

Fitness in school physical education lessons

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Abstract.

Results of the analysis showed a serious problem of modern school education in Ukraine by overloading pupils with educational subjects and dissatisfaction with traditional content of physical education lessons. In Ukraine, physical education of pupils is an integral part of all pedagogical work. In the environment of student youth an interest in non-traditional means of physical education has increased, which combines various physical exercises and musical accompaniment. Shaping is one of them. The article is about implementation of shaping on school lessons of physical education to high school girls. The shaping system is aimed at the physical and aesthetic improvement of girls, contributes to the improvement of forms and proportions of the body that is essential for teenage girls. The results of systematic shaping classes are positive changes in the body mass of schoolgirls; reduction of body fat; the growth of the shaping figure class. The shaping classes have significantly improved the body structure and proportion that is essential for girls of high school age. The obtained results confirm the expediency of implementation of shaping technologies on physical education lessons at school.

Key words: lessons of physical education, high school students, shaping, physical improvement, positive results

Introduction.

In Ukraine, physical education of pupils is an integral part of all pedagogical work, which plays an important role in the preparation of a fully developed person, because children make important theoretical knowledge and skills for future life from school (Chekhovska L. & Turka R., 2015; Moral-García J., Nieto Rodríguez J., García-Cantó E. et al., 2019).

There is a serious problem of modern school education in Ukraine by overloading pupils with educational subjects and dissatisfaction with traditional content of physical education lessons (Chow, B., Louie, L., 2008; Butenko, H., Goncharova, N., Saienko, V. et al., 2017). These led to a significant reduction in motor activity, to overweight, deviations in health and physical development, etc. (Decree of the President of Ukraine, 2016). As a result, it causes fatigue, deterioration of health, low physical fitness indicators (Andrieieva O., & Hakman A., 2018). According to statistics, only one third of upper secondary school students (38,5%) is involved in physical education outside the school, 40% of students are in special medical group due to their health status and 80% of graduates are ill (Andrieieva O., Hakman A., Balatska, L. et al., 2017).

The problem of motor activity of girls schoolchildren requires a special solution because the hypodynamia affects their health and future reproductive function (Andrieieva O., & Hakman A., 2018).

This situation is alarming for all who are responsible for the health of children, and above all parents and workers of physical culture sphere that are called to provide education for a healthy generation.

Practice shows that it is almost impossible to improve the state of situation only through traditional physical education lessons. In this connection, the scientific substantiation of kinds of fitness, which would be used in the system of formal forms of employment with schoolchildren.

So, health fitness becomes more popular in Ukraine and take part in the formation of a healthy lifestyle culture (Chekhovska L., 2017; Vaschuk L., 2012). In total, there are about 200 different health programs of Fitness (Goncharova, N., Denisova, L. & Usychenko, V. 2012; Belyak Y., Gribovska I., Muzyka F., Ivanochko V., & Chekhovska L., 2018; Prystupa E., Zhdanova O., & Chekhovska L., 2018). Such a large number is due to the desire to satisfy the interests and preferences of various segments of the population (including children and youth) (Janssen I., 2010).

In the environment of student youth the interest to fitness has increased, which combines various physical exercises and musical accompaniment (Roters T., 2006). Shaping as type of fitness is quite popular among schoolchildren, especially high students today (Drapanska L., Shevtsiv U. & Gumen V., 2018).

Shaping is a complex system of physical and spiritual perfection of a person that combines physical exercises, nutrition principles, art, fashion, desire for an ideal appearance (Zhdanova O.,Chekhovska L., Shevtsiv U. &Chekhovska M., 2015). The authors of the shaping are the health-improving trainers of St. Petersburg (Russia), from where it spread to other countries of the post-Soviet space.

The content and volume of the load in shaping-training are composed personally for each girl depending on physical abilities, level of health, goals of perfection of the figure, phases of the physiological cycle. Regular complex testing allows to determine the content of classes correctly, to correct errors, to analyze the effectiveness of the impact. It is possible to calculate the modes of individual training effect, diets accurately to improve physical fitness and health in general comparing the initial parameters of the figure of some girl with the parameters of the shaping model of her constitutional type.

The control of the intensity of training loads is carried out at the heart rate (HR) that corresponds to the limits of aerobic and anaerobic exchanges. This kind of health fitness is aimed to physical perfection, attractiveness, aesthetic figure, good stroke, graceful posture – to all those the majority of girls of the high school age dream about.

Purpose of the research - to increase the effectiveness of physical education lessons at school through using the shaping technologies.

Methods of research: analysis and generalization of scientific and methodical literature; pedagogical experiment; survey method (questionnaire);documentary method;clinical method (anthropometry);methods of mathematical statistics.

Objectives of the research: to introduce shaping-technologies on school lessons of physical education in high classes; to investigate the dynamics of anthropometric indicators of high school girls under the influence of shaping lessons; to prove expediency of applying shaping technologies on physical education lessons at school.

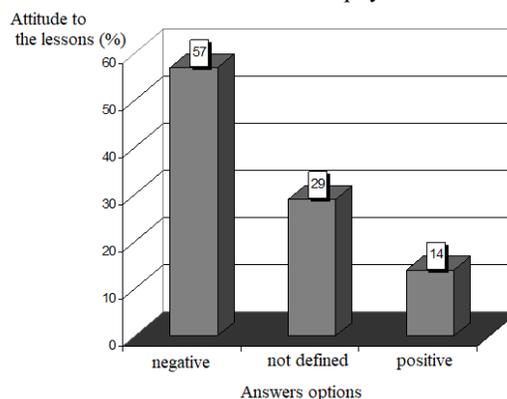
Results.

We conducted a survey of teachers of physical education. Almost all teachers-respondents (90%) expressed the need to implement types of fitness that are popular among high school students, into traditional content of classes as a factor in activating their interest in school physical education.

The analysis of the results of the questionnaire showed that teachers consider the replacement (full or partial) of the content of traditional physical education lessons for high school girls with types of aerobics (26%), shaping (24%), rhythmic gymnastics (18%), and other types of fitness (according to 16%). That is, what mostly meets the needs of girls: remodel a figure, flexibility, ductility, a sense of rhythm, ability to move, etc. Such requirements are indicated in most of the questionnaires filled by high school students during the survey.

At the beginning of the experiment, we also held a survey to high school girls (53 respondents) in order to identify their attitude to school physical education lessons of traditional content. We received the following answers: only 14% of girls responded positively to the traditional physical education lesson, and the number of negative answer reached 57%. Other girls (29%) have an indefinite attitude (fig.1).

Figure 1. Attitudes of schoolchildren to physical education lessons



Schoolgirls named monotony (37.2%) as the most important reason for dissatisfaction with the lessons of physical education. They mentioned the content of lessons uninteresting to themselves (29.3%), and the reason is the lack of types of motor activity they like (33.5%).

Thus, the results of the survey showed the necessity of implementation of new physical education lessons that could form a positive attitude of most girls.

We have shortened the classic shaping program that lasts 55 minutes to 38 minutes for using it in a classroom lesson. Shaping program (Table 1) included a warm-up, 8 blocks of exercises and a shutter. Each exercise lasted to 4 minutes.

Table 1. Structure and content of the shaping program for high school girls

Blokes of exercises	Direction and action area	Duration (min.sec)	Rest (sec)
Start	Activation of the autonomic functions of the body and the musculoskeletal system	3.35	20
1	Muscles of the front surface of the thighs	3.55	15
2	Muscles of the back of the thighs	4.05	15
3	Jumping and running block	3.55	20
4	Great and medium buttock muscles	3.20	20
5	Direct stomach muscle (press above, press down)	3.30	20
6	Belly muscle spine (waist)	4.00	15
7	Dance rock and roll	2.30	20
8	Muscle groups of the upper back or arms or legs	4.00	15
Final	Return of vegetative functions of an organism to an initial state, stretching (exercises for flexibility)	2.45	–

The number of repetitions of each exercise remained traditional for shaping (50) as well as the presence of 3 instructors on the video that demonstrated options for exercises of varying complexity and intensity. It gave the possibility of an individual approach due to the level of physical condition of girls (Zhdanova O., Chekhovska L., Shevtsiv U. & Chekhovska M., 2015).

We implemented the modified shaping program in some schools in Lviv. The experimental group (59 girls of senior pupils) was doing this program for five months.

The school shaping program was developed on the basic programs of the International Shaping-shaping Federation "Shaping-Classic" and "Shaping-Young" programs. Our program was recorded on the video cassette and had a modern musical accompaniment, consisting of the introductory, main and final parts. Observation of participants was conducted before and after pedagogical experiment.

During anthropometric testing we took into account the circumferential dimensions of different parts of the girls' body and the measurements of 12 skin-fat folds in different parts of the body with a colliper.

Computer processing of the results of anthropometric tests with special program allowed us to determine the components of body mass: the amount of fat in the body, subcutaneous fat and the non-fat mass. The results of anthropometry were compared before and after the pedagogical experiment (PE).

The results of measurements of researched girls were homogeneous ($V < 15\%$) with height ($V = 3.7\%$) and chest circumference ($V = 7.7\%$) before experiment. It was recorded a certain heterogeneity only in body mass ($V = 15.0\%$).

The results became homogeneous in all three indicators of physical development after PE: mass ($V = 13.9\%$), body length ($V = 3.7\%$) and chest circumference ($V = 7.4\%$).

We observed an average weight loss of 0.99 kg analyzing the results before and after the experiment. Comparison of chest circumference showed a practically insignificant decrease of this index by 0.57 cm that is not significant changes statistically ($p > 0.05$) (Table 2).

Table 2. Anthropometric indices of high school girls during the pedagogical experiment (n= 59)

Indices	$\bar{x} \pm \sigma$ (before PE)	$\bar{x} \pm \sigma$ (after PE)	t_{calc}
Height (cm)	164,54±6,01	164,54±6,01	1
Body mass (kg)	55,84±8,09	54,85±7,47	3,87
Chest circumference (cm)	87,03±6,73	86,46±6,78	1,7

Notes: $t_{critic} = 2.00$;

Thus, we can conclude that pronounced changes occurred only in the body mass of girls pupils after five months of systematic lessons of modified shaping program.

Also we noticed a significant spread of results of dimensions of different parts of the body in the variation range (from 5.9% to 11.6%).

At the beginning of the pedagogical experiment, the homogeneity of the results ($V < 15\%$) in the body circumventions was recorded in the neck region ($V = 5.9\%$), shoulder ($V = 11.5\%$), breast ($V = 7.3\%$), buttocks ($V = 7.1\%$), thighs ($V = 9.8\%$) and ankles ($V = 7.8\%$) (Table 3).

Table 3. Dynamics of the bypass sizes of different parts of the body of schoolchildren (n=59) during PE (arithmetic mean ± standard deviation)

Indices, (cm)	$\bar{x} \pm \sigma$ (before PE)	$\bar{x} \pm \sigma$ (after PE)	t_{calc}
Neck circumference	30,65±1,83	30,41±1,54	2,28
Shoulder circumference	25,21±2,89	24,96±2,89	1,91
Over breasts circumference	82,91±6,1	82,26±5,48	1,71
Waist circumference	67,00±7,77	65,76±7,01	4,29
Buttocks circumference	94,19±6,78	93,02±6,56	4,26
Hip circumference	54,07±5,33	52,97±5,05	5,06
Ankle circumference	34,36±2,69	33,88±2,42	3,47

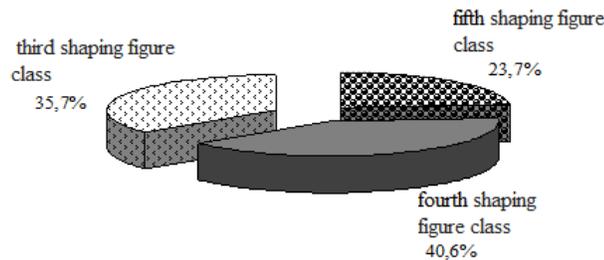
Notes: $t_{critic} = 2.01$; $p \leq 0.05$

After the pedagogical experiment, the results retained the uniformity of the circumventions in all parts of the body and the variation in the variation ranged was from 5.06% to 11.1%. We detected minor changes ($p < 0.05$) after comparing the circumventions of the body before and after the experiment. So the average index decreased in shoulder circumvention - on 0.25cm, breast circumvention – on 0.65cm; waist circumvention – on 1.24cm; buttocks circumvention – on 1.17cm and legs circumvention - on 0.48cm.

Computer processing of results of anthropometric test by special program allowed us to determine the components of body weight: the amount of body fat, subcutaneous fat and non fat mass.

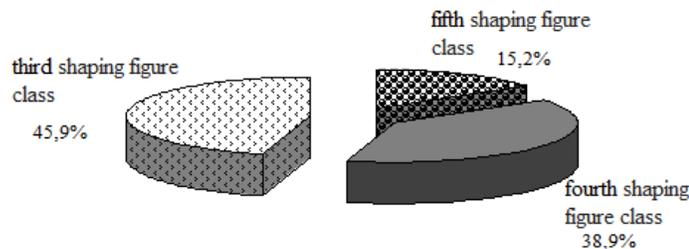
The indicator of total body fat was 19.86kg as average in female students before experiment. The amount of fat decreased by 2.18kg during the research and reached 17.68 kg. As we know, the total amount of body fat consists of internal and subcutaneous fat. Computer processing of the results also allowed getting the indicator of subcutaneous fat. So, at the beginning of our experiment, the amount of subcutaneous fat was 11.89kg as average. This indicator decreased by 1.6kg and reached 10.29kg of total fat during the year. Our observations have shown a noticeable decrease in the amount of body fat in girls in the process of shaping classes. The computer determined the shaping figure class on the basis of deviations in subcutaneous fat deposition from shaping model. There are five shaping figure classes among witch the first one is the highest, and the fifth is the lowest. The first and second shaping classes are a figure of a shaping model that is evaluated on shaping contests visually. The third, fourth and fifth shaping figure classes are determined by computer. The analysis of the research results showed changes in the shaping figure class of researched girls during the pedagogical experiment. At the beginning of our research, 23.7% of girls had the fifth shaping figure class that is the lowest and 40.6% of girls had the fourth shaping figure class. Other girls (35.7%) had the third shaping figure class that is the highest (fig.2).

Figure 2. Distribution of schoolchildren to groups by shaping figure class at the beginning of a research



There have been significant changes after the research. First of all, the number of high school students with the lowest shaping figure class has decreased to 15.2%. Also, 38.9% of schoolchildren reached the fourth shaping figure class and 45.9% of girls reached the third shaping figure class (fig. 3).

Figure 3. Distribution of schoolchildren to groups by shaping figure class after research



The revealed changes indicate that with the help of shaping can affect the various muscle groups, improve the body structure, satisfy the aspirations and needs of high school girls effectively and purposefully. Classes help to improve the forms and proportions of the body significantly, which is essential for girls this age, and also contribute formation of a stable motivation to systematic motor activity.

Conclusions.

The process of physical education of schoolchildren needs improvement. The volume of motor activity does not meet the norm, which provides the optimal level of health, due to the disadvantages in organizing physical education at school. Experts found out the reason of low motivation of students to the physical education classes. It is lack of opportunity to choose a type of classes and their dissatisfaction with the content of school physical education. The content of the classes can increase motivation to physical education.

It is offered and implemented on school physical education classes one of the types of fitness. The results of our research confirmed the assumption that the implementation of shaping technologies on lessons at school is possible and appropriate.

The results of systematic shaping classes are positive changes in the body mass of schoolgirls (average weight loss on 0.99 kg); reduction of body fat (an average of 2.18 kg); the growth of the shaping figure class (an average of 10.2%). The shaping classes have significantly improved the body structure and proportion that is essential for girls of high school age.

The obtained results confirm the expediency of implementation of shaping technologies on physical education lessons at school. Thus, it can be argued that the proposed shaping program is effective, meets school requirements and can be recommended for use on school lessons for high school students. The prospect of further research about this problem may be the using of the proposed technology for the including other types of physical and healthy classes on school physical education classes, as well as theoretical and experimental substantiation of using shaping programs (for example, "shaping-young") on the school lesson of physical education for young and middle school age girls.

Conflict of interests. The authors declare that there is no conflict of interests.

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