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THE EFFECT OF SLIMMING HERBS TEA WITH DIETARY ADJUSTMENT TO THE RESULT OF ANTROPOMETRIC MEASUREMENT AMONG WOMEN MEMBER OF AEROBIC STUDIO

PENGARUH PEMBERIAN TEH HERBAL PELANGSING DISERTAI PENYESUAIAN POLA DIET TERHADAP PENGUKURAN ANTROPOMETRI PADA KELOMPOK WANITA SANGGAR SENAM

Research Report
Penelitian

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A B S T R A C T

Background: *Overweight is the accumulation of excessive fat that can harm health. People who are overweight usually have a size of body anthropometry more than normal, such as the size of the waist circumference (WC), upper arm circumference (UAC), and subcutaneous fat thickness (SFT). Women are more to being overweight, because metabolism in women is lower and body fat is more than men. They attempt to return to normal body weight, by following the fitness clubs, diet and so forth. In this study, researchers used a slimming herbs tea to help restore their body size.* ***Purpose:*** *This study was to determine the effects of slimming herbs tea with dietary adjustments to the results of anthropometric measurements in the group of gymnastic class women.* ***Methods:*** *The method used is quasy experimental design with the design of "pre-posttest control group design". The study was held for 14 days by the number of respondents 14 people. Respondents were divided into 2 groups: control and treatment (consumption of slimming herbs tea). Slimming herbs tea composition consisting of green tea, guazuma extracts, parameria extract, fennel extract and curcuma extract consumed 2 times a day after meals every day. Data were analyzed using SPSS with Paired T-Test.* ***Results:*** *The results showed slimming herbs tea with dietary adjustments can reduce the results of anthropometric measurements such as WC as much as 6,21 cm,UAC as much as 2,2 cm,and SFT as much as 2,7 mm. While the reducing measurement in control group, in WC as much as 2,57 cm, UAC as much as 1,6 cm, SFT as much as 1,4 mm.* ***Conclusion:*** *The effect of slimming herbs tea with dietary adjustment can reducing the result of anthropometric measurement more in the woman class of gymnastic*

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A B S T R A K

Latar belakang: *Kelebihan berat badan merupakan kondisi terjadinya penumpukan lemak secara berlebih atau abnormal yang dapat mengganggu kesehatan. Orang yang mengalami kelebihan berat badan biasanya memiliki ukuran antropometri tubuh (lingkar pinggang, lingkar lengan atas, dan tebal lemak bawah kulit) yang melebihi batas normal. Wanita lebih mudah memiliki kelebihan berat badan karena metabolisme lemak tubuh lebih banyak dan metabolisme lebih rendah dibandingkan pria. Para wanita berusaha untuk mengembalikan berat badan normal dengan mengikuti klub kebugaran, mengatur pola makan dan cara lainnya.* ***Tujuan:*** *mengetahui efek pemberian kombinasi teh pelangsing dan pijat disertai pengaturan pola makan terhadap hasil pengukuran antropometri pada kelompok wanita sanggar senam.* ***Metode:*** *Penelitian ini menggunakan quasi experimental design dengan rancangan "pre-post test control group design".*

Dilaksanakan selama 14 hari dengan jumlah total responden sebanyak 14 wanita. Responden kemudian dibedakan menjadi dua kelompok yaitu kontrol (dengan penyesuaian pola diet saja) dan perlakuan (dengan pemberian teh herbal pelangsing dan penyesuaian pola diet). Komposisi teh herbal pelangsing antara lain teh hijau, ekstrak jati belanda, ekstrak kayu rapet, ekstrak adas, dan ekstrak kurkumin yang dikonsumsi sebanyak dua kali sehari setelah makan setiap hari. Data kemudian dianalisis menggunakan SPSS dengan uji Paired T-Test. ***Hasil:*** *Penelitian ini menunjukkan bahwa pemberian teh herbal pelangsing dengan disertai pola pengaturan makan pada kelompok perlakuan dapat menurunkan ukuran antropometri lingkar pinggang sebesar 6,21 cm; lingkar lengan atas sebesar 2,2 cm; dan tebal lemak bawah kulit sebesar 2,7 mm. Sementara pada kelompok kontrol dengan teh herbal pelangsing saja, penurunan ukuran antropometri lingkar pinggang sebesar 2,57 cm; lingkar lengan atas sebesar 1,6 cm; dan tebal lemak bawah kulit sebesar 1,4 mm.* ***Kesimpulan:*** *Pengaruh pemberian teh herbal pelangsing dengan disertai pengaturan pola diet dapat menurunkan ukuran antropometri tubuh pada kelompok wanita sanggar senam.*

Kata Kunci*:*
Kelebihan Berat Badan, Aerobik, Antropometrik, Herbal

INTRODUCTION

Overweight is the accumulation of excessive fat that can harm health. People who are overweight usually have a size of body anthropometry more than normal. Overweight has a BMI (body mass index) value ≥25 –<27 kg/m2 (Kementrian kesehatan, 2013). Anthropometry is a study that related to the dimension measurement of the human body, such as bone and muscle mass, adipose tissue, body weight, body height and circumference of the body (Wignjosoebroto, 2008).

According to Traditional Chinese Medicine (TCM) theory, overweight also called Fei Pang, due to the spleen and kidney dysfunction cause the accumulation of damp and phlegm in the body. The other factors include nerve dysfunction, endocrine disorders, metabolic disorders, improper diet, drugs or hereditary factors (Yin dan Liu, 2000).

Several attempts were made in order to prevent overweight and obesity, such as consume product of slimming herbs tea to prevent obesity. The slimming herbs tea is consist of green tea (*Camellia sinensis*), parameria wood (*Parameriae laevigata*), guazuma leaf (*Guazuma ulmifolia*), fennel (*Foeniculum vulgare*), and turmeric (*Curcuma domestica*).

Dietary adjustment according to the nutritional adequacy rate can also lose the body weight. Physical activity can help improve metabolic processes in the body and keep the body in shape. If the overweight condition not treated until the age of 45–60 years will lead to various degenerative disease, such as coronary heart disease, hypertension, diabetes, etc.

MATERIALS AND METHODS

This research was conducted with quasy experimental design with pre post test control group design. This research use women respondents of age 18-30 years in an aerobic studio in Surabaya city, they have a scheduled workout 3 times a week for 60 minutes. Respondents are given a suggestion for a good dietary and given food history sheet for monitoring their menus and calories that enters the body each day for 14 days.

Population in this research are woman with age 18-30 years old that do workout (aerobic) 3 times in a week with duration 60 minutes for once workout. The population was in the one aerobic studio in Surabaya. Respondent in this research was calculated by Pocock formula (2008)

$$n = \frac{(Z\alpha+Z\beta)2 \times sd2}{(d)2}$$

Note:
n = number of respondent
Zα = error rate I (Konstanta = 1,96)
Zβ = error rate II (Konstanta = 1,28)
Sd = Standart deviation (3,72) (Adriani, 2010).
d = result different from research (5,54) (Adriani, 2010).

The result is 5 people in each group. For resolve failed criteria research adding 25% from each group. Total respondents are 7 people in each group.

Respondents were divided into 3 groups: control group, 1st treatment group and 2nd treatment group. The control group respondents were no given a treatment. The 1st treatment group respondents were given slimming herbs tea as much as 4 grams for 2 times drink after meal. The 2nd treatment group were given combination slimming herbs tea with massage around abdomen and arm area. Three of groups were given dietary adjustment and workout in 3 times a week.

The number of respondents involved in this research were 21 people, consist of 7 people for control group, 7 people for 1st treatment group and 7 people for 2nd treatment group.

Dietary adjustment was given in this research for 1800-2000 calories per day in order, 3 times of meals and 2 times of snacking. According to Dietary Guidelines for Americans (2010) woman in the age of 18-30 years old with moderate activity physical needs a total calories 1800-2000 calories per day. The consumed menu were

appropriate with nutritionally balanced diet (Kemenkes, 2014). Researcher suggest the example menu in a day and the guidance leaflet that contain the portion of food that their can eat. All of respondents were given food history sheets to write down the menus their have eat in a day for 14 days. We will know the total calories they eat in a day. The example menus is shown in table 1.1.

Meal	URT	Calories
Rice	¾ of glass	175 Calories
Tofu	2 medium slice	80 Calories
Chicken	1 medium slice	50 Calories
Veggy soup	1 small bowl	45 Calories
Crackers	1 piece	60 Calories
Papaya fruit	1 medium slice	50 Calories
Total		450 Calories

Snack	URT	Calories
Sweet Corn	1 fruit	60 Calories
Yogurt	100 gram	52 Calories
Condensed milk	2 sp	60 Calories
Total		172 Calories

The physical activity in this research was moderate intensity aerobic workout with frequency 3 times in a week for 20-50 minutes. The workout was held in the same class of gymnastic. The workout was start with warming up in 10 minutes, aerobic in 25 minutes, body performing in 15 minutes and ends with cooling down in 10 minutes. The total workout duration is 60 minutes. All the respondents should do this workout for 6 times in a 14 days.

Sliming herbs tea was given for 2 times as much as 2 grams for one drink. One of tea bag contain 2 gram herbs tea consist of 1,6 gram green tea, 0,12 gram guazuma extract, 0,12 gram parameria extract, 0,08 gram fennel extract, 0,08 gram curcumin extract. This herbs brewed with hot water and no sugar, drink it after a meal. The treatment groups should drink this herbs tea twice a day in 14 days.

Massage was given in the arm and abdomen area. The technique is use sweedish massage, there are pressure, efflurage/stroking, petrisage, friction, vibration, tapotage and warming up (Permenkes, 2014). The massage used manipulation on some accupoints in abdomen area, there are ST25 Tianshu, ST28 Shuidao, CV4 Guanyuan, and CV12 Zhongwan (Deadman, 2001). Respondent in 2nd treatment group got massage for 30 minutes every day in 14 days.

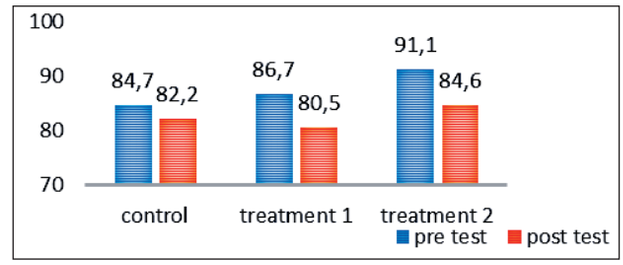
RESULTS

Based on research results in 14 days, the following data is the result of reduced measurement in waist circumference (WC), upper arm circumference (UAC), and subcutaneous fat thickness (SFT).

For the WC in control group has reduced as much as 2,57 cm. The measurement of control group for pre test was 84,7 cm after 2 weeks do the aerobics 3 times a week and dietary adjustment 1800-2000 calories the measurement in post test became 82,2 cm.

The WC measurement in 1st treatment group has reduced as much as 6,21 cm. The measurement of treatment group for pre test was 86,7 cm after 2 weeks do the aerobics 3 times a week and dietary adjustment 1800-2000 calories and given the slimming herbs tea the measurement in post test became 80,5 cm. The WC measurement in 2nd treatment group has reduced as much as 6,5 cm. The measurement of treatment group for pre test was 91,1 cm after 2 weeks do the aerobics 3 times a week and dietary adjustment 1800-2000 calories and given the slimming herbs tea the measurement in post test became 84,6 cm.

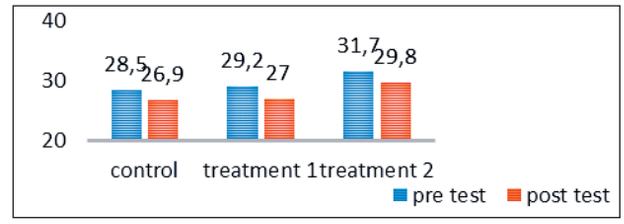
Reduced Graph of Waist Circumference



Picture 1.1 Graph of Waist Circumference measurement in pre and post test (2016)

For the UAC in control group has reduced as much as 1,6 cm. The measurement of control group for pre test was 28,5 cm after 2 weeks do the aerobics 3 times a week and dietary adjustment 1800-2000 calories the measurement in post test became 26,9 cm. The UAC measurement in 1st treatment group has reduced as much as 2,2 cm. The measurement of 1st treatment group for pre test was 29,2 cm after 2 weeks do the aerobics 3 times a week and dietary adjustment 1800-2000 calories and given the slimming herbs tea the measurement in post test became 27 cm. The UAC measurement in 2nd treatment group has reduced as much as 1,9 cm. The measurement of treatment group for pre test was 31,7 cm after 2 weeks do the aerobics 3 times a week and dietary adjustment 1800-2000 calories and given the slimming herbs tea the measurement in post test became 29,8 cm.

Reduced Graph of Upper Arm Circumference

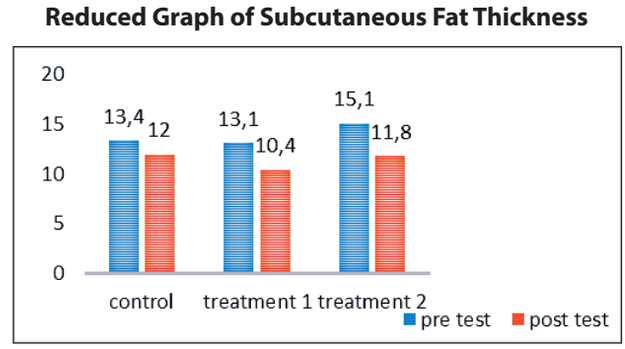


Picture 1.2 Graph of Upper Arm Circumference measurement in pre and post test (2016)

For the SFT in control group has reduced as much as 1,4 mm. The measurement of control group for pre test was 13,4 mm after 2 weeks do the aerobics 3 times a week and dietary adjustment 1800-2000 calories the measurement in post test became 12 mm. The SFT measurement in 1st treatment group has reduced as much as 2,7 mm. The measurement of 1st treatment group for pre test was 13,1 mm after 2 weeks do the aerobics 3 times a week and dietary adjustment 1800-2000 calories and given the slimming herbs tea the measurement in post test became 10,4 mm. The SFT measurement in 2nd treatment group has reduced as much as 3,3 mm. The measurement of 2nd treatment group for pre test was 15,1 mm after 2 weeks do the aerobics 3 times a week and dietary adjustment 1800-2000 calories and given the slimming herbs tea the measurement in post test became 11,8 mm.

The statistic data of 7 people in control group was shown in table 1.2.

Based on the pre post statistic table we can earn WC measurement has p value = 0,000; UAC measurement has p value = 0,003 and SFT measurement has p value = 0,000. All measurement in control group are significant with p value < 0,05. The statistic data of 7 people in 1st treatment group was shown in table 1.3.



Picture 1.3 Graph of Subcutaneous Fat Thickness measurement in pre and post test (2016)

Based on the pre post statistic table we can earn WC measurement has p value = 0,003; UAC measurement has p value = 0,038 and SFT measurement has p value = 0,020. All measurement in treatment group are significant with p value < 0,05.. The statistic data of 7 people in 1st treatment group was shown in table 1.4.

Based on the pre post statistic table we can earn WC measurement has p value = 0,000; UAC measurement has p value = 0,012 and SFT measurement has p value = 0,000. All measurement in treatment group are significant with p value < 0,05.

Table 1.2 Comparatible data pre and post in control group (2016)

Paired Samples Test						
		Paired Differences		T	*Df*	*P*
		Mean	*SD*			
Pair 1	Pre WC control - post WC control	2.5714	.7319	9.295	6	.000
Pair 2	Pre UAC control - post UAC control	1.6429	.8997	4.831	6	.003
Pair 3	Pre SFT control – post SFT control	1.429	.535	7.071	6	.000

Table 1.3 Comparatible data pre and post in 1st treatment group (2016)

Paired Samples Test						
		Paired Differences		T	Df	P
		Mean	SD			
Pair 1	pre WC 1st treatment - post WC 1st treatment	6.2143	3.4864	4.716	6	.003
Pair 2	pre UAC 1st treatment - post UAC 1st treatment	2.2143	2.2147	2.645	6	.038
Pair 3	pre SFT 1st treatment - post SFT 1st treatment	2.714	2.289	3.138	6	.020

Table 1.4 Comparatible data pre and post in 2nd treatment group (2016)

Paired Samples Test						
		Paired Differences		t	Df	P
		Mean	SD			
Pair 1	pre WC 2nd treatment - post WC 2nd treatment	6.5000	1.2583	13.667	6	.000
Pair 2	pre LILA 2nd treatment - post LILA 2nd treatment	1.8571	1.3758	3.571	6	.012
Pair 3	pre TLBK 2nd treatment - post TLBK 2nd treatment	3.286	.951	9.139	6	.000

DISCUSSION

The anthropometric size decrease experienced by all respondents in control and treatment group. This can be caused the calories intake is more than output calories. Dietary adjustment are limited only 1800-2000 calories per day (USDA, 2010) and managing in 5 times for eat, first meal at 7 am (breakfast), then snack at 10 am, second meal at 12 pm (lunch), then snack at 3 pm, and third meal at 6 (dinner). All of eating time is use a recomended portion so the calories was under control.

Based on the food history's sheets is known that all respondents have calories intake about 817 calories per day. So that all of the respondents has decreasing the size of anthropometry because of the calories intake was less than normal (1800-2000 calories) for the woman age 18-30 years with the moderate activity.

Physical activity in this research is aerobic exercise 3 times a week for 60 minutes include to sedentary intensity. This can be caused help to reducing subcutaneous fat mass. According to the research Hodder and Stonghton (2009) aerobic exercise can reducing body fat percentage and increasing muscle myofilamen, solid structure of bones and connective tissue. Physical activity can effect on weight loss and decrease the size of body anthropometry size, if the burned calories is more than the intake calories. According to Anna research (2015) aerobic exercise in 3 times a week for 60 minutes can burn 680 calories per hour. Unfortunately this study were not see their total amount calories burned in a day based on the activity each of them.

In the treatment group, there are more reducing size of body anthropometry. This is caused by the chemical compound in slimming herbs tea composition, there are cathecin in green tea that can manage the appetite, reduce nutrition absorption, increase expenditure energy and increase fat oxidation (Rains, 2010). Cafein in green tea is a light stimulant and have diuretic properties (Chopade, 2008). Therefore the treatment group respondents confessed have often urination frequency. Urination helps on weight loss, more often urination is caused mineral water consumed. Mineral water can suppress the appetite, launch the kidney's function, and relieve constipation. Consumed mineral water as much as 500 ml can increase the metabolism 24% from the normal condition. Increased metabolism can hold for 60 minutes after drinking mineral water (Bjarnadottir, 2015). According to Mohamed et al. research (2014), green tea can be an appetite suppressed, and adipogenesis inhibitor. So that the size of body anthropometry decreasing significantly than control group.

Musilago in guazuma leaf can inhibit lipase enzyme activity so that fat absorption was decrease and many of fat was excreted in stool. (Rahardjo, dkk., 2006). Musilago is a sort of smucus that is hidrophylic and have capability to catch water to form a gel. The properties as a water trapping can be a bulk laxatives (to form mass of stool) (Rahardjo, dkk., 2006). So that cause the output stool volume is more and slimy so output process was not hurt though not every day.

The fennel essential oil can suppres the hungry feel and generate the full feel (Shahat, et al., 2012). Fennel extract can reduce fat accumulation and improve glychemic state in obesity rat by reduce glukoneogenesis process and isulin efficient for glucose excretion. The extract can inhibit tripsin enzyme to reduce food intake, stimulate cholecystokinin excretion. Cholecystokinin is an output enzyme from small intestine as a fat response and generate the full feel (Meutia, 2005). So that eat desire was decrease and calories intake was less than normal.

Curcumin can manage the appetite so that the respondents have not excessive eat desire and can be a laxative (Katno, dkk., 2008). According to Kim, et al., research (2016) curcumin extract can be weight loss and reduce fat accumulation by suppress adipogenesis and lipogenesis. The extract reduce lipogenesis by adiponektin so that reduce adipose tissue and cause lipolisis. Curcumin in turmeric can be use as a laxative so that can neutralize the lack of stool (Katno, dkk., 2008). The frequency of stool was increasing and relieve the constipation,

Tanin in parameria wood has a function as an astringent which can minimize intestinal pores so the arbsorption of nutrition in gastrointestinal was decrease. (Katno, dkk., 2008). The compounds indirectly can effect on weight loss and reduce the size of body anthropometry.

Based on statistic data, WC, UAC and SFT measurements in control and treatment have a significant result with p value <0,05. But reducing result in treatment group was more than control group. The WC measurement in 1st treatment group has reduced as much as 6,21 cm, in 2nd treatment group has reduce as much as 6,5 cm. While in control group has reduced as much as 2,57 cm. The UAC measurement in 1st treatment group has reduced as much as 2,2 cm, in 2nd treatment group has reduce as much as 1,9 cm. While in control group has reduced as much as 1,6 cm. The SFT measurement in 1st treatment group has reduced as much as 2,7 mm, in 2nd treatment group has reduce as much as 3,3 mm. While in control group has reduced as much as 1,4 mm.

Based on the result, 2nd treatment group has more reduce measurement in WC and SFT. This can be caused by all the movement used in massage is burn the fat in abdomen and arm area. According to Permenkes (2014), petrisage movement's function is for breaking down adipose tissue; tapotage movement's function is for removing fat deposits and tighten muscle fiber. While pressure, efflurage, vibration, friction and warming up movement is for relaxation and smoothing the flow of blood. And the manipulation on the abdomen are in acccupoint also be expected give effect to the metabolism and managing hungry and full feel. According to Deadman (2001) ST 25 *Tianshu* is regulating spleen and stomach so transportation and transformation food running smoothly. ST 28 *Shuidao* is unleashing lower

jiao and break the stagnation so the digestive tract runs smoothly. CV 12 *Zhongwan* is for regulating *Qi* and tonify the spleen and stomach so the organs can work properly. CV4 *Guanyuan* is for regulating small intestine and tonify *Qi* congenital so all the metabolism inside the body run smoothly. The measurement in UAC in 2nd treatment group decrease slightly because of the massage strength on arm area is unstable. This is may be the weakness from this research.

CONCLUSION

The effect of combination slimming herbs tea with massage which are accompanied by dietary adjustment can reducing the result of antropometric measurement more in the woman in aerobic studio. Based on this reaserch, the measurement of body anthropometry was reduce in control and treatment group, but the most effective to decrease WC and SFT measurement was in the 2nd treatment group, while the most effective to decrease UAC measurement was in the 1st treatment. Suggestion from this research is if use massage as a treatment, the number of respondent, duration of massage and the time for giving the massage must be managing properly, because the teraphys must be one and do all the treatment alone. Because the strength level of massage each people was different.

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