



Methods of physical culture and health-improving classes with elements of martial arts for men who lead a sedentary lifestyle

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Dr. Hab., Professor **I.A. Cherkashin**^{1, 2, 3, 4}

Peijun Huang¹

PhD, Associate Professor **D.N. Platonov**³

PhD, Associate Professor **L.L. Platonova**²

¹Moscow State Academy of Physical Culture, Malakhovka, Moscow Region

²M.K. Ammosov North-Eastern Federal University, Yakutsk

³Arctic State Agrotechnological University, Yakutsk

⁴Churapcha state institute of physical education and sports, Churapcha

Corresponding author: 706037@mail.ru

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Abstract

Objective of the study was the theoretical and experimental substantiation of the methodology of physical culture and health-improving classes with elements of martial arts for men aged 40-60 years who lead a sedentary lifestyle.

Methods and structure of the study. The experiment involved 60 men aged 40-60 years (48.07 ± 6.22), who were divided into experimental (EG) and control (CG) groups of 30 people. The men of the experimental group attended classes conducted in accordance with the developed methodology of physical culture and health improvement with elements of martial arts. Representatives of the control group were engaged in a different program, the basis of which was running in an aerobic mode. The method of cardiointervalometry was used to monitor the functional state and the risk of sudden cardiac death, the method of bioimpedancemetry was used to assess the component composition of the body.

Results and conclusions. At the end of the one-year experiment in the EG, the percentage of men with an above average and high level of functional state increased from 20.0 to 50.0% and from 6.7 to 16.6%, respectively, and in this group, 27 people showed a decrease in risk sudden cardiac death. An analysis of intergroup differences in indicators of body composition showed that the body fat content significantly decreased in the experimental group compared to the CG, the change was 12.4% ($p < 0.05$), a decrease in fat content in the arms, legs and torso was noted, changes in which varied in the range from 7.2 to 12.4% ($p < 0.05$). Consequently, the application of the developed methodology of physical culture and health-improving classes with elements of martial arts for men aged 40-60, leading a sedentary lifestyle, made it possible to increase the level of functional state, reduce the risk of sudden cardiac death, adjust the body weight and component composition of the body involved.

Keywords: *risk of sudden cardiac death, body composition, functional state, martial arts, health and fitness classes.*

Introduction. A sedentary lifestyle has many adverse health effects, including an increased risk of sudden cardiac death, cardiovascular mortality, cancer risk, metabolic diseases such as diabetes, hypertension, obesity, musculoskeletal disorders, and knee pain, osteoporosis, etc. [5, 6]. In the second period of adulthood, men leading a sedentary lifestyle develop overweight and there is a risk of obesity [3, 5, 6]. Rationally organized classes of motor activity of physical culture and health-improving orientation for people of different ages can improve the level of health, working capacity and resistance to various adverse environmental factors, viral diseases [1-4]. Objective

of the study was the theoretical and experimental substantiation of the methodology of physical culture and health-improving classes with elements of martial arts for men aged 40-60 years who lead a sedentary lifestyle.

Methods and structure of the study. The experiment involved 60 men aged 40-60 years (48.07 ± 6.22), who were divided into experimental and control groups of 30 people. Classes were held five times a week for 90 minutes each. The men from the EG attended classes conducted in accordance with the methodology of physical culture and health-improving orientation developed by us with elements of martial arts dur-



ing one calendar year. Representatives of the CG were engaged in a different program, the basis of which was running in an aerobic mode.

Cardiointervalometry was used to monitor the functional state and the risk of sudden cardiac death. To determine body weight, body composition, bioimpedance analysis was used using TANITA BC-601 analyzer scales (Japan). The survey was conducted twice - before and after the pedagogical experiment.

Results of the study and their discussion. A technique of physical culture and health-improving classes with elements of martial arts for men aged 40-60 years who lead a sedentary lifestyle has been developed (figure). Classes were held five times a week. The duration of one lesson was 90 minutes. The lesson consisted of a preparatory part, including the organization of those involved and a warm-up, which covered 15 minutes of total time; the main part, which included an aerobic block (30 min), a power block (15 min) and a final part (30 min).

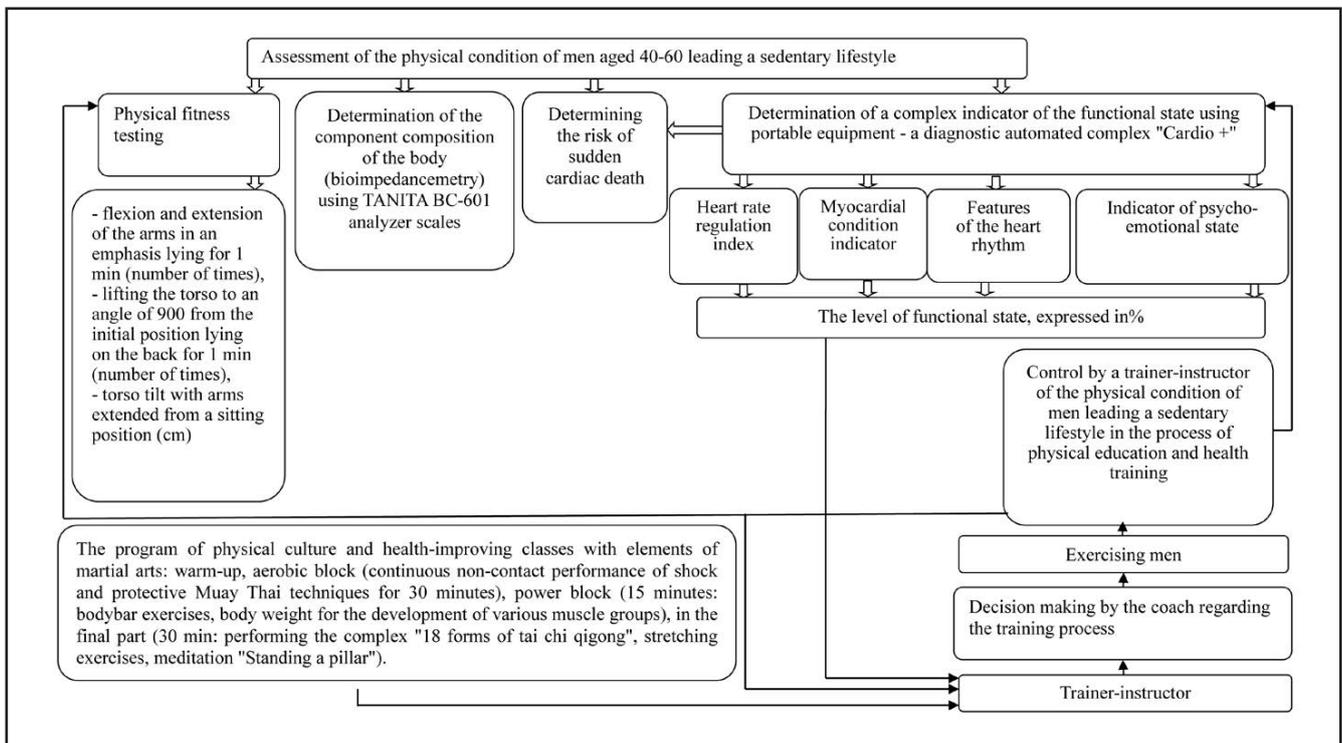
The aerobic block included continuous non-contact execution of Muay Thai striking and defensive techniques for 30 minutes. Performed shock actions: knee strikes; hands: straight, lateral, from below, from a turn. Elbow strikes: straight, side, roundhouse. Kicks: straight, side, roundabout to the torso and head. Defensive actions included defensive move-

ments against punches: dodges, dives, as well as from kicks: grabs, rebounds, blocks.

The power block included exercises with the use of a sports bar (weight - 6-8 kg): snatch, push, squats. As well as strength exercises without weights with their own weight to develop the strength of the muscles of the upper, lower extremities and torso.

In the final part, the men performed the complex "18 forms of tai chi qigong". During the execution of movements, special attention was paid to the coordination of breathing with movements. The complex was performed in three sparing modes - three times repetition, in order to restore the body of those involved. They also did flexibility exercises. At the end, the men performed a meditation - "Standing a pillar", the time of which at the beginning of the experiment was 1 minute, at the fifth week they stood for 2 minutes. At 8-10 weeks of classes - 3 minutes, at 11-13 weeks - 4 minutes, at 14-16 weeks and subsequently - 5 minutes.

The effectiveness of the developed methodology of physical culture and health-improving classes with elements of martial arts for men aged 40-60 years, leading a sedentary lifestyle, was assessed in the course of a pedagogical experiment, by assessing the functional state of the cardiovascular system, determining the risk of sudden cardiac death, body composition. An analysis of the functional state showed that after the experiment



Scheme of the methodology of physical culture and health-improving classes with elements of martial arts for men aged 40-60 years who lead a sedentary lifestyle



with an average level of functional state, the number of men in the experimental group changed from 56.7 to 33.4%, the percentage of men with an above average and high level of functional state increased from 20.0 to 50.0% and from 6.7 to 16.6%, respectively. In the control group, there were no significant changes in the distribution of men according to the level of functional state after the experiment.

Analysis of the results of examination of men in the experimental group showed that 27 people showed a decrease in the risk of sudden cardiac death. Prior to the experiment, 7% of men in this group were diagnosed with a high risk of sudden cardiac death, 20% had an average risk, 63% had a low risk, and 10% of the examined had no risk of sudden cardiac death. After the experiment, 47% of men aged 40-60 who lead a sedentary lifestyle were diagnosed with a low risk of sudden cardiac arrest, and 53% of men had no risk at all. In the control group, after the experiment, the number of men with an average risk of cardiac death changed from 23 to 20%, with a low risk - increased from 57 to 63%, the number of people who had no risk of sudden cardiac death decreased from 20 to 17% of men.

An analysis of intergroup differences in body weight and body mass index showed that both parameters changed at a statistically significant level in representatives of the experimental groups. The differences in the average body weight were 6.52 kg, which corresponded to 66.5% in the men of the experimental group compared with the representatives of the control group ($p < 0.05$). And the body mass index index changed in the representatives of the experimental group, in contrast to the men in the control group, by $3.01 \text{ kg} \cdot \text{m}^{-1}$, which amounted to 9.0% ($p < 0.05$). Analysis of intergroup differences in indicators of body composition showed that the body fat content significantly decreased in the experimental group compared to the control group, the change was 12.4% ($p < 0.05$). The fat content in the arms, legs and torso significantly decreased, the changes in which varied in the range from 7.2 to 12.4% ($p < 0.05$).

Conclusions. The developed method of physical culture and health-improving classes with elements of martial arts for men aged 40-60, leading a sedentary lifestyle, contains the following components: control by a trainer-instructor of the physical condition of men, which includes testing physical fitness, determining the component composition of the body, the risk of sudden cardiac death, functional state, as well as a program of physical culture and health-improving classes, a fea-

ture of which is a combination of three blocks in one lesson: aerobic (continuous non-contact performance of shock and protective Muay Thai techniques for 30 minutes), strength (exercise with a sports bar, with its own weight for 15 min) and recovery (30 min: performing the complex "18 forms of tai chi qigong", exercises for flexibility and meditation - "Standing a pillar"). The application of the developed technique allowed to increase the level of functional state, reduce the risk of sudden cardiac death, adjust the body weight and component composition of the body involved.

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