INFLUENCE OF BREATHING EXERCISES USING METHOD OF BODY FLEX BY GREER CHILDERS ON TO THE SELECTED SOMATIC TRAITS OF WOMEN WITH OVERWEIGHT AND OBESITY

Radziejowska Maria[1], Malinowska Agnieszka[2], Radziejowski Paweł[1]
Czestochowa University of Technology[1]
Graduate School of Teaching and Therapy in Poznan[2]

Annotation. *Introduction*. Overweight and obesity are without any doubts an epidemic of our times, resulting from a change in the living style of the people. Majority of the people reduces the physical activity to the minimum, because of the lack of time they have after the work. That is why we are attacked from time to time by various publications about miraculous methods how to throw away an excessive body weight. In this work is made a close investigation of the method of Greer Childers "Body Flex" , which has become very popular among other in the United States and in Russia, because of the simplicity of exercises to be done and the short time necessary to perform them. The essence of exercises of „'Body Flex'' type are the breathing exercises connected with isometric and stretching exercising. The main stress is applied to the lower breathing path with keeping the abdominal muscles tone as well as adding the posture muscles operations, what is as consequence to reduce the body weight, selected body circumferences and to strengthen the muscles exercised. *Purpose:* The aim of presented work was the comparative assessment of the selected somatic traits of the persons making regularly exercises, at least 5 times a week, using the modified „'Body Flex'' method as well as the assessment of effectiveness of the application of those exercises. *Material and methods:* The examination has covered a group of 25 persons, which was women in the age range 36 – 63, average age amounted to 58,45 ± 8,92 years, including 16 persons of them constituting the tested group and 9 persons being a control group, which has not made regular exercises. In the tested group was separated: 4 persons' group of women with BMI indicating their obesity, 8 persons' group of women with BMI indicating overweight and 4 persons' group of women with BMI within the limits of the norm. Before and after 1 month's, and for 9 persons – after 2 months' therapy, their BMI index, weight, circumference of waist, hips, circumferences: UI, UII, GI, GII and RI. *Results:* In the tested group, BMI of the subgroup of women with obesity before the exercises having been applied, amounted to 34.50±3.48 on the average, after 1 month 34.07± 3.18 kg/m^2, after 2 months 31.80±6.93 kg/m^2; BMI of the subgroup of women with overweight before the exercises having been applied, amounted to 27.67±1.26 kg/m^2, after 1 month 27.46±1.16 kg/m^2, after 2 months 27.11±3.45 kg/m^2; BMI of the subgroup of women within the norm before the exercises having been applied, amounted to 23.26±1.32 kg/m^2 on the average, after 1 month 23.36±1.31 kg/m^2, after 2 months 23.1±. And in the control group, BMI of the subgroup of women with obesity amounted to 33.37± (+/-0.79), after 1 month 33.10± (+/-0.84), for the subgroup of women with overweight amounted to 28.25± (+/-0.70), after 1 month 28.14± (+/-0.58). *Conclusions:* Results obtained both in the tested group and in the control group allow stating that exercises done using the modified method Body Flex have reduced BMI values and the more substantial difference was found in the tested group.

Key words: overweight, obesity, breathing exercises, Body Flex, BMI.

Introduction

As per data of WHPO in February 2010 prevalence of obesity reached epidemic scales in the whole world; at least 2.6 million people die every year because of excessive weight or obesity [6, 7]. The problem of obesity in the world has been becoming aggravating since 1980. In 2008 1.5 billion people of age more than 20 years, had excessive weight. From them more than 200 million of men and nearly 300 million of women suffer from obesity. Today's statistic scares: 65% of world population lives in countries, where excessive weight and obesity kill more people than starvation.

In the last year level of physical functioning, especially of urban population, significantly reduced in spite of great effort of medical workers and specialists in field of physical culture and physiatrists in polarizing of physical loads as therapeutic mean [7]. Reducing of physical functioning is considered to be the forth from the most important risk factors, which are the reasons of mortality in global scale (its share is 6% from total quantity of deaths in the world); at the same time 5% is taken by excessive weight and obesity [7].

It was proved that regular physical functioning reduces risk of cardio-vascular system's diseases, brain attack, diabetes of 2nd type, hyper tension, cancer of large bowel, cancer of mamma and depression. Besides, physical functioning is an important factor in limitation and control of energy level of dissimilation and, therefore, influencing on energy metabolism and control of body weight [5, 6, 8-15].

In "Global recommendations on health related physical functioning" of World health protection organization [7] effectiveness of normal weight preservation with aerobic exercises is stressed. It is noted that some short lessons, 10 minutes every day or one long training, are sufficient for preservation of normal mass of body. Results of recent researches, organized by method of occasional choice, with duration of 12 months, showed that aerobic trainings for not less than 150 minutes a week, usually are accompanied by loosing of 1-3% of body mass and it is sufficient for maintaining normal mass of body [1-3].

doi: 10.6084/m9.figshare.936982

In present work we should like to study effectiveness of original method of aerobic exercises' application for reducing excessive weight and releasing from obesity. Duration of one training was from 10 to 25 minutes; with single its using it permits to reach result, recommended by WHPO for age group from 18 to 64 years old [2].

"Body flex" methodic, created by American Greer Childers [4] implies execution of breathing exercises in combination with isometric straining of abdomen muscles and simultaneous stretching of muscles of limbs, back and torso in aerobic mode/ The sense of **„'Body Flex''** exercises is combination of breathing exercises with isometric straining of muscles and stretching. Central attention is paid to training of lower part of straight and oblique muscles of abdomen, diaphragm. These exercises also result in strengthening of the so-called postural muscles that, in opinion of the authors, permit to reduce mass of body and dimensions of selected circumferences of body.

"Body flex" methodic implies isometric straining of postural muscles in phase of deep exhale (8-9 seconds pause) and fulfillment in this phase of different stretching exercises. In fig.1 main initial position for fulfillment of five stages (steps) is shown in the following order: 1) full exhale through mouth; 2) quick inhale through nose: 3) deep exhale through mouth; 4) 8-9 seconds pause, muscles' straining, especially of abdomen muscles. 5) rest.

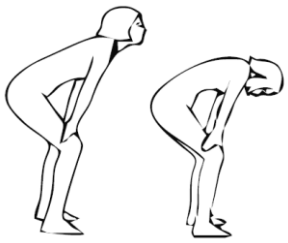

Fig.1. Initial position for fulfillment of "Body Flex». Source [4].

Purpose, tasks of the work, material and methods

The purpose of the present research was to estimate effectiveness of **„Body Flex''** in correction of excessive weight and obesity, determining their influence on such somatic indicators as body mass, circumferences of different parts of body, BMI.

Material and methods:

In the research 25 persons took part; they were women of 36-63 years old age, mean age was 58.45±8.92 years old. 16 of them were related to main group; 9 – to control. In main group we marked out: subgroup – 4 persons with BMI, indicating on obesity, subgroup of 12 women with BMI, pointing at excessive weight and 4 women with normal BMI. 9 women from control group, which did not train regularly, depending on body mass index were divided into 3 subgroups: 5 women with obesity, 3 – with excessive weight, 1 – with normal BMI. Before and after 1 month of "Body flex" application in main group and after 2 months of irregular trainings in control group we evaluated the following: index of body mass (BMI), weight (electronic scales of Winchy FWS-01), circumference of waist, of hips, circumference of legs: UI – thigh circumference in widest place, U II – thigh of circumference at 10 cm distance from base of knee cap, GI – circumference of shin in the widest place, G II – circumference of shin at 1.5 cm height from ankle, R II – circumference of arm in the widest place.

Besides, before and after 7 weeks of regular application of physical exercises of modified method "Body flex" we determined (on voluntary base) of one of women's of 54 years old age lipid profile in laboratory of "Medis" net in Stargard-Schetsinskiy.

The offered by us breathing exercises for the group of tested women is shown in fig. 2.

The complex consists of 10 exercises and is fulfilled as it is shown in fig.2, in order "from above– downward", involving in movement, first, upper part of body, then – lower one. Every exercise is fulfilled on count 16: inhale through nose – 3-4 counts; pause – 2-3 counts; deep exhale and movement, shown in fig. – 8-9 counts. At first sessions every exercise was repeated 2 times; gradually quantity of repetitions increased up to 8. Fulfillment of complex lasted up to 15-20 minutes. The offered complex differs from complex of Greer Childres by extracting from the latter of two exercises; "scissors' and "cat" in connection with possible unfavorable influence of these exercises on lumbar spine of women with excessive body mass and obesity.

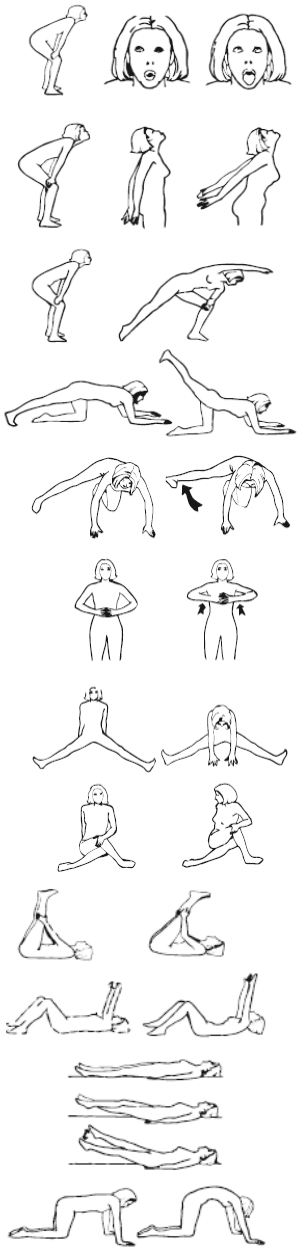

Fig. 2. Fulfillment of exercises "Body flex", offered for group. Source: [4].

Results of the research

In main group BMI in subgroups of women with obesity was before training in average,50 ± 3.48 kg.p.m^2, after 1 month it was 34.07 ± 3.18 kg.p.m^2, after 2 months – 31.80 ± 6. 93 kg.p.m^2 (see table 1). BMI of women with excessive weight was before training in average 27.67 ± 1.26 kg.p.m^2, after 1 month – 27.46 ± 1.16 kg.p.m^2, after 2 months – 27.11 ± 3.45 kg.p.m^2 (see table 2). BMI of women with normal weight before training was in average 23.26 ± 1.32 kg.p.m^2, after 1 month -23.36 ± 1.31 kg.p.m^2, after 2 months - 23.1 ± 2.08 kg.p.m^2. In control group average BMI in subgroup of women with obesity was 33.37 ± 0.79 kg.p.m^2, after 1 month - 33.10 ± 0.84 kg.p.m^2 (see table 1) in subgroup of women with excessive weight – 28.25 ± 0.70 kgpm^2, after 1 month – 28.14 ± 0.58 kg.p.m^2 (see table 2).

Results of testing witness that decreasing of BMI in main group were more expressive than in control group, though we did not register confident changes of the tested parameter ($p>0.05$).

Circumference of thighs in both groups of the tested decreased in average by 3.49 cm after one month and after 2 months in main group it reduced by 3.23 cm more that gives total reduction in average by 6.72 cm (see table 1, 2). Also more expressed trend to reduction was manifested by values of circumference of other parts of body in groups, where "Body flex" was applied (see tables 1, 2).

Table 1.

Changes of somatic characteristics of women with obesity before and after "Body flex" exercises and results of control group

	Main group (n=4)			Control group (n=5)		
	Before	After 1 month	After 2 months	Before	After 1 month	After 2 months
BMI, kg.p.m^2	34.50±3.48	34.07±3.19	31.80±6.93	33.37±0.79	33.10±0.84	No data
Mass of body, kg	85.57±5.27	84.55±5.20	81.93±6.94	92.90±10.42	92.34±10.27	No data
Waist circumference, cm	105.12±10.65	98.75±9.38	93.83±10.02	97.80±5.24	95.50±5.04	No data
Thighs' circumference, cm	116.25±6.01	111.87±6.19	105.50±5.02	118.50±6.02	116.60±6.08	No data

Table 2.

Changes of somatic characteristics of women with excessive weight before and after "Body flex" exercises and results of control group

	Main group (n=8)			Control group (n=3)		
	Before	After 1 month	After 2 months	Before	After 1 month	After 2 months
Mass of body, kg	27.67±1.26	27.46±1.16	27.12±0.53	28.26±0.71	28.14±0.58	No data
Waist circumference, cm	70.55±2.27	69.86±2.40	68.26±2.82	78.93±5.97	78.63±5.96	No data
Thighs' circumference, cm	83.87±2.82	81.60±3.52	76.66±0.94	88.50±6.18	89.50±7.45	No data
	105.18±3.57	102.6±3.31	102.50±1.22	111±2.16	109.33±0.94	No data

Results of measurements of thigh, shin and arm circumferences are given in tables 3 and 4. As it is seen from these results in main group of women with obesity and excessive weight reducing of the measured circumferences of lower limbs and arm were more expressed than of women, who do not train regularly. In control group we did not register any substantial changes of the mentioned indicators (see tables 3, 4).

The data of analytical research of lipid profile of 54 years' old patient, who regularly fulfilled physical exercises of modified complex "Body flex", witnessed about reducing of general value of cholesterol, normalization of parameters, which characterize lipid metabolism (see table 5).

Table 3.

Changes of main circumferences of limbs of women with obesity before and after physical exercises упражнений "Body Flex», and results of control group

	Main group (n=4)			Control group (n=5)		
	Before	After 1 month	After 2 months	Before	After 1 month	After 2 months
U I, cm	60.12±2.70	58.30±2.75	56.33±3.30	67.60±3.02	66.84±3.30	No data
UII, cm	46.12±2.45	45.95±1.82	43.63±1.44	49.90±2.15	48.92±2.04	No data
G I, cm	39.65±2.08	38.87±2.07	37.66±1.25	41.10 ±1.71	40.64±1.49	No data
R II, cm	34.10±2.83	33.62±2.56	31.66±2.46	34.94±1.10	34.30±1.23	No data

Table 4.

Changes of main circumferences of limbs of women with excessive weight before and after physical exercises упражнений "Body Flex», and results of control group

	Main group (n=8)			Control group (n=3)		
	Before	After 1 month	After 2 months	Before	After 1 month	After 2 months
U I, cm	59.25±3.13	57.09±2.50	56.50±0.71	60.83±1.70	59.23±2.33	No data
UII, cm	45.312±1.90	44.30±1.55	43.00±1.41	44.40±0.94	44.00±1.06	No data
G I, cm	36.75±0.61	36.05±0.65	36.10±0.29	37.83 ±1.03	36.90±0.94	No data
R II, cm	32.00±1.91	30.66±1.86	30.60±1.98	30.67±1.03	30.23±1.84	No data

Таблица 5.

Morphological-fucntional parameters and lipid profile before and after 7 weeks of regular trainings by modified "Body flex" method of a 54 years old patient

	Before	After 7 weeks	Reference values Min max
Cholosterol HDL, mh.p.dl	69	71	45 65
Cholesterol general mh.p.dl	286	199	150 200
Triacyglycerol, mh.p.dl	217	156	< 200
Cholosterol LDL, mh.p.dl	174	97	< 129
BMI, kg.p.m^2	28,80	27.33	18 25
Mass of body, kg	66,3	64.5	-
Waist circumference, cm	81,5	76	-
Thighs' circumference, cm	105,5	101	-
U I, cm	62	56	-
U II, cm	47	44	-
G I, cm	37	36	-
R II, cm	28	27.2	-

Conclusions:

Analyzing the presented above data about influence of "Body flex" on organism of women with obesity and excessive weight as preliminary ones we can make conclusion that reduction of body circumferences, resulted from trainings, was more expressed and had more expressed trend to reducing than normalizing of body mass and BMI parameter. In control group the tested circumferences of waist, thighs, legs, arms, body mass and BMI practically did not change.

Results of analytical blood test of one patient, who regularly trained recommended exercises, showed that under influence of modified method "Body flex" general cholesterol content reduced as well as ЛПНП and и triacyglycerol. We can assume that „Body flex" complex can be effective mean in fight with obesity, but it is necessary to conduct additional researches about its influence on women with obesity and excessive weight, involving greater quantity of the tested and using the complex for longer time.

References:

1 *2008–2013 Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Diseases*. Geneva, World Health Organization, 2008, 23 p.

2 *A guide for population-based approaches to increasing levels of physical activity: implementation of the WHO Global Strategy on Diet, Physical Activity and Health*. Geneva, World Health Organization, 2007, 43 p.

3 Bauman A., Lewicka M., Schöppe S. *The Health Benefits of Physical Activity in Developing Countries.* Geneva, World Health Organization, 2005, 12 p.

4 *BE A LOSER!* (Lose inches fast – no diet) by Greer Chalders with Bobbie Katz. N.Y.: Times Books, 1998, 119 p.

5 Cook I., Alberts M., Lambert E.V. Relationship between adiposity and pedometer-assessed ambulatory activity in adult, rural African women. *International Journal of Obesity*, 2008, vol.32, pp. 1327–1330.

6 *Global health risks: mortality and burden of disease attributable to selected major risks*. Geneva, World Health Organization, 2009, 46 p.

7 *Global recommendations on physical activity for health*. - 1.Exercise. 2.Life style. 3.Health promotion. 4.Chronic disease prevention and control. 5.National health programs. World Health Organization. Switzerland. 2011, 60 p.

8 Janssen I., Leblanc A. Systematic Review of the Health Benefits of Physical Activity in School- Aged Children and Youth. *International Journal of Behavioural Nutrition and Physical Activity*, 2009, vol.1, pp. 27-32 p.

9 *Physical Activity Guidelines Advisory Committee (PAGAC).* Physical Activity Guidelines Advisory Committee Report, 2008. Washington, DC, US Department of Health and Human Services, 2008, 11 p.
10 *Preventing chronic diseases: a vital investment*. Geneva, World Health Organization, 2005, 34 p.
11 Radziyevsky Pawel, Malinowska Agnieszka, Marciniak Monika, Demkiewicz Daniel, Radziyevska Mariya. Diagnosis and function physiotherapy damage to the front-medial ligamentous complex knee. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2012, vol.5, pp. 148-153.
12 Radziyevska Mariya, Dziagwa Ewelina, Radziyevsky Pawel. Breach of sensory integration in children and youth *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2012, vol.4, pp. 135-140.
13 *The global burden of disease*: 2004 update. World Health Organization, Geneva, 2008, 45 p.
14 *WHO Handbook for guideline development*, October 2009. Geneva, World Health Organization, 2009, 211 p.
15 *World Health Report 2002*: Reducing risks, promoting healthy life. Geneva, World Health Organization, 2002, 113 p.

Information about the authors:

Radziejowska Maria: ORCID: 0000-0002-9845-390X; mariaradziejow@mail.ru; Czestochowa University of Technology ; Armii Krajowej str., 19b, 42-200, Częstochowa, Poland

Malinowska Agnieszka: ORCID: 0000-0001-8232-2705; magneszka@gmail.com; Graduate School of Teaching and Therapy in Poznan; Wawrzyniaka str., 8, 71071, Szczecin, Poland

Radziejowski Paweł: ORCID: 0000-0002-9497-0272; radziejow@mail.ru; Czestochowa University of Technology; Armii Krajowej str., 19b, 42-200, Częstochowa, Poland

Cite this article as: Radziejowska Maria, Malinowska Agnieszka, Radziejowski Paweł. Influence of breathing exercises using method of Body Flex by Greer Childers on to the selected somatic traits of women with overweight and obesity. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2014, vol.3, pp. 57-63. doi:10.6084/m9.figshare.936982

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 13.12.2013
Published: 28.01.2014