variables of Muscle Circumstances



Comparison of changes in muscle mass (skeletal muscle) pretest and posttest experimental and control groups Equal variance assumed known sig. $0.003 < 0.005$, then as the basis for decision making in the independent sample t-test, it can be concluded that H_1 is accepted. Thus, it can be concluded that there is a difference in the effect of superset and circuit training models on increasing muscle mass.

Discussion

Some ways to reduce fat levels include exercise, diet, and psychological therapy.

From the results of the study, physical exercise was much better at losing weight compared to the other two interventions. Another advantage of physical exercise is seen in aerobic exercise for 50 minutes 3 times a week which can control blood pressure and blood fat (Horowitz & Klein, 2000). Exercise, as we all know, has a clear effect on reducing fat and cholesterol levels in our blood. Without exercise, the chances of getting a heart attack will be more (Horowitz & Klein, 2000). To reduce the risk of hypertension and coronary heart disease and to increase physical work capacity, the American College of Sports Medicine recommends that a person participate in sports activities at least 3 times a week for 20 to 60 minutes. The intensity of exercise should be based on a percentage of the individual's maximum capacity to work (Fields et al., 2017).

Having a large muscle mass can reduce metabolic risk factors namely obesity and cardiovascular type 2 diabetes mellitus (Williams et al., 2007). 10 weeks of weight training can increase muscle by 1.4 kg, and reduce fat by 1.8 kg (Westcott, 2012). Weight training exercise three times per week is an effective method for reduction of body weight (kg), body fat (BF, %), total fat mass (FM, kg), and BMI (kg/m²) (Madureira et al., 2012). Rest factor is very important in weight loss. This is in line with adequate sleep for 7 hours in one day can increase the results of reducing body fat (Wang et al., 2018). However, lack of sleep will cause weight gain (Markwald et al., 2013). Resistance training can reduce Visceral Fat and Subcutaneous Fat in the abdominal area (Strasser & Schobersberger, 2011). The weight loss percent body fat was caused by an increase in the physical activity of the samples, which were usually low-intensity exercises, now slightly increased for burning body fat reserves, with increasing physical activity, causing the burning of body fat reserves to meet the body's caloric needs at the same time. exercise. In our bodies, biochemical processes are constantly taking place to obtain energy for each work movement, aerobic exercise performed at low to moderate intensity within 30 minutes or more will burn fat, aerobic exercise performed at high intensity in a short time or less than 30 minutes. minutes will burn the sugar.

CONCLUSIONS AND SUGGESTIONS

The conclusion that can be drawn from the results of this study is that the superset exercise model has a significant effect on reducing fat mass. The superset training model has a significant effect on increasing muscle mass, the circuit training model has a significant effect on reducing fat mass, the circuit training model has a significant effect

on increasing muscle mass, it turns out that the superset model compared to the circuit training model has a significant effect on reducing fat mass total and increased muscle mass. However, when looking at the average gain score of the two groups, the superset model group showed a greater reduction in fat mass than the circuit training group. While on the variable of increasing muscle mass, the group that was given circuit training showed an average increase in the gain score that was greater when compared to the superset group.

Suggestions several things are recommended by researchers so that this research becomes more useful. Hopefully, this research can provide new knowledge on the effect of superset and circuit training on changes in fat mass and muscle mass in men.

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