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THE STUDY OF THE EFFECTIVENESS OF THE DEVELOPED PROGRAM ON FITNESS WALKING FOR ELDERLY WOMEN'S BODIES

Abstract

This article deals with the influence of fitness walking on the body of elderly women, who trained by the developed computer program. The purpose of the experiment was to determine the efficiency of the proposed author's computer program of fitness walking for elderly women. The experiment involved two groups of elderly women counting 38 women in each group. The research was held during six months on the basis of the "University of the Third Age." The basic tasks of the program were fulfilled. The use of this program can help to improve health, enhance physical capacity and motional activity, and stimulate the slowing of the involution changes in the body of elderly women. The data obtained by this investigation can be used during recreational activities with elderly women.

Key words

computer program, fitness walking, running, strenuous activity, healthy lifestyle, elderly women.

Introduction

Nowadays a considerable number of programs were developed for ftness trainings [1,5]. The main objective of all programs is to preserve and promote the health strengthening, maintenance and improvement of physical efficiency and motion activity.

Programming helps to improve physical training by determining the set of rational set of means and methods for physical training, the sequence of their use at various stages of recreational process in accordance with the goals and objectives of physical exercises for people of different ages, with different states of health and fitness [2,4,10,11]. During theoretical studies and observations it was proved that the most efficient are aerobic exercises. Aerobic exercise is a physical exercise in which body's energy supply works mainly through metabolism, with maximum usage of oxygen. These physical exercises include endurance. Aerobic exercises have a positive effect on human's physical efficiency and health. Walking and running is considered to be the most popular and acceptable of all the types of aerobic exercise to majority of the population. It is wide spread because of its general availability, easy technique and way of balancing the workload. Running

and walking can assist healthy individuals and people with chronic diseases, regardless of age and gender [5,8,9,12].

The program of fitness walking classes is developed for a specific period of time (months or years) and has the optimal parameters of walking intensity (speed) and load capacity (length distance, time). It contains a schedule of lessons that determine walking distance with parameters for each class separately.

According to leading authors K. Cooper, R. Gibbs, V. Bowerman and V. Harris, who suggest at first to determine the state of physical fitness and pass a test on walking and only then proceed fitness jogging employment. Such authors as S. Rosenzweig, A. Astrand, K. Reedal, R. Motylyanskoy and Doctor L. Erusalimski, I. Kvapilik, A. Mikulin recommend to start with walking and only then proceed to run. Other authors K. Nikitin, L. Libkind recommend alternating between running and walking. Such writers as A. Wollenberg, F. Suslov, Amosov, L. Dorfman, A. Martinkin and S. Zaremba recommend starting training with jogging: first go at a jog trot and later move to a fast paced running. N. Furman recommends starting walking or running only after some gymnastic exercises (breathing, basic exercises for muscle relaxation).

By analyzing published information about required problem, we have come to the conclusion that the published materials mainly relate to the use of fitness walking as a stage of preparation for jogging classes.

Based on the data collected in literature sources, recollections, analysis of questionnaires, physiological parameters studies, formed the basis for the development of the authoring computer program with fitness walking classes for elderly women. While developing the program aimed on fitness walking we proceeded from the fact that it should be distinctive, as individual approach has been recognized by a number of experts [1,5]. Physical development is considered an important indicator of human health so it should be more rational for the program to be differentiated and take into account features of physical capacity indicators, functional performance and level of physical fitness.

The experimental program was designed to increase physical efficiency, improve and maintain the health of elderly women.

Program algorithm is based on the achievements of domestic and foreign physiology, theory and methodology of physical education, recreational, therapeutic physical culture and psychology. The ease of use and a high level of individualization make the main difference between this program and other domestic or foreign counterparts. Built-in software activator allows you to store the results of each test. All information is presented to women in very understandable and easy to read format. It helps the coach to awaken the interest of the users who are interested in their own health, to set the problem before him/her and shows the way to resolve it. That’s how the information becomes a motivating factor that induces women to purposeful action. The ultimate goal of this project is sustained improvement of elderly women’s health. This class program operates in dialogue with the user, all the needed information should be entered in the form of responses to a computer questions by selecting one of the provided answer options. The only

digital data that the program requests are simple a user's body measures: age, height, weight, blood pressure, heart rate while resting, etc. The program can provide conclusions and recommendations to the user in printed form.

Methods and studies management

In order to achieve the goals and objectives of the research following methods were applied: study and analysis of the scientific and methodological literature; inquiry (thorough questionnaire); anthropometric and physiological research methods; methods of pedagogical research (teacher observation, pedagogical experiment); methods of medicobiological research, methods of mathematical and statistical data processing.

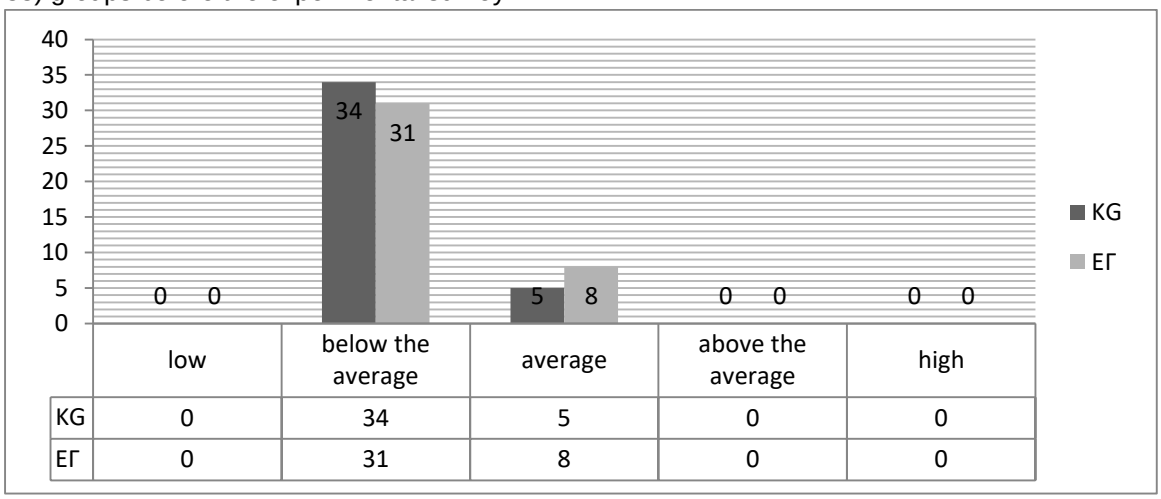
The studies were conducted on the basis of University of the Third Age. 76 elderly women were involved in the project: 38 women underwent their trainings with authoring computer program for fitness walking and 38 - women who were engaged in a common program classes for fitness walking.

Results and discussion

The women that took part in this experiment were selected by the following parameters: age, body weight, body length, carpal dynamometry, resting heart rate (RHR), vital capacity of the lungs (VCL), blood pressure (BP). Physical performance was evaluated by the Ruffier functional test, physical health was evaluated by Apanasenko's method, level of cardiovascular system functioning was determined by functional breakdown with 20 squats. Reserve criterion and functions' economization of the cardiovascular system were determined by Robinson index.

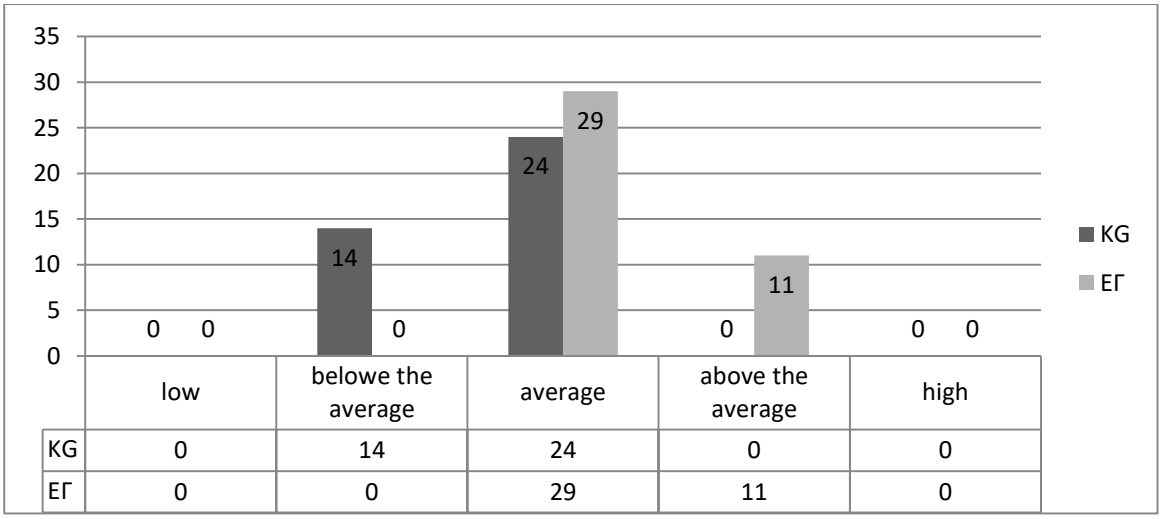
In order to receive objective characteristics of the mainly pedagogical experiment, results on the first and second stages of survey have been conducted studies of the initial indicators of physical condition. By means of rapid assessment, we set the range of individual fluctuations of indicators in the physical condition that is specified by the functional level of the cardiovascular and respiratory systems, physical development and preparedness. Comparative analysis of women's physical condition from control and experimental groups at the first and second examination stage are shown on fig. 1 and fig. 2. Obtained results indicate that in the process of women's fitness training who had low and below the average physical condition and were using computer program for fitness walking reached such results: 29 women of average level and 11 women above average physical condition. In the control group, where elderly women underwent standard method of training the indicator did not improve so significantly.

Figure 1
Rapid assessment of elderly women's physical health of the control (n = 38) and experimental (n = 38) groups before the experimental survey



	low	below the average	average	above the average	high
KG	0	34	5	0	0
ЕГ	0	31	8	0	0

Figure 2
Rapid assessment of elderly women's physical health of the control (n = 38) and experimental (n = 38) groups after the experimental survey



	low	belowe the average	average	above the average	high
KG	0	14	24	0	0
ЕГ	0	0	29	11	0

In order to determine physical efficiency of elderly women we used Ruffier functional test considering women's age. Parameters of Ruffier index are resting heart rate during the workout and after recovery. The results of Ruffier index evaluated: 3 or less – high level, 4-6 – above average, 7-10 – average, 11-14 – below the average, 15 or more – below the average. One of the objective criteria for the health of elderly women is the level of physical efficiency.

Table 1. The results of physical efficiency obtained by Ruffier test

Ruffier Index		The control group	The experimental group
At the beginning of research	index	15,7±0,40	15,1±0,36
	level	low	below the average
At the end of the research	index	14,3±0,38	10,1±0,28 *,**
	level	below the average	average

Notes: * - an indicator of certainly degree has differences, $p < 0.05$ between the indices at the beginning and in end of the research in the group; ** - certainty index is different in the control and experimental groups.

Table 1 shows the results of physical efficiency level before the experiment and after the experiment. At the beginning of the investigation, both groups have had low or below the average level of physical efficiency, but on the second stage of the research the component of physical efficiency improved in the experimental group and reached an average level, that proved the fact that the program has positive impact on the body of an elderly female.

Conclusion

One of the most effective means of physical training for elderly women is fitness walking, as it is easy and accessible for everyone as it does not require additional costs. Depending on the duration and intensity, this exercise is allowed for everyone, regardless of age and sex, but the important feature is that an appropriate duration and intensity of walking does not lead to overwork of body system, which is very important for elderly women. Developed computer program of fitness walking for elderly women, gives a positive effect on a woman's body that was proved by the results of research.

Conclusions

1. The results of these studies have established the effectiveness of the proposed computer program of fitness walking classes for older women.
2. It was proved that fitness walking has positive impact on the body of the elderly people (Amosov K. Cooper, R. Gibbs, B. Bowerman and Harris B, C. Rosenzweig, A. Astrand and Dr Reid).

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