LOSE WEIGHT AND PREVENT OBESITY BY AEROBIC GYMNASTICS

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ABSTRACT

Aerobic gymnastics is a sport that is very popular in today's society, especially for those who want to lose or control body weight. But sports alone is not enough to lose weight and it must be coupled with good eating pattern settings. The problem is many of us are very difficult to control our diet and it needs to be analyzed further. This research aims to carry out an analysis of the influence of aerobic gymnastics to weight loss without diet interventions given. The subject was 15 women, aged 20-25 years old, have a normal body weight. The intervention provided in the form of gymnastic aerobics three times a week, performed for 45-minutes practice session, and each was given for 1 month. This research was a quasi experimental research with one group pretest-posttest design. Weight measurement was done before and after aerobic gymnastics given. The results indicated that the aerobic gymnastics for 1 month losing 0.73% of body weight, but the decline was not statistically meaningful. This showed that aerobic gymnastics for 1 month for women in the age 20-25 years has started to give response, but the duration has not been enough to lose significantly of body weight. It was concluded that in order to lose or control body weight, besides takes aerobic gymnastics with the duration of up to 1 month, it has to accompany with diet arrangement. This would give effect to prevent overweight and obesity.

Keywords:aerobic, body weight, obesity, inactivity, sedentary

Introduction

Obesity is a situation of excess weight 10% above the ideal body weight or body fat percentage exceeds the amount of 20%-25% for men and women. Overweight above 25% of ideal body weight is called obesity. Obesity is the build up of excessive or abnormal fat that can disrupt health (WHO, 2011). Obesity is excess body weight as a result of stockpiling superfluous fat with threshold IMT/U > 2 standard deviation (WHO, 2005). Obesity is an excess of body fat in absolute terms or relative.

Obesity is a complex disease because it involves the interaction of several risk factors, such as excess food, inactivity, endocrine disorders, psikogenic factors, impaired metabolism of fats, and genetic. Obesity doesn't just reduce the attractiveness, but also become a health problem, both in children, adolescents or adults. Obesity is caused by multifactorial which is an interaction between genetic and environmental factors, such as: high-calorie diets, high in fat and low in fiber, inactivity, physical or social economy.

Nowadays, there is a change in eating habits and lifestyles (physical inactivity) is one of the main causes of the factors increasing prevalence of obesity. Overweight and obesity occurs due to the energy intake is higher than the energy expenditure. High energy intake caused by consumption of foods high in fat and energy sources, while low energy expenditure due to the lack of physical activity and sedentary life style. In addition the existence of modern conveniences such as a motor transportation, elevators, lifts, air-conditioning, and heating result in energy used to move a little more. More than two million deaths every year caused by the lack of moves or lack of physical activity. There

is minimal physical activity during leisure time, such as watching television and playing video games on children also tend to be increasing numbers of Genesis of obesity (Adiwinanto, 2008). Around the world, the number of people who have sedentary life patterns ranged from 60% to 85%.

Around the world, over 1 billion adults are overweight and over 300 million are obese. In the future the obesity epidemic will hit the country in the continent of Asia. According to the WHO, there are 1.6 billion adults who have overweight and 400 million were obese (WHO, 2011).In 2015, an estimated 2.3 billion adults are experiencing overweight from 700 million of them obese. According to data from the American Heart Association (AHA) in 2011, there are 12 million (16.3%) of children in the United States aged 2-19 years as obese (AHA, 2011). About one third (32.9%) or 72 million adult citizens of the United States are obese. Overweight and obesity problems in Indonesia occurred in all age groups and in all socio-economic strata. In Indonesia, there are 210 million population as of 2000, the population was estimated at 76.7 million overweight (17.5%) and patients of obesity totaled more than 9.8 million (4.7 percent). In Indonesia, according to theHealth Research data Base (Riskesdas) in 2007, the national prevalence of obesity in the general population aged ≥ 15 years was 10.3% (male 13.9% 23.8%) were women, (Department of health RI, 2009). The World Health Organization (WHO) States that obesity is one of the 10 conditions at risk around the world and one of the five risk conditions in developing countries.

Obesity is one of the factors that may increase the prevalence of glucose intolerance, hypertension, coronary heart disease, aterosklerotik, colorectal cancer, gout and arthritis (Alwi, 2009). Obesity may be associated with various diseases, such as hypertension, coronary heart disease, diabetes mellitus, respiratory disorders indiseases of old age, back waist pain (low back pain), arthritis, infertility, and loss of psychosocial function. Obesity has become an epidemic in both developed countries and developing countries. Various ways to prevent and treat obesity among with variations between diet and exercise intervention. Results of research conducted by the Anam, et al mention that childhood obesity has the level of physical activity and a low level of physical freshness. Physical activity does not adekuat cause more and more body fat which is deposited on the network, while a low physical freshness can affect children's physical health obese.

A study conducted in Austria by Widhalm, et al in 2004, on 14 obese children sufferers of obese were garrisoned during the three-week diet and exercise program given thatstrict. The result obtained is the weight loss of 4.7 kg. This research aims to mengalisis the influence of light to moderate intensity of aerobic gymnastics-was against weight loss without diet interventions given. On the research subject is women aged 20-25 years of age who had a normal weight.

Materials and Methods

This type of research was quasi experimental with one group pretest-posttest design. The research was conducted at the Sport center of Syiah Kuala University. Subject of research were 15 women, aged 20-25 years. A given intervention is aerobic gymnastics: three times a week, duration of 45 minutes and was given for 1 month. This research was conducted starting in March-April 2012. Measurement of weight by using the tool body and scales were expressed in units of kilograms (kg), performed before and after doing aerobic gymnastics. Research results were analyzed using its homogeneity of variance tests with Levene test ($p>0.05$) and test of normality using Kolmogorof-Smirnof test ($p>0.05$).

Results and Discussion

Characteristics of respondents based on age (years), weight (kg), height (cm) and body mass index (BMI), as shown in Table 1. IMT = W (kg)/TB (m2).Categories of IMT , according to WHO, 2000 was underweight (18.5 <), normal(18.5-22.9), overweight (≥ 30,0), obesity I (25-29.9), obesity II (≥ 30,0).

Table 1. The characteristics of the subject

Data	n	Mean	SD	p-value
age (years),	15	20,46	0,51	0,05
weight (kg)	15	54,26	10,68	0,49
height (cm)	15	155,06	6,20	0,81
BMI (kg/m^2)	15	22,55	4,23	0,83

Note: Significant level at 5% (p<0,05)

The table above shows that the characteristics of the subject based on age, weight, height and the IMT between a research subject was not different (p>0.05). Test results of its homogeneity of variance with Levene test shows variance data homogeneous. The result of normality test with Kolmogorof-Smirnof (p>0.05) indicates the data have a normal distribution, so that a follow-up test used is paired t-test.

Weight measurement results on the subject after doing aerobic gymnastics for 1 month, 3 times a week with a duration of 45 per workout, get an overview that the onset of weight loss after aerobics (54,26 10,68 vs. 53,86 ± 10.41), as seen in Figure 1. But weight loss after doing aerobics for 1 month only approximately 0.73% and was not meaningful statistically according to the results of the paired t-test. The paired t-test results to determine the influence of aerobic gymnastics to weight loss seen on Table 2.

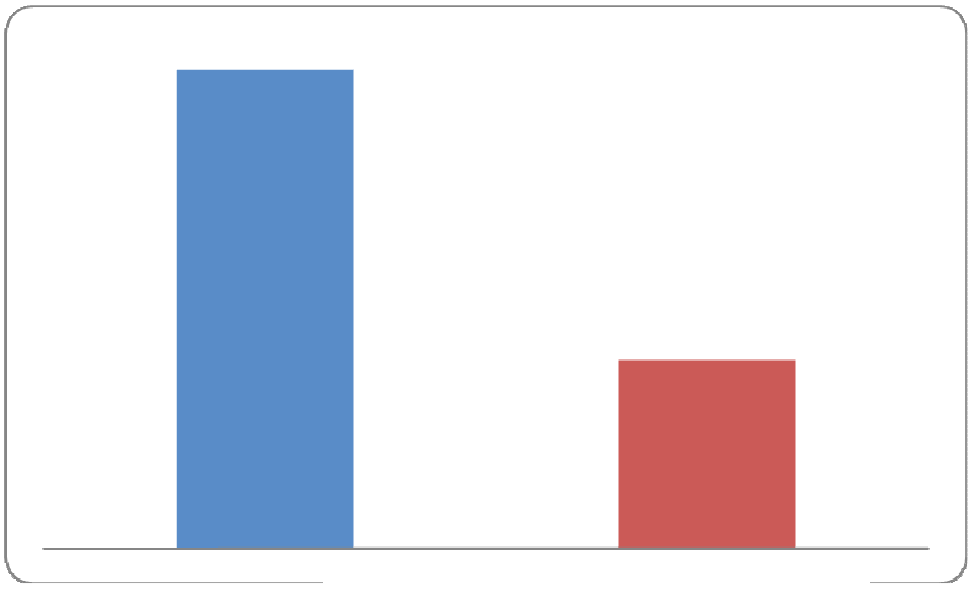

Figure 1. weight loss after doing aerobic gymnastics

Table 2. Paired t-test results to determine differences of body weight Before and After aerobic

Berat Badan	**Means ± SD**	**t**	**P-value**
Before Aerobic	54,26 ± 2,75	2.730	0,0,11
After Aerobic	53,86 ± 2,69		

Note: Significant level at 5% (p<0,05)

As seen in Table 2 indicates aerobic gymnastics, can lose weight, but based on the results of paired t-test indicates that the weight loss was not statistically meaningful. This indicates that aerobic gymnastics for a month without being accompanied by setting diet can not lose weight women aged 20-25 years.

The results of this research are not in accordance with the results of the research, Utomo, et al said that aerobic gymnastics performed 3 times a week for 2 months can lose weight by 66,78%. Weight loss caused by increasing physical activity is a subject that used to do sports just once a week at the time his school became a sports lessons three times a week with a low intensity with the needed energy source comes from the burning of body fat reserves. With the increasing physical activity, leading to the burning of body fat reserves to meet the needs of calories the body during aerobic gymnastics exercises. Aerobics is done at low to moderate intensity within 30 minutes or so will burn fat. Aerobics is done in a high intensity in a short time or less than 30 minutes will burn fat and calories into fat deposits revamp which will eventually affect the reduced fat deposits in the body of the adiposit network. Similar results were also reported by Sientia that aerobic gymnastics performed for 12 weeks can also lose weight.

The results of this research show different results due to the duration of its sports still less (1 month), so the time 1 month is still not showing the response of sports against weight loss. In addition, the possibility is also caused due to this research are not accompanied by setting diet. This has resulted in if your calorie intake that is consumed by the subject not fewer of the calories expended then will not occur the use of fat deposits.

According to the American College of Sports Medicine (ACSM) aerobic exercise intensity must hit the target zone of 60-90% of maximum heart rate or frequency of Maximal Heart Rate (MHR). Based on the achieved MHR, the intensity of aerobic exercise can be divided into: low (35-59% MHR), moderate (60-79% MHR), and high (80-89% MHR). Aerobic exercise should be performed with a frequency of 3-5 times a week, the duration of exercise for at least 20-30 minutes per workout (Wilmore & Costill, 1994). Giam & tea (1993) says that the duration of exercise 15-30 minutes already judged fairly, on the condition that preceded a 3-5 minute warm-up and end with a 3-5 minute cooldown, and carried outon an ongoing basis. The stages of doing aerobic gymnastics are as follows: (1) warm up for 10 minutes, (2) exercises for 15 – 20 minutes and (3) Cooling for 5 minutes (Akhiajun, 2010).

Some of the benefits of aerobic gymnastics, namely: improving heart function, improves the performance of the lungs and improves stamina and strength, improve coordination bodies, particularly already entered an age in years, improving the immune system, prevent a variety of diseases, including diabetes, cholesterol, blood pressure and other, fight depression, because sport is able to increase the pleasurable feelings to someone, help lose weight, aerobics help shape more perfect body (Yanuaristya, 2012).

Conclusions

Aerobic gymnastics for 1 month with duration of 3 times a week without being accompanied by setting diet (diet) can not lose weight in women aged 20-25 years, so to lose body weight, prevent the occurrence of overweight and obesity are (is) needed by doing exercise and setting good eating pattern.

References

Hariadi Dan Arsad Rahim Ali. 2005. Hubungan Obesitas Dengan Beberapa Faktor Risiko Penyakit Jantung Koroner Di Laboratorium Klinik Prodia Makassar Tahun 2005. Laporan.

Wijayanti DN. 2013. Analisis Faktor Penyebab Obesitas Dan Cara Mengatasi Obesitas Pada Remaja Putri (Studi Kasus Pada Siswi SMA Negeri 3 Temanggung). Skripsi Jurusan Ilmu Keolahragaan, Fakultas Ilmu Keolahragaan, Universitas Negeri Semarang. 2013.

Anam MS, dkk. 2010. Pengaruh Intervensi Diet dan Olah Raga Terhadap Indeks Massa Tubuh, Lemak Tubuh, dan Kesegaran Jasmani pada Anak Obes. Sari Pediatri, 12(1): 36-41.

Mappaompo MA. 2010. Obesitas dan Olahraga. Jurnal ILARA*, 1(2): 10 -16.*

Adiwinanto W. 2008. Pengaruh Intervensi Olahraga Di Sekolah Terhadap Indeks Masa Tubuh Dan Tingkat Kesegaran Kardiorespirasi Pada Remaja Obesitas. Tesis. Program Pascasarjana Magister Ilmu Biomedik Dan Program Pendidikan Dokter Spesialis I Ilmu Kesehatan Anak Fakultas Kedokteran Universitas Diponegoro. Semarang.

Kemenkes R.I. 2012. Pedoman Pencegahan dan Penanggulangan Kegemukan dan Obesitas pada Anak Sekolah.

Utomo GT, Junaidi S, dan Rahayu S. 2012. Latihan Senam Aerobik Untuk Menurunkan Berat Badan, Lemak, Dan Kolesterol. Journal of Sport Sciences and Fitness. 1(1): 6-10.

Sientia F. 2012. Pengaruh Latihan Senam Aerobik Terhadap Perubahan Berat Badan Pada Peserta Klub Kebugaran (Studi Kasus Di Klub Kebugaran Susan, Semarang). Skripsi. Program Pendidikan Sarjana Fakultas Kedokteran. Universitas Diponegoro. Semarang