

THE ROLE OF THERAPEUTIC PHYSICAL CULTURE IN ACTIVE LONGEVITY PROGRAMS FOR ELDERLY PEOPLE WITH ARTERIAL HYPERTENSION

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Annotation. The article presents the results of the effectiveness of the influence of regular physical activity on the quality of life and the preservation of active longevity of the elderly with arterial hypertension. Use of forms of therapeutic physical culture in combination with an adequately chosen drug therapy significantly increases adaptive capabilities of the elderly with arterial hypertension, contributes to a decrease in blood pressure, improvement of blood vessels, normalization of main hemodynamic indicators, impact quality of life, self-assessment of the functional state of health, influences physical and mental health.

Keywords: therapeutic physical culture, arterial hypertension, active longevity.

Introduction. One of the most important social transformations of the population at the moment is aging. The main tasks for suspending this process are the preservation of the active longevity of an elderly person, their ability to work and prolonging professional activity [1-2]. In order to achieve these tasks, elderly people need to lead a healthy lifestyle, foster personal responsibility for their life and health, set their mindset for longevity. Active longevity directly depends on their social activity and regular physical work, state of their health and quality of life [1]. However, most of the elderly, who has a history of chronic diseases, maximally limit physical activity. According to the WHO, non-infectious diseases of the elderly, such as ischemic heart disease and hypertonic disease, become the cause of other diseases and deaths in the course of last years [3-4]. Regular cyclic activity of aerobic nature is able to influence effectively the cardiovascular and respiratory systems, good state of which determines health and longevity of the elderly [5-6]. Thus, there is a need to develop and actively implement non-drug methods of treating arterial hypertension in the comprehensive rehabilitation of the elderly, depending on their physical activity level.

Aim of this study – to assess the effectiveness of therapeutic physical culture measures in the comprehensive recovery of the elderly with arterial hypertension, directed towards the

preservation of active longevity of the studied population.

Methods and organization. We have assessed the functional state of the elderly with arterial hypertension according to the following indicators:

- Heart rate (HR, beats/min);
- Systolic (SBP, mm of Hg) and diastolic (DBP, mm of Hg) blood pressure;
- Lung capacity (LC, l);
- Adaptive potential of the cardiovascular system (AP, c.u.), calculated analytically with the R.M. Baevskij's method [3];
- Assessment of the quality of the patients' life (points) was made with the B.P. Vojtenko's health assessment questionnaire.

The statistical analysis of the results obtained was made with the SPSS 21.0 for Windows. We have calculated mean values ($\bar{X}$) of the studied indicators, as well as the standard derivation value (σ). The significance of the results received was processed with the Wilcoxon signed-rank test when $t \leq 0.05$.

The study involved the elderly who engaged in the "Active longevity" program made by the "Health" club located in Moscow. It included women ($n=5$) aged 68 ± 0.5 years with the stage 1-2 arterial hypertension, who have a doctor's permission to perform moderate physical activity with hypotensive medications. All women were at the initial stage of sessions according to the program, the group included

people with approximately the same level of physical fitness, as the data from the preliminary testing shows.

Duration of health-improving group sessions was five months. The main physical activity of the program was therapeutic gymnastics (TG), taking into account the diagnosis and age features of those engaged. It contributed to an improvement of the cardiorespiratory system's function.

The most appropriate and easily dosed forms of therapeutic physical culture (TPC) were morning hygienic gymnastics (MHG), therapeutic gymnastics (TG) and dosed walking. The program participants were recommended everyday home tasks of MHG for 15-20 minute with physical exercises for small muscle groups, with the obligatory alternation of dosed efforts and relaxation combined with respiratory exercises.

During group sessions held daily for 40 minutes during the first half of the day, the TG set included all muscle groups into physical activity with the "scattered load" method and alteration of motor activity with a subsequent rest phase. The suggested exercises were recommended to perform without holding breath and rigid movements in the joints. Motor consistency of these sessions did not exceed

40%. The developed TG set included performance of callisthenic exercises for all muscle groups combined with respiratory exercises, posture correction exercises, aimed at strengthening the back and abdominal muscles, performed in initial positions – standing at the wall bars, sitting with support on the back of a chair, using a wand. In order to decrease load on the back muscles, the set included mixed hang positions and exercises for stretching the body and limb muscles when standing at the wall bars. The final part of the TG session also included a significant number of exercises for the relaxation of all muscle groups. After the session, passive rest for 1.5 hours was recommended.

Recommendations for the second half of the day included dosed walking as a natural and accessible form of TPC both on the club's territory and on park zones adjacent to the place of residence according to standard routes. The recommended time of everyday walks was 20 minutes at the beginning of the course with a subsequent increase to 30 minutes at the end, at a pace that is accessible to the participants.

Results and discussion. The effectiveness of the health-improving program for the patients with arterial hypertension was assessed according to the dynamic of studied indicators (table).

Table

Functional indicators of the patients with arterial hypertension during the "Active longevity" program

Indicators	Before the program's beginning (n=15) ($\bar{X} \pm \sigma$)	At the end of the program (n=15) ($\bar{X} \pm \sigma$)	Significance, Wilcoxon signed-rank test (t)
LC, l	2.8 ± 0.2	2.9 ± 0.1	≥ 0.05
SBP, mm of Hg	160.3 ± 0.3	152.0 ± 0.01	≤ 0.05
DBP, mm of Hg	90 ± 0.4	79.4 ± 0.3	≤ 0.05
HR, beats/min	82.5 ± 0.3	78.9 ± 0.2	≤ 0.05
AP, c.u.	3.7 ± 0.02	3.5 ± 0.01	≤ 0.05
Health assessment index, points	22.5 ± 0.2	20.1 ± 0.01	≤ 0.05

The analysis of the cardiorespiratory system's functional indicators has revealed that LC has improved by 0.1 l ($t \geq 0.05$). Other values of the studied indicators had a significant

($t \leq 0.05$) dynamic for improvement, which reflects the effectiveness of health-improving sessions. Assessment of the hemodynamics indicators has revealed a significant decrease

($t \leq 0.05$) of heart rate (by 3.6 beats/min), as well as systolic (by 8.3 mm of Hg) and diastolic (by 10.6 mm of Hg) blood pressure. According to the adaptive potential data, we have found that at the beginning, 11 patients had values that characterize failure in adaptation mechanisms. At the end, the AP indicators were mainly presented as an unfavorable adaptation, but showed a tendency for improvement, which also reflected on subjective values of the health assessment index.

Conclusion. The use of therapeutic physical culture combined with adequately selected drug therapy significantly increases adaptive

capabilities of the elderly with arterial hypertension, improvement of blood vessels, normalization of the main hemodynamic indicators, influences quality of life, assessment level of the functional state of health, impacts physical and mental health. The forms used in the “Active longevity” program, such as morning hygienic gymnastics, therapeutic gymnastics, dosed walking are accessible for the elderly people, do not require high physical fitness, are simple, which is the key to systematic training in commitment to maintaining motor and communication activity, improving the quality of life [7] for the elderly.

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