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Description of Health Aerobics and Mental Fitness Exercise Package Program Content

Abstract

Novelty of research is to structure classes for various areas of health aerobics and mental fitness that will be held according to separate and combined programs. **Tasks of the paper:** to reveal the content of health aerobics and mental fitness exercise package program; to present recommendations for combination of different types of exercises; to establish changes in functional status of women under the influence of exercise according to the proposed program. **Research methods.** Analysis and generalization of literature, assessment of the level of women's functional status, methods of mathematical statistics. **Results of the research.** The article deals with the content of health aerobics and mental fitness comprehensive program. Experimental program classes were held during 11 months, three times a week and lasted for 60 minutes. Among a wide variety of programs, the following exercises were used: classical aerobics, dance, floor work, mental fitness, aerobics with elements of martial arts, aerobics in the water, using different equipment and cyclic aerobics types. Mental fitness was used as a separate class, and as part of combined classes. Recommendations concerning a combination of aerobic exercise types, mental fitness and floor work blocks were given. The effectiveness of classes according to the suggested program was proved by positive changes of women functional status standard indexes. **Conclusions.** 1. Experimental package program health aerobics and mental fitness class consists of two stages (autumn-winter and spring-summer) and includes 11 periods (months) of classes. 2. The effectiveness of experimental program is proved by positive changes in indicators for functional status of women's cardiovascular and respiratory systems ($p < 0,05-0,001$).

Keywords: health aerobics, mental fitness, combined program, women, first mature age, functional status.

Formulation of the scientific problem and its value

Physical activity is an integral part of healthy living. The national strategy for recreational physical activity of Ukrainian people for the period up to 2025

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“Physical Activity – healthy way of life – healthy nation” [9], makes it necessary to create programs of health types of physical activity, which satisfy the preferences of those who go in for sports and involve a wide range of women in health aerobic exercise attendance.

Analysis of recent studies and publications

Currently, there is a sufficient number of programs on health aerobics and fitness (N.S. Beliaiev, 2009), pilates (A. Nakonechna, 2012), shaping and aqua aerobics (P. Koziy, A.O. Tarasova, 2012), body fitness (V.O. Kotov, I.P. Masliak, 2008), etc. [2], [4], [5], [6]. However, the authors did not propose program, uniting various types of health aerobics and mental fitness in the form of combined exercises. Therefore, design of health aerobics and mental fitness exercise package program is topical.

Study tasks

Study tasks – to reveal the content of health aerobics and mental fitness exercise package program; to present recommendations for combination of different types of exercises; to establish changes in functional status of women under the influence of exercise according to the proposed program.

Research methods

Analysis and generalization of literature, assessment of the level of women’s functional status, methods of mathematical statistics.

Presentation of basic material and discussion of study results

Experimental health aerobics and mental fitness exercise program duration is 11 months. It consists of two periods: autumn-winter and spring-summer. During the experiment women attended 144 exercises, out of which 66 – from September until January, 78 – from February until July. Determination of such beginning of the pedagogical experiment (September) and attendance of the exercise according to a given program can be explained by the end of holidays and at the beginning of new academic year for schoolchildren and students.

Health aerobics exercise for women of first mature age was conducted according to generally accepted rules. Primarily, the aim of exercise, tasks and

means were determined. The poll results gave an opportunity to formulate the exercise aim: health promotion, improvement of body forms and weight reduction [8]. The aim was realized by completing the following tasks: promotion of physical health level, suitability, functional indicators, improving emotional state and relaxation after work. According to aim and tasks, means were determined: basic movements, complex of exercises and dance combinations, exercises on different equipment, the selection of music tracks according to the type of training.

Each lesson lasted 60 minutes and traditionally consisted of preparatory (warm up) – 12–15%; main (aerobics / floor work) – 70–80%, and the concluding (cool down) – 8–10% parts.

Studies were conducted three times a week (Monday, Wednesday and Friday). On Mondays, exercises were combined, i.e. aerobic and anaerobic types of health aerobics were included. On Wednesdays, the most intense training was conducted in which step aerobics, jumping, dance aerobics were used. On Fridays, exercises floor work and types of mental fitness were applied.

When the day of exercise was congruent with public holiday or weekend – it was postponed for another day. The end of the first (autumn–winter) period was congruent with the New Year holiday, so active rest was scheduled at that time.

Aerobic exercises included classical aerobics program, dance and step aerobics, aerobics with elements of martial arts and aerobics in the water. They were included in warm up and floor work and were aimed at the development of cardiovascular and respiratory systems greatly influenced the reduction of body weight and helped to release stressful tension.

The autumn-winter period consisted of five stages; each of them lasted 1 month. Spring-summer period consisted of six stages. During both stages exercises of different types were conducted: aerobic and combined types, elements of floor work, and also exercise of mental fitness, which included stretching, pilates, fitness yoga, body flex, body balance.

At the time of experimental program design duration of all exercises was clearly defined (table 1, table 2). Results presented in Tables 1 and 2 describe different types of health aerobics blocks, which were used during five stages of the first period and six stages of the second period of exercises.

Table 1. Distribution of blocks of exercises in various types of health aerobics and mental fitness during the first period

	Health aerobics and mental fitness exercise blocks	Stages (Q-ty of blocks)					Total
		I	II	III	IV	V	
1	Classical aerobics (basic)	4	3	2	1	1	11
2	Dance aerobics	3	2	2	3	1	11
3	Floor work (power aerobics)	6	8	4	6	5	29
4	Mental fitness	4	3	3	2	6	18

Table 1. Distribution of blocks of exercises... (cont.)

	Health aerobics and mental fitness exercise blocks	Stages (Q-ty of blocks)					Total
		I	II	III	IV	V	
5	Aerobics with elements of martial arts	—	2	1	1	—	4
6	Aerobics in the water	—	—	—	—	3	3
7	Aerobics using different equipment	3	5	5	6	1	20
8	Cyclic types of aerobics	—	—	1	1	—	2
Total		20	23	18	20	17	98

Source: own research.

Presentation of health aerobics exercise blocks is especially urgent for combined training, where aerobic exercises, elements of floor work and mental fitness were conducted for one hour. In Table 1 we can see the amount of time for health aerobics and mental fitness exercises, which were carried out as a whole training section and part of the training, as combined movements.

Table 2. Division of classes according to types of health aerobics and mental fitness during the second period

	The blocks of health aerobics and mental fitness exercises	Stages (Quantity of blocks)						Total
		I	II	III	IV	V	VI	
1	Classical aerobics (basic)	3	1	3	2	2	1	12
2	Dance aerobics	3	3	2	3	3	1	15
3	Floor work (power aerobics)	5	2	6	4	2	4	23
4	Mental fitness	4	2	3	2	4	2	17
5	Aerobics with elements of martial arts	—	1	2	1	1	—	5
6	Aerobics in the water	—	—	—	—	—	4	4
7	Aerobics using different tools	3	5	5	4	4	2	23
8	Cyclic types of aerobics	—	—	1	1	1	—	3
Total		18	14	22	17	17	14	102

Source: own research.

In the experimental program, combined exercises of two types were used: generally accepted ones, which had already been formed (versus training fitball aerobics, kick aerobics and aqua forming), as well as those that were designed according to the popularity of health aerobics types and analysis of their influence on different systems of organism and physical abilities of those who practice (classical aerobics / floor work / stretching, mixed load 50/50, classical aerobics / body bar / ABL / stretching, tai-boh / body control / feet press / stretching, ki-boh / callanetics, body combat / terra aerobics / ABT (abdominal, but-

tocks, thighs) / stretching, kick-aerobics / bodifleks), aqua aerobics / floor work (or aqua-building) / aqua-relax (or aqua-stretching). Such variety of programs with aerobic and anaerobic types of exercises promoted correction of body forms and gradual reduction of weight, and training of muscular system of trainees, as well as development of power abilities and resistance to stress.

Fitness exercises were conducted as part of the combined training – a block of exercises for 20 minutes, as separate exercises on Pilates, tie-chi, fitness yoga for 60 minutes and also as elements of active and passive stretching in the final part of all aerobic exercises. Such training consisted of exercises that should be done in average rate. It influenced the muscular system and joints of trainees.

Stretching exercises were used in almost all trainings of experimental programs. In warm up exercises they stimulated mobilization of muscles to further exercise, in the final part they helped to relax and minimize the possibility of muscular pain. Stretching was active, passive and mixed. These exercises were conducted independently on mats, in groups of two or three people, where the increase in amplitude was defined by actions of partner. Such organization of stretching exercises, except for direct influence on the organism, increased the emotional background of training and mood of trainee. The program 'healthy back' also contained stretching after power exercises. It aimed to prevent spinal curvature.

Types of mental fitness lasted for more than 10 minutes were as separate block. Exercises of preliminary and final stretching blocks were not separated, but their duration time (2 min) was involved in the block of mental fitness exercises for determining the intensity of training on final stages of experimental program.

The program of physical health correction includes many health aerobics classes using different equipment. This is caused by the fact that according to the results of the survey [8] aerobics using equipment is very popular among women of the first mature age. In addition, today there is a large number of the latest equipment, which increases the interest of women in attending aerobics exercises. Thus, during the implementation of an experimental program step aerobics exercises fitball aerobics, bosu, jumping were conducted. During training body bars, dumbbells, thera-bands, ropes were used. All these exercises influenced on their bodies differently.

Step-aerobics was the most popular among respondents [8], and that was taken into account when forming the experimental program. The load during step-aerobics was mid and upper mid, that is why this type of training began to be used in the second week of the experimental program. Given the fact that during the week load should gradually increase at its start, be high-impact in the middle of training and be reduced in the final stage, step-aerobics was conducted on Wednesdays. In the early stages step aerobics exercises were at basic level and gradually increased to the first level at the stage of getting physical form. In

the third month of training, according to the experimental program, trainees reached the second level of step-aerobics. That fact was seen from how quickly they were learning movements and doing them with the musical accompaniment. Step-aerobics training of second level included learning of step combinations on two step-platforms standing next to each other-double-step, as well as exercises with elements of martial arts. It improved coordinating complexity of training, load and emotional disposition of trainees.

In addition to step aerobics program trainees preferred tramp jumping. This high-intensity type of health aerobics was included in the program for the third month of training at the stage of getting physical form. It is relatively a new type of health aerobics, so it was imposed in the form of presentation. These exercises were combined with floor work, namely body bar exercises and upper body (exercises with dumbbells).

Besides jumping, the following program presentations were displayed during the year: go-go, choreographic pilates, tie-chi, bosu, kick-aerobics, double-step. This form of training organizing and conducting was held at the high emotional level with invitation of guests (coaches, trainees from other groups and their relatives). All these types and subtypes are new and specific, therefore after training there was a public opinion survey of trainees about their impressions. According to the survey conclusions were made that the trainees liked double-step program the most, tie-chi was the least popular. Commitment to double-step does not cause any doubts, because the questionnaires about popular types of health aerobics showed the same results [8]. Low commitment to tie-chi among visitors can be explained by the fact that eastern types of exercises are specific and not very active, so trainees gave greater preference to aerobic programs.

Fitness marathons were among non-standard forms of training organization and conducting in the experimental program too. Fitness marathon was held one time in each period at the stage of active recreation. As part of the marathon three types of health aerobics were held: go-go, jumping, body flex. Instructors from other fitness centers of Poltava were involved in the fitness marathon. As a result of such exercise trainees' emotional state increased, training was supervised by other coaches doing exercises in their own style, and it influenced coordination capabilities level of participants.

Dance types of health aerobics are also popular among women of the first mature age. Types singled out by the majority of trainees, were included in the experimental program. Dance aerobics stylized exercises require certain level of preparedness, so it was included in the program from the seventh day of training. According to the results of the survey about popularity of health aerobics types, Latin dance was chosen by most of the respondents [8]. Therefore, it was first included in the experimental program of dance aerobics. Fitness belly dance was included in the program from the eleventh class, African jazz – from the 13th class. Starting from the second stage (getting physical form), more intensive

types were added: retro-disco, groove-and-move. In addition, dance aerobics elements were included in the step aerobics program, increasing the load and coordination complexity of the classes.

Before the classes with the use special equipment (dumbbells, body bars etc.), the trainees prepared it. Special equipment with the desired weight in the hall helped support intensity of the classes at the required level and prevented load reduction in the middle of it.

In other words, trainees took the equipment, prepared in advance, with them to the gymnasium, not spending time in search for dumbbells with necessary weight.

The effectiveness of training in experimental program was checked according to standard indicators of functional status of cardiovascular system (HR, AP), and one of respiratory system indicators (LC). In table 3 indexes of functional status of women who were engaged in the program are displayed.

Table 3. Indicators of women functional status at the beginning and the end of the research

Indexes	Before the experiment	After the experiment	t	p
Resting heart rate	76,79 ±1,79	70,34 ±1,94	2,55	<0,05
Heart rate after exercise	132,48 ±3,2	118,69 ±2,82	4,17	<0,001
Resting arterial pressure	127,15 ±1,69	120,55 ±2,03	2,01	<0,05
Arterial pressure after exercise	149,32 ±1,17	141,15 ±2,42	2,29	<0,05
Lung capacity, l	2,78 ±1,96	3.82 ±2,33	1,9	<0,05

Source: own research.

Comparison of testing results showed that given measurements changed meaningfully ($p < 0,05-0,001$). Implementation of the experimental program contributed to the improvement of the functional status of the cardiovascular system, which affected the indexes of resting heart rates and heart rates after physical activity. Women's heart rates before exercise compared to indicators before experiment were reduced by 8,39%. Reaction of the heart rate to exercise also improved, namely, its growth in comparison to the resting state was 68,73%.

Indexes of systolic blood pressure before and after exercises changed to a lesser extent than the heart rate, but were quite significant anyway. Thus, results of women's systolic blood pressure decreased after exercises by 5,43%, when compared to the beginning of the exercises. The systolic blood pressure after standardized exercises increased by 17,09%, when compared with the resting blood pressure, which conforms to all parameters of increasing arterial pressure. Indexes of women's diastolic blood pressure have not changed and after exercises remained unchanged in 79,17% of investigated. Diastolic blood pressure of the rest of the trainees (20,83%) decreased by 13,33% conforming to all parameters [7].

Indexes of women's lung capacity also changed significantly and were promoted to 37,12%.

Conclusion

1. Experimental health aerobics and mental fitness package program class consists of two stages (autumn-winter and spring-summer) and includes 11 periods (months) of classes.
2. The effectiveness of experimental program is proved by positive changes in indexes of functional status of women's cardiovascular and respiratory systems ($p < 0,05-0,001$).

Prospects for further research include forming combined health aerobics and mental fitness class program for women of different age.

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Opis zawartości programu pakietu ćwiczeń aerobiku zdrowotnego i sprawności umysłowej

Streszczenie

Badania dotyczą organizacji zajęć dla różnych odmian aerobiku zdrowotnego i sprawności umysłowej, które będą prowadzone według odrębnych lub połączonych programów. Celem artykułu są: prezentacja zawartości programu pakietu ćwiczeń aerobiku zdrowotnego i sprawności umysłowej; prezentacja zaleceń dotyczących łączenia różnych rodzajów ćwiczeń; ugruntowanie zmian w stanie funkcjonalnym kobiet pod wpływem ćwiczeń prowadzonych zgodnie z proponowanym programem. Wykorzystano następujące metody badawcze: analiza i ogólny przegląd literatury, ocena poziomu funkcjonalnego stanu kobiet, metody statystyki matematycznej. W artykule omówiono zawartość wszechstronnego programu aerobiku zdrowotnego i sprawności umysłowej. Eksperymentalne zajęcia objęte programem prowadzono przez 11 miesięcy, trzy razy w tygodniu po 60 minut. Wśród szerokiej gamy programów wprowadzono następujące ćwiczenia: klasyczny aerobik, taniec, ćwiczenia na podłodze, sprawność umysłowa, aerobik z elementami sztuk walki, aerobik w basenie, wykorzystanie równego rodzaju sprzętu i ćwiczeń aerobiku cyklicznego. Ćwiczenia sprawności umysłowej prowadzono jako osobne zajęcia oraz jako część zajęć łączonych. Podano zalecenia odnośnie do łączenia różnych typów ćwiczeń aerobiku, sprawności umysłowej i ćwiczeń na podłodze. Efektywność zajęć prowadzonych zgodnie z proponowanym programem udowodniono pozytywnymi zmianami standardowych wskaźników stanu funkcjonalnego kobiet. Efektywność tego eksperymentalnego programu udowodniono pozytywnymi zmianami wskaźników funkcjonalnego stanu układów sercowo-naczyniowego i oddechowego kobiet ($p < 0,05-0,001$).

Słowa kluczowe: aerobik zdrowotny, sprawność umysłowa, program łączony, kobiety, wczesny wiek dojrzały, stan funkcjonalny.