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CONSTRUCTION A COMPREHENSIVE HEALTH TRAINING PROGRAM FOR WOMEN IN THE FIRST PERIOD OF ADULTHOOD

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Purpose: to determine the effectiveness of constracting a comprehensive program of health training for women of the first period of adulthood.

Material and methods: the research lasted during the 2019-2020 academic year on the basis of the fitness club "Territory Fitness". According to the homogeneitic indicators, two groups of women of the first period of adulthood - control (CG) and experimental (EG) were formed, 13 people in each group. Modern research methods were used: theoretical analysis and synthesis of literary sources, pedagogical observation, pedagogical experiment, pedagogical testing, medical and biological methods, methods of mathematical statistics.

Results: in the process of conducting an experimental study, the program of health training was constructed. The program took into account the distribution of physical load depending on the tasks of each period, stage, meso and microcycle.

Conclusions: during the experiment, significant intergroup changes in the somatometric and functional indicators of women of the first period of adulthood were observe at $p<0,05$ and physical fitness at $p<0,05$, at $p<0,01$, at $p<0,001$. The increase in somatometric indicators and indicators of the functional state of the body

of women EG is 4,7%-17,3%. At the same time, in women with CG, the range of changes in these indicators ranges from 0,4% to 12,2%. In terms of physical preparedness, there is also a more significant their increase in women with EG, and the range is from 14% to 45,8%. In women with CG, the increase in physical preparedness is in the range of 7%-24%.

Keywords: health training, women of the first period of adulthood.

Introduction

According to the information of Mass Media nowadays in Ukraine, we can observe the negative tendency of changing of people's life expectancy and state of health indexes. Demography is getting worse and this leads to the decline of economic and social component of social existence [6, 10].

Therefore, one of the priorities, which we need to identify today is creating conditions raising the level of health and wellbeing of state's population.

According to the definition of WHO health is a state of full physical, spiritual and social wellbeing, and not only a lack of illnesses and physical defects [3].

In 2006, the decree of the President of Ukraine stated the national strategy of health physical activity in Ukraine for the period until 2025 «Physical activity – healthy lifestyle – healthy nation». The main aim of the strategy is raising the level of involvement of different layers of society into health physical activity, which will help to solve economic, social and humanitarian problems in future of not only one person, but society as a whole [4, 13].

It has scientifically proved that human physical activity of the first period of adult age is a guarantee of health for the whole life. So involving people into a healthy lifestyle affects the improving of the quality of life, provides harmonic development and is one of the efficient factors of disease prevention [2, 16].

O. V. Andreeva (2014); V. M. Zaviyska (2015) suggest to pay much attention to keeping and improvement of women's health of the first period of adult age because due to them we can fight the demographic crisis. This age for the woman is the best for healthy reproduction [1, 5].

With the birth of a child and care for it during the first years women's hormonal environment changes, different physical activity reduces, physical, psychological and emotional tiredness grows, which leads to reduction of health indexes. In this case, T. O. Sinitsia (2015 p) admits that the dynamics of women's health indexes deterioration of the first period of adult age has reverse functional nature and to reduce such negative consequences we can do by optimization of physical activity at fitness classes.

O. Ya. Kibalnik, O. A. Tomenko (2010); O. V. Andreeva (2014); V. Kashuba, N. Goncharova, M. Dudko, O. Martinuk (2016) also stress that fitness classes have a positive dynamics on improving women's physical state of the first period of adult life.

Regarding to the development of health-training programs, it should be mentioned that the application of an integrated approach in their construction allows to solve several health problems. However, the formation of such programs should proceed based on a deep understanding of those physiological changes that occur in the human body under the influence of specific means [1].

The analysis of scientific and methodological literature proved the presence of a sufficient number of studies that address the issues of determining the effectiveness of classes with the women of the first period of adult age by a certain methodology. Much less attention is paid to the use of integrated health-training programs with such segment.

Thus, today there is a demand to expand the theoretical and methodological foundation, which would allow women to choose effective integrated health programs, and fitness trainers to combine the necessary techniques effectively, to apply certain tools and determine their dosing in solving pedagogical problems in health training with the examined segment.

Purpose of the study is to determine the effectiveness of building an integrated program of health training for women of the first period of adult age.

Material and methods

The research lasted during the 2019-2020 academic year on the basis of the fitness club "Territory Fitness". According to the homogeneitic indexes, there were formed two groups of women of the first period of adult age - control (CG) and experimental (EG), 13 people each. We used modern research methods: theoretical analysis and synthesis of literary sources, pedagogical observation, pedagogical experiment, pedagogical testing, medical and biological methods, methods of mathematical statistics.

Connection of research with scientific or practical tasks, plans, programs. The scientific work was performed according to the proactive scientific topic of the Department of Gymnastics, Dance Sports and Choreography: "Theoretical and methodological principles of development of system-forming components of physical culture (sports, fitness and recreation) for 2020-2025), state registration number 0120U101215".

Results of the research

At the first stage of construction of the integrated program of improving training, we defined somatometric indexes, indexes of a functional state and working capacity of a women's body, indexes of their physical fitness.

Taking into account the recommendations of specialists in health training [8, 11, 15, 17], the results of control of the studied indexes and the experience of practical work, we have determined the parameters of health training.

To achieve this goal, we have combined the tools of the following programs: stretching, Tabata protocol, MGF, TRX, gliding, aerobics, fitnessball, aerobic strength classes. The means of training were divided as follows: by anatomic feature (i.e which muscle group will be the main one involved in the work); by nature - static and dynamic; using objects and equipment (dumbbells, bodybars, fitballs, step platforms, etc.) [7].

In the construction of health training we used: a) general theoretical methods aimed at mastering knowledge; b) practical methods that involve mastering physical skills, abilities and development of physical performance [7, 12].

In the process of training we used the following types of control: a) operative, which involves the assessment of operative conditions - urgent reactions of the body to the physical activity (immediately after training, or directly during the exercise); b) ongoing, aimed at assessing the current state of women (during small training cycles); c) stage, which allows to summarize the training results for a certain time (stage, period) [2, 9].

Developing a lesson plan during the annual cycle of health training, we referred to the approach of the authors S.V. Sinitsa, L.E. Shesterova, 2010, who identify two cycle models of health training in the annual cycle and divide the whole year into autumn-winter and spring-summer stages [12]. So, we divided the workouts into two stages. In each stage, according to T.Yu. Krutsevich, 2003, we have identified three periods: preparatory, basic and supporting [7]. In each period, we have identified the middle cycles of health training - mesocycles: involving, gaining physical shape, keeping physical shape and active relaxation. In different mesocycles, we set the tasks and planned the focus of training.

Each mesocycle consisted of small cycles - microcycles that lasted 7 days. During the microcycle there were 3 cardio aerobics and strength training that lasted 60 minutes each and had an intensity of 50-75% of the IPC. The other four days were scheduled to rest. Such training planning allows the body to recover after the exercise and due to adaptation reach a new level of functioning [2, 14].

Adaptation process is functional structural reorganizations of a body, which increases its working capacity and allows to function under certain conditions. With systematic training this mechanisms is improved. All these changes operate at different levels of body structure: within the cell (increases the rate of internal reactions, the speed and ability to utilize the breakdown products, the resistance of the cell to the acidic environment); within the organ of a body (increases the efficiency of its work); within the system (improves the work of the cardio-respiratory, hormone, muscular systems, etc.); within the body as a whole (the amount of work that the body can perform increases) [8, 18].

The percentage of means of health training at the autumn-winter stage of the retracting mesocycle was: 30% - stretching and recovery exercises (stretching, MGF); 35% - exercises for the improving of the cardio-respiratory system (types of running, jumping, elements of aerobics, etc.), 35% - strength exercises (own weight, fitball, bodybars). This percentage was chosen because this stage was specified to gradually prepare the body of the women of the first period of adult age for the main exercise.

At the stage of gaining physical shape the percentage of means was: 25% - stretching and recovery exercises (stretching in the preparatory and final part of training); 35% - exercises for the development of the cardio-respiratory system (intensive exercises to bring the heart rate to the target index (step aerobics, dance aerobics); 40% - strength exercises (with weights, with own weight (gliding, TRH, dumbbells, bodybars).

At the stage of gaining physical shape, the percentage was: 20% - stretching and recovery exercises (stretching exercises, MFF); 40% - exercises for the improvement of the cardio-respiratory system - (on the step platform, jumps and other varieties); 40% - strength exercises - with weights, with fighting the resistance, from related areas of fitness (TRH, gliding, football, Tabata protocol).

During the period of active relaxation from the end of December to the middle of January, classes in the fitness club rotated with recreational facilities and were aimed at recovery of women’s body. The percentage of means was 15% - stretching and recovery exercises (stretching and MGF); 60% - exercises for the improvement of the cardio-respiratory system - used fitness and recreation (hiking, skating, etc.); 25% - strength exercises with weights and exercises with fitness ball.

The percentage of means of health training at the spring-summer stage of the retracting mesocycle was 25% - stretching and recovery exercises (stretching); 40% - exercises for the improvement of the cardio-respiratory system (types of running, jumping, elements of basic aerobics, etc.), 35% - strength exercises (own weight, gliding, fitness ball, Tabata protocol). This percentage was suggested because that stage was specified for the gradual adaptation of women's bodies to the exercise.

At the stage of gaining physical shape the percentage of means was: 15% - stretching and recovery exercises (stretching in the preparatory and final part of training); 40% - exercises for the improvement of the cardio-respiratory system (intensive exercises of dance and step aerobics, running to bring the heart rate to the target index); 45% - strength exercises (with weights, with own weight, with fitness ball, gliding, Tabata protocol, TRH). The chosen percentage was calculated to gain muscle form and a more "athletic body shape".

At the stage of keeping physical shape in the first mesocycle, the percentage of means was 20% - stretching and recovery exercises (stretching, Pilates and MGF); 45% - exercises for the improvement of the cardio-respiratory system (jumping rope and related areas of fitness); 35% - strength exercises (with dumbbells, bodybars, with your own weight, with fitness ball, gliding).

At the stage of keeping physical shape in the second mesocycle, the percentage of means was: 15% - stretching and recovery exercises (stretching, Pilates and MGF); 50% - exercises for the development of the cardio-respiratory system (intensive aerobics exercises, running to remove and keep the heart rate in the target index); 35% - strength exercises (with weights, with own weight, TRX, Tabata protocol). The chosen percentage of I and II mesocycles of physical fitness was calculated to reduce the layer of adipose tissue.

In the mesocycle the active rest classes in the fitness club rotated with recreational facilities.

The main characteristics of the change in the percentage of fitness equipment during the annual cycle of health training was the natural reaction of the body on stress, the speed of adaptation process and the formation of the physical shape.

The effectiveness evaluation of suggested organizational and methodological conditions for building an integrated program of health training and the measures of the impact on the study indexes of the women of the first period of adult age were conducted after the control testing and analysis of initial and control data. The results of the comparative analysis of indexes are presented in table 1 and 2.

Table 1

The comparison of somatometric and functional parameters of women of the first period of adult age in CG and EG during the pedagogical experiment, (n=26)

Indexes		Control (n=13)		Experimental (n=13)		t	P
		$\bar{X}$±m	Growth, %	$\bar{X}$±m	Growth, %		
Age		25,08±0,4	-	25,46±0,43	-	-	>0,05
Body length, sm		166,62±1,53	-	164,62±1,05	-	-	>0,05
Weight, kg	I	63,62±1,76	1,4	64,92±1,51	5,5	0,8	>0,05
	C	62,7±1,58		61,38±1,07			
GC, sm	I	89,77±6,19	2,2	92,15±1,32	7,9	1,76	>0,05
	C	87,77±1,43		84,85±1,32***			
GW, sm	I	72,54±1,57	0,4	75,69±1,6	10,6	2,48	**<0,05**
	C	72,85±2,6		67,69±1,98***			
GH, sm	I	97,77±1,49	3,5	95,92±0,9	6,2	2,78	**<0,05**
	C	94,38±1,54		90±0,94***			
GSh, sm	I	30,69±0,31	1,0	31,31±1,48	4,7	0,78	>0,05
	C	30,38±0,29		29,85±0,19			
Ortostatic test, bpm.	I	19,77±0,99	12,2	17,77±0,96	17,3	2,15	**<0,05**
	C	17,35±1,1		14,7±1,05*			
IHST, c.u.	I	63,93±0,56	7,5	63,84±0,1	12	2,26	**<0,05**
	C	69,1±1,09**		72,6±1,3***			

Remark: B - initial data; K - control data; asterisks marked significant changes inside the group: * - accuracy of changes at p <0,05; ** - accuracy of changes at p <0,01; *** - accuracy of changes at p <0,001

When comparing the somatometric parameters inside the group of CG women, their positive dynamics is noticeable, but no significant changes occurred at p <0,05. In EG women, there is also a positive dynamics of improvement of the study indexes, however, in contrast to the CG indexes in the EG, the indexes of GC, GW and GH changed significantly at p <0,001 (Table 1).

During the pedagogical experiment there is a positive dynamics of changes of indexes of the functional state and efficiency of the body of women of the CG and EG inside the group. However, it should be mentioned that the women of the CG had a significant change in the results at p <0,01 in the IHST test, and the women of the EG had a significant change in the results at p <0,001 in the IHST test and at p<0,05 in the Orthostatic test (Table 1).

When comparing the indexes of the women of the CG and the EG inside the group on reliability of changes, we should mention that at p<0,05 somatometric indexes significantly changed GW (t=2,48) and GH (t=2,78) and indexes of functional status and performance: Orthostatic test (t=2,48) and IST (t=2,26) (Table 1). Other indexes remained unchanged.

Table 2

Comparison of indexes of physical fitness of women of the first period of adult age in CG and EG during pedagogical experiment, (n = 26)

Тести		Control (n=13)		Experimental (n=13)		t	P
		$\bar{X}$±m	Growth, %	$\bar{X}$±m	Growth, %		
Hand dynamometry, kg	right	22,85±0,7	7,5	23,62±0,7	14	2,38	**<0,05**
	right	24,7±0,88		27,5±0,5***			
	left	21,23±0,8	7	22,31±0,6	14,5	2,38	**<0,05**
	left	22,85±0,8		26,1±0,5***			
Strength index, %	I	36,25±1,4	9,1	37,1±1,36	18,5	3,46	**<0,01**
	C	39,8±1,6		45,5±1,1***			
Kuper's Test , km	I	2,3±0,08	8,3	2,38±0,07	15,6	0,85	>0,05
	C	2,51±0,06		2,82±0,07			
Romberg's test, s	I	7,15±0,45	14	7,76±0,44	18	1,24	>0,05
	C	8,3±0,43		9,46±0,43			
Bunch press (15kg), times	I	8,23±0,56	22	7,92±0,51	45,8	3,83	**<0,01**
	C	10,54±0,5*		14,6±0,6***			
Sit-ups with the bar (10kg), times	I	9,77±0,71	22	10±0,58	43	4,2	**<0,01**
	C	12,54±0,7*		17,5±0,7***			
Lifting the torso from a laying position	I	14,15±0,7	24	14,54±0,5	43,2	6,24	**<0,001**
	C	18,6±0,8**		25,7±0,5***			
Flexing and extension of the arms at leaning on the knees	I	9±0,64	22	9,85±0,48	43,7	5,3	**<0,001**
	C	11,46±0,7		17,5±0,6***			
Plank, s	I	39,85±2,7	10	43,54±2,05	21,3	4,78	**<0,001**
	C	44,31±2,9		55,3±2,4***			
Leaning the torso forward from a sitting position	I	8±0,45	16	8,38±0,54	37,5	3,83	**<0,01**
	C	9,54±0,46		13,4±0,6***			

Remark: B - initial data; K - control data; asterisks marked significant changes inside the group: * - accuracy of changes at p <0,05; ** - accuracy of changes at p <0,01; *** - accuracy of changes at p <0,001

Analysing the data in table. 2 we can say that in the CG during the pedagogical experiment we can observe a positive dynamics of changes in physical fitness. The significant changes inside the group at p<0,05 were observed in physical strength in

the tests bench press 15 kg and sit-ups with bar 10 kg and at p<0,01 in the test lifting the torso from a laying position.

Indexes of physical fitness inside the group in the EG have changed more significantly. Accurate changes were observed in the strength indexes at p <0,001 in the hand dynamometry test (right, left) in terms of strength endurance in the following tests: bench press 15 kg, sit-ups with a bar 10 kg, lifting the torso from a laying position, flexing and extension of the arms leaning on the knees, plank; in the indicator of relative strength in the strength index, the indicator of flexibility in the test of leaning the torso forward from a sitting position.

During the pedagogical experiment there were significant changes inside the group in the studied indexes of the women of the first period of adult age of the CG and EG. At p <0,05, the strength indexes in the dynamometry test of the right (t=2,38) and left hand (t=2,38) changed credibly. At p<0,01 there were significant changes in the strength index (t=3,46), strength endurance in the tests: bunch press 15kg (t=3,83), sit-ups with a barbell 10 kg on the shoulders (t=4,2); index of joint mobility in the test, leaning the torso forward from a sitting position (t=3,83) At p<0,001, changes in the strength stamina in the tests are significant: lifting the torso to a sitting position from a laying position (t=6,24), flexion and extension of the arm leaning on the knees (t=5,3), plank (t=4,78).

Conclusions / Discussion

The health-improving effect of physical exercises is observed only when they are rationally balanced and focused with a certain intensity and loading according to the individual capabilities of the people involved. The same is stated in the works of A.S. Kuptsova, T.B. Kukobi, V.P. Shulpina, T.O Sinitsa.

The theoretical principles also have an impact on the final result in the construction of various programs. In determining the basic principles of health training, our idea is similar to the opinion of the well-known experts in the health training: T.S. Lysytska, L.V. Sydneva, S.V. Tit, L.E. Shesterova.

During the pedagogical experiment the positive dynamics of changes in the studied indexes of the CG and EG of the women of the first period of adult age which

shows the effectiveness of the impact of health training. However, the presented distribution of loading and its planning in medium and small cycles during the annual cycle of health training with women of the first period of adult age according to the experimental program has a more significant impact on women's bodies.

During the pedagogical experiment, the increase in somatometric and the functional state of the body of women EG indexes is 4.7% - 17.3%. At the same time, the range of these indexes of the women within the CG varies from 0.4% to 12.2%. In terms of physical fitness, there is also a more significant increase in indexes of the women within the EG, and the range is from 14% to 45.8%. The increase in physical fitness of the women within the CG varies from 7% to 24%.

Thus, a comprehensive health-training program has proven its effectiveness and can be offered for using in the health training for women of the first period of adult age.

In the future, further research. It is planned to determine the impact of an integrated program of health training on the bodies of women of the second period of adult age.

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References

1. Andrieieva, O. V. (2014), "Conceptual bases of recreational and health-improving activity of different groups of the population", Molodizhnyi naukovyi visnyk. Vyp. 16, pp. 7-13. (in Ukr.)
2. Beliak, Yu., Hrybovska, I., Muzyka, F. (2018), Teoretyko-metodychni osnovy ozdorovchoho fitnesu [Theoretical and methodological foundations of health fitness]: navchalnyi posibnyk, Lviv, 208 p. (in Ukr.)
3. Vsesvitnia Orhanizatsiia okhorony zdorovia. URL: https://www.who.int/ru/about/who-we-are/constitution (date of accessed 05.11.2020).

4. Dutchak, M. V., Vasylenko, M. M. (2013), " Theoretical substantiation of the qualification characteristic of a fitness trainer", Pedahohika, psykholohiia i medyko-biolohichni problemy fizychnoho vykhovannia i sportu, No. 2, pp. 17-21. (in Ukr.)
5. Zaviiska, V. M. (2015), "Study of the effectiveness of shaping women of the first period of adulthood", Moloda sportyvna nauka Ukrainy. T. 4, pp. 35-39. (in Ukr.)
6. Kashuba, V., Honcharova, N., Dudko, M., Martyniuk, O. (2016), "On the issue of increasing the effectiveness of physical culture and health classes of different groups of the population", Molodizhnyi naukovyi visnyk, Vyp.24, pp. 9-14. (in Ukr.)
7. Krutcevich, T.Yu. (2003), Osnovy obshchei teorii fizicheskogo vospitaniia [Foundations of the general theory of physical education]. Ch.2. K: Olimpiiskaia literatura, 291 p. (in Russ.)
8. Kuptcov, A.S., Kukoba, T.B., Shulpina, V.P. (2011), "The influence of various means of fitness training on the indicators of physical development and strength abilities of women 25-35 years old", Omskii nauchnyi vestnik, No. 6, pp. 23 – 28 (in Russ.)
9. Lisitckaia, T.S., Sidneva, L.V. (2002), Aerobika: Teoriia i metodika [Aerobics: Theory and Methodology]. T1. M: FAR, 221 p. (in Russ.)
10. Prylutska, T.A., Tkachova, A.I. (2018), “Current trends in the programming of health fitness classes for mature women”, Perspektyvy, problemy ta naiavni zdobutky rozvytku fizychnoi kultury i sportu v Ukraini: materialy I Vseukrainska internet-konferentsiia “COLOR OF SCIENCE”. 29-30 sichnia, pp. 90-94. (in Ukr.)
11. Synytsia, T. O. (2017), “Optimization of motor activity of mature women by means of health aerobics”, Materialy 69-yi nauk. konf. profesoriv, vykladachiv, naukovykh pratsivnykiv, aspirantiv ta studentiv universytetu. Poltava: PoltNTU. T. 3, pp. 252–254. (in Ukr.)
12. Synytsia, S. V., Shesterova, L. Ye. (2010), Ozdorovcha aerobika. Sportyvno-pedahohichne vdoskonalennia [Sports and pedagogical improvement]: navchalnyi posibnyk. Poltava: PoltNTU, 244 p. (in Ukr.)

13. Chekhovska, L. Yu., Zhdanova, O. M. (2016), "Problems of organizational and methodical bases of fitness in the system of mass sports (sports for all)", Fizychna aktyvnist, zdorovia i sport, No. 4 (26), pp. 67-75. (in Ukr.)
14. Edwards, S. (2002), "Physical Exercise and Psychological Wellness", International Journal of Mental Health Promotion, vol. 4(2), pp. 40–46. (in Eng.)
15. Glassman, G. What Is Fitness and Who Is Fit? (URL: https://crossfitthreshold.wordpress.com/what-is-fitness-and-who-is-fit/) (date of accessed 03.11.2020) (in Eng.)
16. Le Corre E. The History of Physical Fitness (URL: http://www.artofmanliness.com/2014/09/24/the-history-of-physical-fitness/) (date of accessed 07.11.2020) (in Eng.)
17. Orlick, T. (2008), In pursuit of excellence. 4-th ed. Champaign: Human Kinetics. VIII, 312 p. (in Eng.)
18. Podrigalo, L.V., Artemieva, H.P., Rovnaya, O.A., Misevra, N. S. et al. (2019), "Features of physical development and somatotype of girls and women involved in fitness", Pedagogiks psychology and medical-biological problems of physical training and sports, 04: No. 23 (4) pp.182-188. (in Eng.)

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