

EVALUATION OF CORRECTION IN SHAPING BODY MASS WOMEN FIRST ADULTHOOD WITH DIFFERENT PERSONAL FEATURES

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Annotation. Assessed the effectiveness of training method of the "Shaping Classic" on the catabolic program correction of body weight the first mature age women with different personality characteristics. The study involved 20 women aged 26 - 30 years with a body mass index above average and high. Conducted anthropometric measurements. Used physiological tests, step test Prohorovtseva, engine test, psychodiagnostic methods. The efficiency of the program in reducing total body weight and body fat. The positive impact of the program on the functional state of the cardiovascular system and the musculoskeletal system is shown. Found that particular dispositions eating and self-esteem of women may reduce the level of impact of training. It is revealed that these features contribute to devaluing recommendations coach and weaken the motivation to train.

Keywords: shaping, aerobic exercise, body weight, person, a woman.

Introduction

Increasing of excessive fat mass is an independent risk factor of cardiac vascular diseases independent on age, cholesterol level in blood, smoking and glucose tolerance malfunction [1]. Besides, obesity is of the risk factors of breast cancer for women [11]. With it, these diseases are regarded as the most frequent reason of women's mortality in the age of 16 – 54 years old and it shows progressive trend [5]. With reducing by 10% and more risk of cardiac vascular pathology decreases by 9%, pancreatic diabetes – by 44%, obesity oncologic mortality - by 40%, general mortality – by 20% [11]. Excessive body mass is a reason of insular resistance and compensatory hyperinsulinemia. Critical mass of fat tissue directly influences on reproductive function of women. Increasing of body mass, progress of obesity can result in reduction of fertility [4, 9].

Alongside with it, by the data of different authors from 50 to 70% of population of Ukraine and more than 1/3 of city population have excessive body mass; 41% of population of our country have obesity or excessive body mass. WHO declared that obesity is a global epidemic [5].

One of the leading methods of mass correction are physical exercises, combined with diet therapy, which, besides reducing of excessive mass, facilitate also metabolism normalization, in particular of fat metabolism, restoration of organism's adaptation to physical loads; normalization of cardiac-vascular and other systems of organism [2, 3]. With it, aerobics is a widely used mean of physical training [10]. There are many kinds of aerobic systems, but specialists' opinions, concerning them, are often ambiguous [3, 4, 6, 12]. With it, the most important factor of reaching of lasting effect of any health improvement exercises, is, apart from correctly selected load, personality's peculiarities of the trainees, which determine, finally, both motivation of trainings and the quality of coach recommendations' fulfillment, and this factor has been remaining unstudied up to the present time.

The work has been fulfilled as per combined plan of scientific & research works in the sphere of physical culture and sports for 2011-2015 of Family, Youth & Sports Ministry of Ukraine within the frames of subject 3.8. "Theoretical and methodological foundations of mass control system and evaluation of development level and different population groups' physical preparedness" (state registration number 0111U00192).

Purpose tasks of the work, material and methods

The purpose of the work – is to estimate shaping efficiency for body mass correction of first maturity women with different personality's peculiarities.

Tasks:

- to carry out comparative analysis of body composition and organism's functional state changes before and after rehabilitation course; to estimate efficiency of rehabilitation complex program.
- to conduct comparative analysis of personality's peculiarities of the tested, depending on the level of the reached effect of trainings.

The methods of the researches. Theoretical analysis and generalization of literature sources, anthropometric measurements (body mass (kg), height (cm), girth of body (cm), shoulder indicator (conv. units), thickness of fat folds (mm), physiological tests [Martinet's test, time of heart beat frequency (HBF) and blood pressure (BP) restoration (sec. % of pulse acceleration)], I.V. Prokhorovtsev's step-test (conv. units), psycho-diagnostic methods (level and structure of self evaluation (points), dispositions of eating behavior (points, questioning), method of mathematical statistics, methods of physical rehabilitation (catabolic program of body training method "Shaping Classic" (I.V. Prokhorovtsev, Ye.V. Sergeyeva, 2008, diet therapy).

Organization of the researches. The research work was fulfilled on the base of shaping club "Grace" (Simferopol) from January to August 2012. The contingent of the tested consisted of conventionally healthy, but untrained women of first maturity (26-30 years old) 20 persons with excessive fat percentage in body composition and

body mass index higher than middle. Subjectively all women were unsatisfied with their body mass and wished to reduce it.

Results of the researches

Before the course of physical rehabilitation the tested showed high indicator of body fat mass, satisfactory level of cardiac vascular system, satisfactory level of physical workability, middle level of muscular endurance. With it, fat mass exceeded muscular one that additionally conditioned high percentage of fat tissue percentage in body composition (see table 1).

The complex of rehabilitations measures included catabolic program of “Shaping Classic” training (I.V. Prokhorovtsev, Ye.V. Sergeeva), oriented on correction of complexion, considering individuality of exercises for every tested on the base of anthropometric results and functional tests [6]. Physical exercises were carried out, considering HBF, which corresponded to the thresholds of aerobic and anaerobic metabolisms. The program consists of introduction (warming up), main part (11 dynamic cyclic exercises, loading middle and big muscular groups of low and, in some cases) middle capacity and final part (stretching and relaxation exercises; these parts are composed, considering 5 levels of intensity in main part of training. Duration of one training is 55 minutes. Besides physical training, with reduction of fat and muscular tissues “Shaping Classic” technology implicates using of hyper-calorific diet in postovulatory phase with maintaining of positive nitrous balance with quantity of proteins 1.7-2.0 g, fat 0.8-1.0 g, carbohydrates 4.7-4.2 per one kg of active body mass, divided into 5-6 food intakes. The diet is to be developed individually, considering mass and composition of body [7].

Analysis of stage control data showed positive dynamics of main indicators. After 3 months of trainings body mass indicators reduced by 5.7% ($p < 0,01$), fat body mass – by 13%, fat percentage – by 10 units with increasing of muscular mass by 3.7%.

After finishing of rehabilitation course the changes of the studied indicators were also fixed (see table 1).

Table 1

Comparative characteristics of physical development level, cardiac-vascular system and muscular endurance of the tested (n=20)

№ №	Indicators	Stage	X	Sx	d%	P
1	Body mass index (kg/m ²)	Before course	24,82	± 2,72	9,2	<0,01
		After course	22,54	± 2,37		
2	Body fat mass (kkg)	Before course	33,3	± 8,25	21,7	<0,01
		After course	26,06	± 9,13		
3	Body muscular mass (rg)	Before course	32,77	± 4,83	6	≤0,01
		After course	34,74	± 4,25		
4	Martinet's test: – t HBF restoration time (sec.)	Before course	102,8	± 44,6	34,8	<0,01
		After course	67	± 5,23		
	– t BP restoration (sec.)	Before course	134,7	± 62,11	27	<0,01
		After course	98,3	± 22,32		
5	Muscular endurance: – abdomen (q-ty of times);	Before course	70,5	± 12,97	15,6	<0,01
		After course	81,5	± 12,95		
	– legs (q-ty of times);	Before course	114	± 19,3	10,8	<0,01
		After course	126,35	± 13,41		
	– chest & arms(q-ty of times);	Before course	7,5	± 5,06	56,7	<0,01
		After course	11,75	± 5,1		
	–back (sec.)	Before course	86,95	± 41,29	20,6	<0,01
		After course	104,85	± 32,9		
6	HBF percentage of pulse acceleration (beats./min.)	Before course	161,4	± 2,89	2,5	<0,01
		After course	165,5	± 2,5		

As it is seen in the table, under the influence of rehabilitation measures (the sixth month of trainings) the members of the tested group showed significant change of all indicators. By 9.2% body mass index ($T = 8,5$; $p < 0,01$),

reduced, with it these changes had qualitative character: if before rehabilitation measures its value was ($24,82 \pm 2,72$ kg/m²) higher than middle, after the course it became of middle value ($22,54 \pm 2,37$ kg/m²).

The share of persons, which had high body mass index, reduced from 40% to 5% and the share of persons, having middle (normal) body mass index increased from 40% to 80%. With it, fat tissue mass reduced by 21.7% ($T = 9$; $p < 0,01$), and fatless (muscular) mass increased by 6% ($T = 43$; $p = 0,01$). In connection with this, fat percentage in body composition of the tested significantly reduced ($G=3$; $p < 0,01$).

Alongside with body mass reduction the state of cardiac-vascular system improved and physical workability rose, at what the dynamics of HBF and BP restoration time after load indicators and percentage of pulse acceleration, after Martinet's test, pointed. The time of HBF before rehabilitation course was $102,8 \pm 44,6$ sec.; after the course it reduced by 34,8% to $67 \pm 5,23$ sec. ($T = 0$; $p < 0,01$). The time of BP after load restoration to initial level reduced by 27%: from $134,7 \pm 62,11$ sec. to $98,3 \pm 22,32$ sec. ($T = 0$; $p < 0,01$).

All these changes witness about the efficiency of "Shaping Classic" training by catabolic program for body mass correction of first maturity women and about its positive influence on cardiac vascular and supporting motion systems' functional state. Body mass correction occurred owing to reduction of body fat mass and, as a result, of fat percentage. It is explained by the fact that health improvement training included, mainly, exercises of low aerobic power (with distant consumption of oxygen 50% and less than individual MПК); they are the exercises, with fulfillment of which practically all energy of working muscles is ensured by oxidation processes, for which, mainly, fat is consumed. Certain growth of muscular mass of the tested took place, probably, owing to activation of protein's adapting synthesis, which is observed with systematic physical loads. Increase of cardiac-vascular system's functioning level is explained by training effect of physical exercises and improvement of supporting motion system' functioning – by the fact that exercises especially promotes development of endurance.

At final stage of the research – psycho-diagnostic- the group was divided into 2 sub-groups. The first sub-group (conventionally called "group with clear effect") included the tested, whose indicators of body mass and fat percentage steadily reduced from the first measurement to the following ($n=11$). The second sub-group was composed of the tested, whose percentage of fat or body mass was lower at the second measurement than after the first, however, with the third measurement certain increase of them again was observed, though not reaching initial level, (8 persons); or there was increase of body mass and fat percentage, comparing with initial level (1 person). Further, when analyzing psycho-diagnostic data of personality's peculiarities, we compared the results, which were obtained in every sub-group.

The questioning results showed that the members of subgroup are confidently different between each other by the quality of fulfillment of coach's recommendations. These data are given in table 2.

Table 2

Observation of the coach's recommendations by the tested (%)

Recommendations	Group with clear effect (I)		Group with insufficiently clear effect (II)	
	Fulfillment	Non-fulfillment	Fulfillment	Non-fulfillment
Eating instructions	75 **	25	11 **	89
Attendance of lectures on eating	91 **	9	33 **	67
Attendance of trainings without missing	75 **	25	11 **	89
Monthly anthropometry	75 *	25	22 *	78

** $p < 0,01$

* $p < 0,05$

The data of anthropometry witness about insufficient motivation of trainings of the second group, which appears as ignoring of recommendations, required for efficient correction of body mass. With it, attention should be accentuated to the fact that body mass reduction is considered as the purpose of trainings by 90% of the members of both groups.

With comparative analysis of personality's peculiarities of both groups' tested the most significant were dispositions of eating behavior, the structure and level of self-evaluation by the parameter of beauty. In the group with clear effect the type of limited eating behavior is observed, which is characterized by intended efforts, directed to achievement or maintaining of the desired weight by self-restricting in eating. The second group manifests external type of eating behavior, when wish to eat is stimulated not by actual sense of hunger but by external look of food, its smell, texture or by the look of other people taking food (see table 3).

Table 3

Mean indicators of eating behavior disposition in the tested groups

Eating behavior types	Tested groups		Normative indicator
	Group with clear effect (I)	Group with insufficiently clear effect (II)	
Limited	$3,7* \pm 0,8$	$3,02* \pm 0,59$	2,4
Emotionally motivated	$2,55 \pm 1,16$	$2,4 \pm 1,18$	1,8
External	$2,83** \pm 0,48$	$3,54** \pm 0,47$	2,7

** p<0,01

* p<0,05

As we can see in table 3, eating behavior disposition's indicators are overrated in both tested groups in comparison with normative indicators, which are characteristic for people with normal body mass. It witnesses about abnormalities of eating behavior of the tested, that, probably, is one of the factors, which conditions excessive body mass. However, for the group with clear effect, the limiting type of eating behavior dominates, which is a certain compensating mechanism, suppressing desire to eat in response to negative emotions (emotionally motivated behavior) and external look of food (external behavior), and ensuring additional contribution to formation of motivation to observance of coach's recommendations concerning eating. Thus, high level of external and emotionally motivated eating behavior in combination with less expressed readiness to limited eating behavior, is a factor, which reduces efficiency of "Shaping Classic" training by catabolic program.

Also, it was found that in the group with insufficient effect there is overrated self-evaluation by beauty parameter, there are difficulties in acceptance of the fact of own physical imperfection, non-adapting protection mechanism is observed, which is directed to support of self-evaluation by depreciating the connection between beauty and thin body figure, which exists idea of the tested about themselves. The given peculiarities also facilitate depreciation of the coach's recommendations, and weakens motivation to trainings.

Summary

The results of the researches showed that in spite of the revealed efficiency of shaping in body mass correction of the first maturity women, certain personality's peculiarities can be the factor, which reduces the level of the achieved effect, namely external and emotional types of eating behavior in combination with less expressed restrictive type as well as compensatory overrated self-evaluation by parameter of beauty.

The prospects of further researches. It is assumed to develop and experimentally check up psycho-correction program in order to increase efficiency of coach recommendation's observance, which are targeted at violations of eating behavior and non adapting compensatory protection mechanism of beauty self-evaluation's maintaining.

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