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PECULIARITIES OF CORRECTING THE BODY AMONG WOMEN OF THE FIRST MATURE AGE PERIOD BY MEANS OF SHAPING TECHNIQUES IN ACCORDANCE WITH BODY TYPES

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Author contribution:

A – study concept and design; B – data collection; C – data analysis and interpretation; D – paper writing; E – paper editing; F – paper final adoption

Abstract

Introduction. The impact of ecological and social problems, nerve strain, muscle inactivity more and more stimulate people to do recreational fitness in order to strengthen health, improve physical condition, learn to fight stress, and run off excess weight. Compared to the other types of fitness, doing shaping is gaining more and more popularity as an efficient means for losing weight and correcting the body. Though shaping was initially developed as a system of individual sessions, the practice of group sessions existing nowadays requires new approaches in planning shaping programs. Yet there is lack of researches devoted to choosing means and amount of training intensity in accordance with individual peculiarities of the bodies among people doing sports.

The *aim of the research* is to improve the efficiency of training aimed at correcting the body among women aged 21-35 via using shaping programs in accordance with body types.

Material and methods. 30 women aged 21-35 took part in the research who were divided into control and experimental groups. In each group there were 15 people divided by somatotype. The pedagogical experiment was conducted based on «Fitness Box» sports club in Kyiv.

Results. It was found that as a result of using the developed shaping program among the women of the experimental group the reduction of body fat layer among endomorphs occurred by 13.2% and in the control group of endomorphs – by 7.2% ($p < 0.05$). Changes in body fat layer in the control and experimental groups are complemented with the data of changes in circumference measurements: breast, shoulder, belly, thigh, buttocks the dynamics of which proves the efficiency of using the program developed by us compared to the traditional one.

Conclusions. Using the developed shaping program makes it possible to solve the tasks on improving the efficiency of doing shaping aimed at correcting the body in accordance with endomorph body type among women of the first mature age period.



Key words: recreational fitness, women of mature age, shaping program, correcting the body, somatotype, endomorph body type.

Introduction. Nowadays' lifestyle makes new demands to physical and mental state of a person. Doing recreational fitness becomes not only prestigious but also useful for a modern and successful person [7, 12].

Based on the constantly growing demand in fitness services as well as increasing requirements to their quality more and more new multifunctional fitness centers are opened expanding the range of offered services based on the real clients' needs [15, 17].

To improve the appearance various aspects and sessions of fitness are used, notably doing shaping. As an efficient means for losing weight and correcting the body, the specificity of shaping consists in combining positive physiological impact of strength, coordination and endurance exercises with emotional and toning impact of background music. By means of doing shaping it is possible not only to normalize body mass but also to improve your body, strengthen your health and boost mental and physical functionality [4, 5].

The analysis of the latest publications claims the relevance of studying the efficiency of sessions with those doing shaping. Thus, a recreational effect of doing shaping was studied with women based on the results of functional indicators' dynamics (L. Koroliova, 2017), the basis of efficient composition and leading aerobics and shaping sessions was developed (B. Kokarev, O. Chernenko, 2006), the studies devoted to assessment of the level of motion

activities development by means of aerobics and shaping were conducted (O. Kalinichenko, 2005).

But the issue of the impact of such sessions and their efficiency is underinvestigated. There are no studies based on choosing special means and amount of training intensity of sessions in accordance with individual peculiarities of the people doing shaping. Though shaping was initially developed as a system of individual sessions, the practice of group sessions existing nowadays requires new approaches in planning shaping programs [6, 8, 16].

The **aim of the research** is to improve the efficiency of training by means of shaping aimed at correcting the body among women aged 21-35 in accordance with their body types, notably endomorph one.

Material and methods of the research. The questionnaire was conducted aimed to determine the motives and interests among women in doing shaping, defining their opinions on the impacts of various fitness areas on the efficiency of correcting the body, etc. 30 women of the first mature age period took part in the research.

30 women aged 21-35 took part in the pedagogical experiment who were divided into control and experimental groups. In each group there were 15 people divided by somatotype determined by means of Heath-Carter method (table 1). In this work, the results of a part of the experiment are covered based only on the women of the group with endomorph body type.



Table 1

Allocation of the ones under study by body types in the control and experimental groups ($n = 30$)

№	Body type	Experimental group (number of people)	Control group (number of people)
1.	endomorph	5	6
2.	mesomorph	7	6
3.	ectomorph	3	3

The pedagogical experiment was conducted based on «Fitness Box» sports club in Kyiv. In the course of the research a special program for the experimental group of women with endomorph body type and a standard program, which was used by the women of the control group, were developed.

The women attended sessions three times a week, the session lasted 50-60 min (control group) and 80-90 min (experimental group). In both groups, anthropometric indicators were measured.

Body mass was determined by means of medical weight scales providing accuracy up to 100 g.

Body length was measured with height meter with accuracy up to 0.5 cm by the height of the vertex above the ceiling.

Breast circumference: when measuring the stripe was running at the back under the lower corners of shoulder blades and at the front along the top of the breast.

Shoulder circumference was measured with relaxed state of shoulder muscles in place of their greatest development.

Belly circumference was measured at the level of umbilicus

point at the moment of pause between inhalation and exhalation.

Thigh circumference was measured with the following initial position of a participant of the experiment: legs apart, body mass is divided equally between both legs. The stripe is put on the thigh under the gluteal fold.

Buttocks circumference was measured at the level of the most convex part.

The indicators of the women's body composition (fat component) were determined by means of caliperometrics. Following the commonly accepted methodology, before the beginning of a training session among women the amount of body fat layer was measured on breast, belly and thigh (mm) using the caliper with a unified 10/mm pressing before the start of the experiment and after its completion (table 2).

Methods of the research: analysis of research and methodological literature, questionnaire, anthropometrics, caliperometrics, Heath-Carter method, pedagogical experiment, methods of mathematical and statistical data processing.

Table 2

Components characterizing women’s body types [5]

<i>Indicators</i>	<i>Endomorph</i>	<i>Mesomorph</i>	<i>Ectomorph</i>
body fat layer	great amount	medium amount	minimal amount
muscles	medium-developed	well-developed	weak-developed
skeleton	big-boned	massive	thin-boned
shoulders	thin	wide	thin
pelvis	wide	thin	relatively wide
chest	convex	trapezoidal	flat, long
limbs	relatively short	medium length	long, thin
metabolism	slow	moderate	increased

Results of the research and discussion.

Shaping is a system of developmental sessions equipped with modern computer technologies and aimed at physical, mental and aesthetical improvement of a person and creating the image of a modern person, principally a graceful woman. This is also a system based on gymnastic and dancing exercises and oriented at the people of different ages and physical capabilities.

Based on program and target principle three trends were divided in the shaping system: shaping classic (correcting the body in accordance with the chosen shaping-model), thin body shaping (appealing to mental component of a person’s life) and shaping-pro («promoted» shaping for the most trained people who set themselves the most ambitious tasks) (fig. 1) [2, 8, 9].

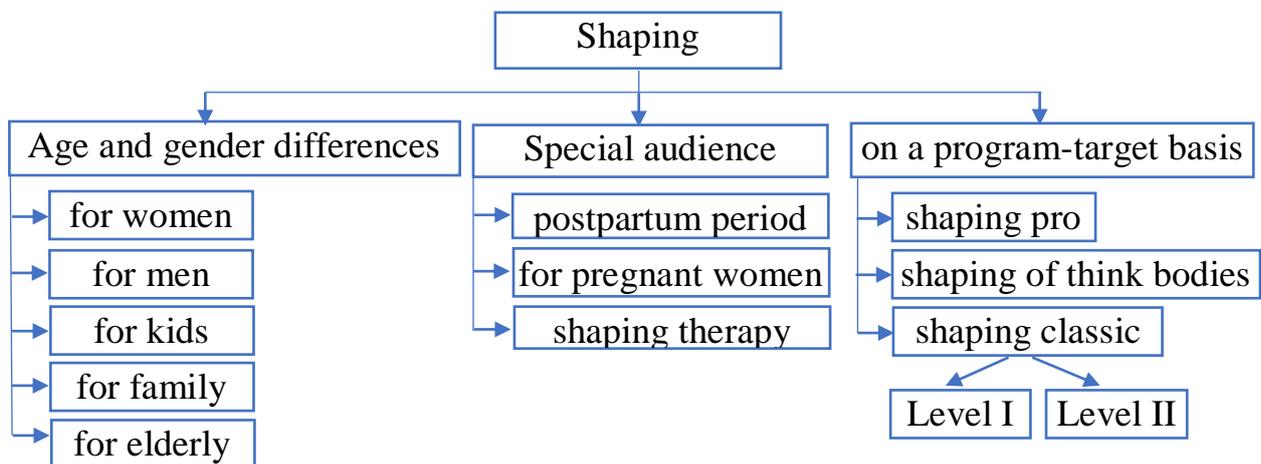


Figure 1. System and structure analysis of shaping programs

The main means used in shaping are gymnastic exercises of general and analytical impact. Principally, we are talking about the exercise like rhythmical gymnastics, exercises with free weights and exercises on machines as well as means for special extra-training actions related to forming the

image and internal mental sphere of lives among people doing shaping (fig. 2) [1, 7, 11].

The general duration of a standard shaping session accounts for 50-60 min. The session includes a special warm-up (20% of training time), the main part (70%) whose



exercised are aimed at correcting the body and developing physical qualities, and final part (10%) within which the

means of stretching and relaxation are used [12, 14, 16].

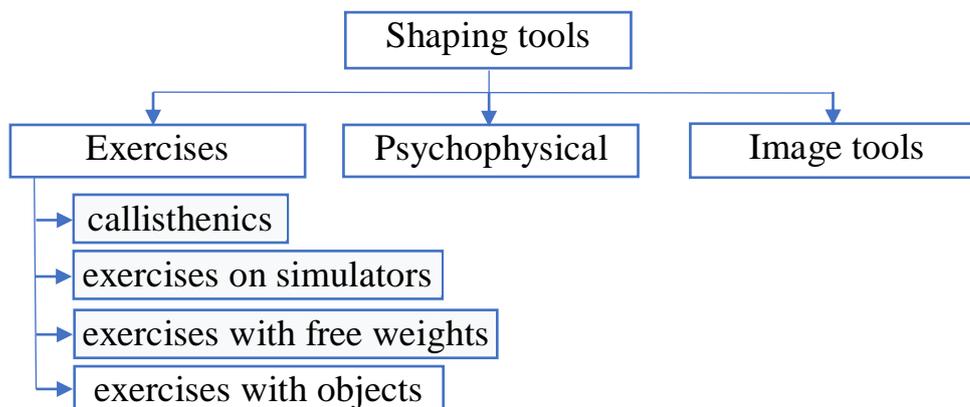


Figure 2. The main means used in shaping

The questionnaire was conducted to study motives and interests of 30 women of the first mature age period doing shaping: their opinions on the role and impact of fitness areas, on priorities in developing physical qualities, women's motives to do shaping, etc.

Among the types of sessions given in the form, the responders indicated using the machines and

shaping as the most efficient types of sessions for losing weight and body mass correction (fig. 3).

Also the questionnaire approved that for most women the motive for doing shaping was a will to reduce body mass. The abdominal, pelvic and lower limbs' muscles (belly, buttocks and leg zones) require correction most often.

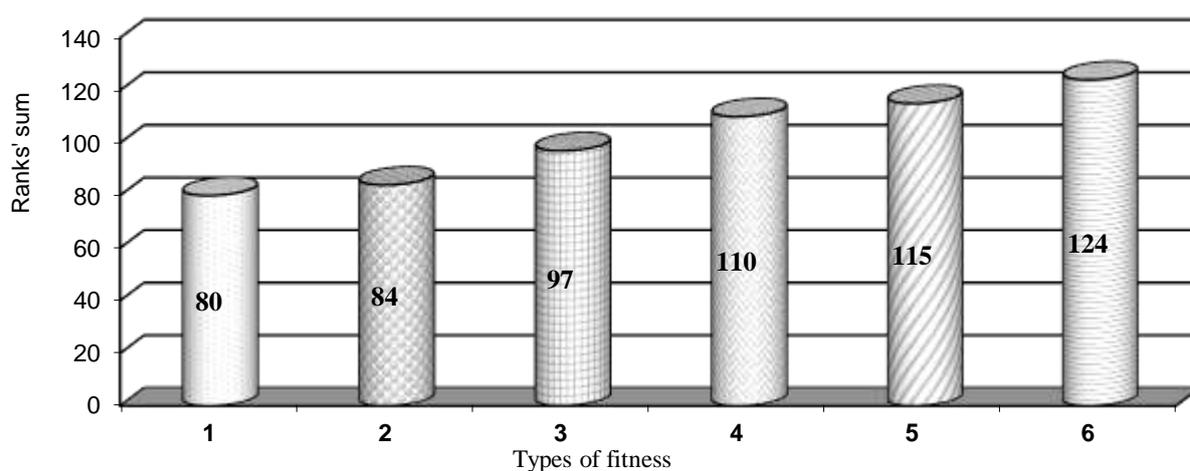


Figure 3. The opinions of the responders ($n = 30$) on the most efficient fitness types for reducing body mass:

- 1 — using machines, 2 — shaping, 3 — step-aerobics,
4 — martial arts, 5 — dancing aerobics, 6 — classic aerobics.



To define the motives and interests in doing shaping the participants of the experiment were offered to rank the motives for doing shaping in the order of losing significance. It was found that the

responders consider reducing body mass, improving body shapes and strengthening health the priority motives for doing shaping ($W= 0.8$) (table 3).

Table 3

The opinions of the responders on the significance of the motives to doing shaping

Motives to doing shaping (women aged 21-35 ($n=30$, $W= 0.8$))	Rank	Σ of ranks
reducing body mass	1	31
improving body shapes	2	35
strengthening health	3	54
will to become stronger	4	89
active rest	5	90
spending leisure, entertainment	6	98
getting emotional boost	8	122
preventive care and overcome a number of illnesses	9	126
developing motion qualities	10	132
prestige	11	144
affection for motion and music	12	158
will to improve image	13	164
new acquaintances	14	174
communicating with friends	15	184
broadening your mind	16	192
interest	17	198
will to get rid of boredom	18	205

Taking into account the interests and tastes of the women by the results of the questionnaire a special shaping program was developed for the women of the experimental group with endomorph body type.

During three months 39 sessions were conducted by the developed program in the experimental group of women ($n = 5$) and by the standard shaping program in the control group of women ($n = 6$).

The efficiency of the developed program was changed in a comparative pedagogical experiment. Women attended sessions three times a week,

the session lasted 50-60 min (control group) and 80-90 min (experimental group).

The suggested program of sessions included using diversified exercises of high intensity aimed at developing endurance, strength, flexibility, coordination abilities as well as reducing body mass and correcting the body (gymnastic exercises of general impact, elements of rhythmical gymnastics and basic aerobics, exercises with free weights and exercises on machines).

Different equipment was used (body bars, dumbbells, rubbers,



fitballs, and machines). Exercises were used in succession with short rest periods between series of exercises (from 15 s to 30 s).

The preparatory part of the session consisted of general and special components. The general session component included the elements of basic aerobics. The main part of the session lasted 40 min and included two main components: aerobic training and strength component. The last type of training was completed in parterre position.

In the course of developing the program, optimal duration of the exercise impact on specific muscle group was taken into consideration. Thus, for chest, back and arm muscles – 40-90 s with 7-5 repetitions of each move in set; for thighs and buttocks – 90-150 s with 15-25 repetitions; for abdominal muscles – 150-180 s with 15-20 repetitions.

The main aim of the parterre component was to develop strength of specific muscle groups with clearly regulated technique of performance. After each strength training, the women of the experimental group moved to aerobic training from 30 min to 30 min (walking or moderate running on a treadmill, cycling machine, stair stepper, and elliptical trainer). During the final part, respiratory and stretching exercises were used.

To determine the efficiency of the program aimed at correcting the body among women aged 21-35 with endomorph body type anthropometric indicators and indicators of body composition among the women of

control and experimental groups doing shaping were defined before and after the experiment.

As a result of using the developed program in accordance with body type among the women of the experimental group the body fat layer among endomorphs reduced by 13.2% and among endomorphs of the control group – by 7.2 % ($p < 0.05$). Compared to the experimental group of endomorphs this indicator was lower.

So, shaping program for the experimental group of endomorphs is more efficient for correcting the body and reducing body fat layer. The dynamics of changes in body fat layers in control and experimental groups can be complemented with the data of changes in circumference measurements of breast, shoulder, belly, thighs, and buttocks whose dynamics proves the efficiency of using the program developed by us compared to the traditional one (table 4).

Using the shaping program developed in accordance with women's body types made it possible to improve the efficiency of sessions aimed at correcting the body among women aged 21-35.

The programs in shaping were based on following the principles like: individualization and differentiation of training having created the conditions for the fullest manifestation of capabilities and abilities of those who trained in accordance with their values-based orientations as well as personal morphofunctional peculiarities and physical qualities.

Table 4

Dynamics of anthropometric indicators and level of body fat layer of the control group ($n = 6$) and experimental group ($n = 5$) of women after three months of sessions

Indicator	Control group	Experimental group
body fat layer level, %	-7.20	-13.20
breast circumference measurements, cm	-0.20	-0.23
shoulder circumference measurements, cm	-0.34	-0.39
belly circumference measurements, cm	-0.31	-0.38
thigh circumference measurements, cm	-0.75	-1.00
buttocks circumference measurements, cm	-0.7	-0.78

Conclusions. Generalizing the data on interests and advantages among women of the first mature age period received in the course of a questionnaire the shaping program for women was developed in accordance with endomorphic body type whose efficiency was checked in a comparative pedagogical experiment ($n = 15$).

As a result of using the developed program for the experimental group of women with endomorphic body type (n

$= 5$) the body fat layer reduced by 13.2% and for the control group – by 7.2 % ($p < 0.05$). Therefore, the shaping program for the experimental group of endomorphs is more efficient for reducing body mass and body fat layer and can be used by the trainers for building shaping sessions aimed at correcting the body among women of the first mature age period having endomorph body type.

Table 5

Characteristics of training activity indicators in shaping in accordance with body types among women of the first mature age period

Training activity components	Women's body types		
	Endomorph	Mesomorph	Ectomorph
Number of training sessions in a weekly microcycle	3–4	3	2–3
Number of trainings a week aimed at specific muscle groups	4–5	1–2	1
Number of involved muscle groups at one session (neck, back, arm, abdominal, leg muscles)	2 — all	2 — all	2 — all
Number of sets in one exercise	4–5	3–5	4–8
Number of repetitions in one set	8–14 for legs 12–20	8–12 for legs 10–18	4–10 for legs 6–16
Rest between sets	15s–1min	30s – 1.5min	1–2min
Speed of performing the exercise	maximal	moderate	moderate
Main objective in training	boosting metabolism, losing weight and	variable trainings	constant increasing of



	strengthening muscles; worth beginning the sessions from abdominal muscles, complex sessions		weights
Aerobic exercises	30-40 min	Not more than 20 min (interval)	Not more than 20 min (interval)

Prospects for further research.

Further research will be aimed at developing and analyzing the efficiency of programs for group shaping sessions in accordance with ectomorph and mesomorph body types among women of the first mature age period.

Recommendations.

In the course of developing the program of group shaping sessions in accordance with women's body types it is worth following the correlation of the training activity components mentioned in table 5.

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