THE EFFECT OF REGULAR JOGGING ON THE HEALTH AND PHYSICAL FITNESS OF OVERWEIGHT WOMEN OF VARIOUS AGES

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doi: 10.32626/2309-8082.2025-30(3).137-143

The problem of preserving and increasing women's health has been relevant for many years. One of the main factors affecting the state of body systems is the presence or absence of excess body weight. Today, jogging is becoming increasingly popular among people of different ages and levels of physical fitness as a means of improving their quality of life. Experts agree that different ages have their own body characteristics that need to be taken into account when organizing physical exercises. The issue of differences in the effect of jogging on the health and fitness levels of women in the first and second periods of adulthood remains uncertain. *The purpose of the study*: to study the effect of jogging-based training sessions for 12 months 3 times a week on health and physical fitness in women aged 22-26 and 48-54 years. *Materials and methods of research*: analysis and synthesis of data from scientific sources, testing of physical fitness, measurement of anthropometric data and physiological indicators, pedagogical experiment, mathematical methods of statistical data processing. The study involved women who were overweight and engaged in a single jogging program: experimental group No. 1 (N=12) – 22-26 years old and experimental group No. 2 (N=15) – age 48-54 years). *Results.* An analysis of current research in the field of recreational aerobic physical exercises with women of various ages who are overweight was conducted; a unified jogging program was developed for young and mature women who are overweight; the impact of long-term regular jogging on health and physical fitness in women of various age groups was assessed. *Conclusions.* The study showed that the age of overweight women affects the productivity of jogging. The application of a jogging-based training program can significantly improve the harmony of the physique, breathing quality, increase strength, agility, flexibility and physical performance in young (22-26 years old) and mature (48-54 years old) women who are overweight. A more pronounced effect is observed in young women under equal conditions of study (weight loss, improved breathing quality, increased strength, dexterity and physical performance).

Keywords: women, jogging, age characteristics, physical fitness, women's health.

***Ольга Самолюк*. Вплив регулярних занять бігом підтюпцем на стан здоров'я *і* рівень фізичної підготовленості жінок різного віку *з* надмірною масою тіла**

Анотація. Проблема збереження і примноження здоров'я жінок актуальна протягом багатьох років. Одним з головних факторів, що впливають на стан систем організму, є наявність або відсутність надлишкової маси тіла. На сьогоднішній день у людей різного віку і рівня фізичної підготовленості все більшої популярності набуває біг підтюпцем як засіб поліпшення якості життя. Фахівці сходяться на думці про те, що в різному віці існують свої особливості організму, які необхідно враховувати при організації занять фізичними вправами. Залишається невизначеність щодо відмінності ефекту від занять бігом підтюпцем на показники здоров'я і рівень фізичної підготовленості у жінок першого і другого періоду зрілого віку. *Мета дослідження*: вивчення ефекту від застосування тренувальних занять на основі бігу підтюпцем протягом 12 місяців 3 рази на тиждень на показники здоров'я і фізичної підготовленості у жінок 22-26 років і 48-54 років. *Матеріали і методи дослідження.* аналіз і синтез даних наукових джерел, тестування рівня фізичної підготовленості, вимірювання антропометричних даних і фізіологічних показників, педагогічний експеримент, математичні методи обробки статистичних даних. У дослідженні взяли участь жінки, які мають надлишкову масу тіла і займаються єдиною програмою бігом підтюпцем: експериментальна група №1 (N=12) – 22-26 років і експериментальна група №2 (N=15) – вік 48-54 роки). *Результати.* Був проведе аналіз актуальних досліджень в області оздоровчих занять фізичними вправами аеробного характеру з жінками різного віку, що мають надлишкову масу тіла; розроблена єдина програма занять бігом підтюпцем для жінок зрілого віку, що мають надлишкову масу тіла; проведена оцінка впливу тривалих регулярних занять бігом підтюпцем на показники здоров'я і фізичної підготовленості у жінок різних вікових груп. *Висновок.* Проведене дослідження показало, що вік жінок, які мають надлишкову масу тіла, впливає на продуктивність занять бігом підтюпцем. Застосування програми тренувальних занять на основі бігу підтюпцем може сприяти достовірному поліпшенню гармонійності статури, якості дихання, збільшення сили, спритності, гнучкості і фізичної працездатності у жінок 22-26 років і 48-54 роки, що мають надлишкову масу тіла. Більш виражений ефект при рівних умовах занять у жінок молодого віку (зниження маси тіла, поліпшення якості дихання, підвищення сили, спритності і фізичної працездатності).

Ключові слова: жінки, біг підтюпцем, вікові особливості, фізична підготовленість, здоров'я жінок.

Introduction

The problems of preserving and enhancing women's health remain an important research agenda in various fields of knowledge: medicine, psychology, and sociology. Despite the fact that women live on average 5 years longer than men, however, women are more likely to get sick and seek medical help, which is mainly related to reproductive function [8]. Most often, women suffer from cardiovascular diseases. Cervical, breast, and lung cancers are also the most common and cause of premature death in women. Women are also more likely than men to suffer from depression [6; 9; 35]. It is very important to follow the recommendations of health experts in order to prevent the occurrence and development of these diseases. Following a healthy lifestyle was and remains one of the main recommendations [31; 36].

The main risk factor for health is being overweight. The problem of obesity is global [33]. In many countries of the world, women are more susceptible to obesity, which is associated with hormonal characteristics and occupation, leading to a sedentary lifestyle [20; 22].

Age is an important indicator of possible risks to a woman's health. Depending on age, biological factors have different effects on a woman's health [30]. Many researchers associate physical activity and diseases of the reproductive function of women, and also note the difference in these patterns depending on age [4]. In this regard, it is necessary to study the effect of physical exercise on the health and physical fitness of young women, as well as overweight women of mature age, in order to prevent the occurrence of obesity. It is assumed that due to age-related health conditions (puberty and pre-menopause), physical exercise can be effective for women's health to varying degrees. Along with various training programs, aerobic training has a healing effect in the form of improving body proportions, increasing physical fitness and reducing body weight. The World Health Organization recommends that healthy people use low-intensity aerobic exercise for at least 150 minutes per week to reduce their risk factors for obesity [11; 12].

Jogging is becoming increasingly popular all over the world [1; 2; 34]. Continuous running at a low pace is a widely available and effective aerobic training, primarily to improve lipid metabolism [28]. There have also been studies indicating the positive effects of jogging at different ages on people's health [25], Studies over 35 years have shown that jogging reduces the risk of mortality and is associated with an increase in life expectancy in women by 5.6 years when adjusted for age [27; 28]. However, questions remain about the extent of the impact of jogging-based training programs for overweight women of various ages.

The presented study is aimed at studying the effect of jogging in women of the first and second periods of adulthood who are overweight and engaged in an identical program. The results of this study may be useful to those who organize and conduct wellness running classes with women, as well as researchers in the field of health and fitness. The data obtained can be used for recommendations in the field of healthy lifestyle and sports.

Materials and methods of research

The purpose of this study is to study the effect of regular jogging (12 months, three times a week for 60 minutes) on the physical health (body mass index, lung capacity) and physical fitness (exercise results) of women of different ages (the first period of maturity is 22-26 years and the second period of maturity is 48-54 years) who are overweight. Research objectives: to analyze the results of scientific work in the field of physiology and health of women of different ages, to study modern approaches to the content and organization of training sessions with overweight women, to consider recommendations for jogging training sessions; to develop and implement a program of jogging training sessions for mature women; to conduct a comparative assessment of the impact of regular classes jogging on the physical health and physical fitness level of mature women.

The study involved women aged 22 to 54 years. As a result of the selection of 35 applicants, 27 women were selected to participate in the experiment. The participants of the experiment were divided into 2 groups according to their age. The experimental groups did not include women who dropped out of the training process for various reasons (for example, injuries or illnesses). Group No. 1 consisted of 12 women aged 22 to 26 years. Group No. 2 consisted of 15 women aged 48 to 54 years. The sample size was determined in accordance with the research methodology. The selection criteria for the groups were: age limits, the presence of overweight (body mass index from 25 to 30 kg/m^2), the absence of chronic diseases and injuries that negatively affect the productivity of running, as well as lifestyle (sedentary lifestyle, assessed on the IPAQ scale). For group No. 1, the indicator of the level of physical activity should not exceed 21 points, for group No. 2 – not exceed 14 points. In accordance with the Helsinki Declaration on Conducting Research with Humans, all participants in the experiment were familiar with the research conditions, proposed tests and training tasks. The participants in the experiment gave their personal consent to participate in the study. Personal data of the participants in the experiment were not disclosed.

The duration of the experiment was 12 months. In addition, it took another 3 weeks to organize the study: 1 week to select participants and test the protocol physical fitness tests, 1 week to evaluate the test results before the experiment began, and 1 week to evaluate the test results after the experiment ended.

For the purposes of the study, anthropometric measurements were carried out. To determine the body mass index (kg/m^2), body height was measured in the laboratory with an accuracy of 1 cm using a wall-mounted stadiometer and body weight with an accuracy of 10 grams using digital scales. The body mass index was calculated by dividing body weight in kg by the square of height in m^2. A functional test was also performed in the laboratory – an assessment of the level of vital lung capacity (liter) using a dry-air spirometer with an accuracy of 0.1 liters. The vital capacity of the lungs was calculated by determining the arithmetic mean between the three test parameters (maximum exhalation after maximum inhalation) [3].

Tests were also conducted to monitor the level of physical fitness. The following physical qualities were evaluated: strength (pull-ups on a low crossbar, number of times), flexibility (bending forward in a standing position, cm), physical performance (Harvard step test, points), agility (3 x 10 m shuttle run, seconds). Prior to the start

of the experiment, the subjects were trained to perform control tests. All physical fitness tests were conducted in accordance with age and gender norms (distance length, step height in the step test, strength and flexibility assessment equipment) [5].

The experimental data obtained were statistically processed based on the average values in the group. The average values, standard deviation, and square deviation of both groups were compared before and after the experiment. The reliability of the differences between the initial and final data was calculated using the Student's T-test. Values in the range from 2.2 (0.05) to 3.11 (0.01) with the number of degrees of freedom – 22 and values in the range from 2.14 (0.05) to 2.98 (0.01) with the number of degrees of freedom – 28 (for dependent groups of subjects) were considered reliable. Data analysis was based on comparing the dynamics of results in group No. 1 and No. 2. The normality of the distribution of dependent variables was assessed using the Shapiro-Wilk test.

The experimental program for groups No. 1 and No. 2 included classes three times a week for 12 months. Each lesson consisted of three parts: preparatory, main and final. The preparatory part of the lesson lasted 15 minutes and included breathing exercises (3 minutes), a set of standing exercises for the main muscle groups. Simple exercises in pairs or at the support (7 minutes) could also be used. At the end of the warm-up, walking exercises, simple running exercises or jumping exercises (5 minutes) were used. Immediately after the warm–up, the participants started the main part of the lesson - jogging. The main part of the lessons lasted 30 minutes. The final part of the class lasted 15 minutes and included walking (3 minutes), breathing exercises (5 minutes), stretching (7 minutes).

For the first 8 weeks, the participants used jogging, alternating it with walking, depending on their abilities. Thus, the principle of gradualness and accessibility of classes was observed. For the next 8 weeks, the jogging speed had to be at least 5 km/h. Then, at 5-6 months of classes, the jogging speed had to be at least 6 km/h, at 7-8 months of classes the speed had to be at least 7 km/h, at 9-12 months – at least 8 km/h. Thus, the principle of a gradual increase in developmental and training effects and the principle of age-related adequacy of physical activity were observed.

From September to December, training sessions were held in open areas – running on the stadium tracks was used. From December to March, training sessions were held in the indoor arena. From March to September, training sessions were held in the park, where running on the ground was used.

The participants had certain requirements for jogging technique. The forward tilt of the body is insignificant. The phase of flight in a step is small. Foot placement – rolling from heel to toe onto the projection of the hip joint. The hip extension in the step is insignificant. The arms are bent at the elbows at an angle of 90, the hands are gathered into a fist, but without tension. The shoulders are relaxed. Due to the fact that jogging differs from regular running by the speed of movement, the recommended jogging speed in the experimental groups should not exceed 10 km/h.

The study was conducted on the basis of T. G. Shevchenko Pridnestrovian State University (Republic of Moldova) in 2024.

The results of the research

The results in anthropometric measurements in group No. 1 before the start of the experiment showed that the majority of the participants in the program were overweight from 22 to 26 years old and, according to the Quetelet index, were in a condition preceding the diagnosis of "obesity". This is a body mass index from 25 to 30. When assessing external respiration, the average indicator in the group was closer to the lower limit of the norm. With a normal lung capacity for women of 2.5 to 4 liters, most of the participants showed test results of up to 3.1 liters.

After the experiment was completed, significant positive changes were observed in group 1, both in assessing the harmony of the physique and in assessing the quality of breathing. The body mass index decreased by an average of 3 points. Thus, the body harmony index approached the norm, but it was still within the "overweight" range, namely, at the lower limit (25-29.99). During the experiment, significant changes in body mass index were recorded at the level of $p < 0.01$ (the Student's T-test was at 7.5, while the significance of the differences was significant already at $t = 2.2$). Respiratory parameters improved by an average of 0.5 liters after the experiment. Significant positive changes in lung vital capacity were recorded at the level of $p < 0.01$ (Table 1).

Table 1 – Anthropometric and functional indicators in the age group from 22 to 26 years before and after the experiment, n = 12

Indicators	Before the experiment			After the experiment			t	p
	$\bar{x}$	s	m	$\bar{x}$	s	m		
Body mass index	28.7	3.2	1.1	25.4	2.5	0.8	7.5	<0.01
Vital lung capacity (liter)	2.9	0.5	0.15	3.4	0.4	0.1	7.0	<0.01

N o t e *The differences are significant at t = 2.2 (0.05) – 3.11 (0.01); (df = 22).

Prior to the start of the experiment, the participants of group No. 1 showed low results for their age group in tests to assess the level of physical fitness: strength, agility, flexibility and physical performance. With a normal 8-fold pull-up on the crossbar, only 5.5 was recorded, which may indicate weakness of the shoulder girdle muscles and the negative effect of overweight on performance in the test. The indicators of dexterity in cyclic locomotion were 0.5 seconds below the norm. Hip joint mobility during the forward tilt was normal before the start of the experiment. The level of physical performance, assessed using the Harvard step test, was below average in the group of women aged 22 to 26 years before the start of the experiment.

After the experiment was completed, the strength of the shoulder girdle muscles increased significantly. Positive significant changes ($p < 0.01$) were recorded in pull-ups on a low crossbar, where the average result approached the norm for this age in women. The results in shuttle running improved by an average of 1.2 seconds. The changes are significant at the level of $p = 0.01$. The results in leaning forward in the standing position also increased. The average indicator increased by 3 cm, the reliability of the changes was recorded at the level of $p < 0.01$. The level of physical performance in the Harvard step test reached average values with a confidence of $p = 0.01$ (Table 2).

Table 2 – Indicators of physical fitness in the age group from 22 to 26 years before and after the experiment, n = 12

Indicators	Before the experiment			After the experiment			t	p
	$\bar{x}$	s	m	$\bar{x}$	s	m		
Pull-ups on the crossbar (number of times)	5.5	1.5	0.5	7.5	1.5	0.5	6.6	<0.01
3x10 m Shuttle run (s)	10.8	1.5	0.0	9.6	1.8	0.6	5.5	<0.01
Forward tilt (cm)	7.7	3.5	1.2	10.5	3.1	0.9	5.8	<0.01
Harvard Step Test (score)	58.5	2.9	0.9	66.5	2.2	0.7	6.2	<0.01

N o t e *The differences are significant at t = 2.2 (0.05) – 3.11 (0.01); (df = 22).

Prior to the start of the experiment, low indicators of body harmony and respiratory quality were noted in the age group from 48 to 54 years. The body mass index was at the level preceding obesity. The indicators of external respiration in the group were fixed at an average level of 3.0 liters, which is the norm for women.

After the experiment was completed, positive changes were noted in both indicators. The body harmony index significantly improved ($p < 0.01$). The body mass index decreased by an average of 1 point, however, it remained in the range marked as "overweight". The vital capacity of the lungs increased by an average of 0.2 liters, which ensured the reliability of empirical data at the level of $p = 0.01$ (Table 3).

Table 3 – Anthropometric and functional indicators in the age group from 48 to 54 years before and after the experiment, n = 15

Indicators	Before the experiment			After the experiment			t	p
	$\bar{x}$	s	m	$\bar{x}$	s	m		
Body mass index	28.5	2.7	0.9	27.5	3.3	1.1	4.2	<0.01
Vital lung capacity (liter)	3.0	0.3	0.9	3.2	0.25	0,08	5.3	<0.01

N o t e *The differences are significant at t = 2.14 (0.05) – 2.98 (0.01); (df = 28).

In the age group from 48 to 54 years old, low scores in physical fitness tests were revealed before the start of the experiment. The strength level of the shoulder girdle muscles was in the normal range. Dexterity in cyclical movements was slightly below normal. The level of hip joint mobility when performing a forward tilt was in the normal range. Physical performance in the Harvard step test was recorded at a level below normal, closer to the border with unsatisfactory indicators.

After the pedagogical experiment, there was an increase in the results when performing all the proposed tests. The indicators in pull-ups on the low bar increased by an average of 1.3 times, which corresponds to the norm for women of this age. The results were reliable at $p = 0.01$. The performance of the agility test in shuttle running increased by an average of 0.6 seconds, which suggests that the differences were significant compared with the initial level ($p < 0.05$). The results in hip mobility improved by an average of 3 cm. Flexibility increased significantly at the level of $p < 0.01$. The level of physical performance in group 2 increased significantly during the experiment ($p < 0.05$), the average score increased by 2.2 points, but remained below the average (Table 2).

Table 4 – Indicators of physical fitness in the age group from 48 to 54 before and after the experiment, n = 15

Indicators	Before the experiment			After the experiment			t	p
	$\bar{x}$	s	m	$\bar{x}$	s	m		
Pull-ups on the crossbar (number of times)	3.5	1.3	0.4	4.8	1.5	0.5	4.1	<0.01
3x10 m Shuttle run (s)	11.5	0.8	0.25	10.9	0.12	0.04	2.9	<0.05
Forward tilt (cm)	6.1	2.3	0.8	9.1	3.5	1.2	5.5	<0.01
Harvard Step Test (score)	57.7	2.3	0.8	59.5	1.7	0.6	2.9	<0.05

N o t e *The differences are significant at t = 2.14 (0.05) – 2.98 (0.01); (df = 28).

Discussion

It is well known that regular physical activity can have a positive effect on human health and improve the quality of life [7; 10; 15]. At the same time, it is important to take into account the specifics of the physical activity used. In particular, the same physical exercises may have different effectiveness due to the difference in the number of participants [14; 16; 18]. In this study, the results of long-term continuous jogging by women of the first and second periods of adulthood were demonstrated. The peculiarities of the effect of jogging on the indicators of body harmony, vital capacity, strength, dexterity, flexibility, and physical performance in overweight women belonging to different age groups have been revealed. Statistical patterns have been established that indicate the benefits of jogging on certain indicators of women's health, depending on age.

Being overweight leads to various health problems for women. Obesity prevents proper movement, reduces performance, increases the risk of developing cardiovascular diseases, type 2 diabetes, and increases the load on the musculoskeletal system [9]. A number of scientific studies show that during aerobic exercise, the heart and blood vessels are protected from damage [23; 32]. It has also been found that regular physical exercise in the form of low-intensity walking and running reduces premenstrual symptoms in women of fertile age, as well as menopausal symptoms in older women [19].

Since strength exercises have no proven effectiveness in reducing body weight, the study was devoted to studying the effectiveness of jogging as the most affordable means of aerobic training [21; 35]. It has been established that even short-term short-term aerobic exercise can have a clinically useful form of cardioprotection [13]. Low-intensity aerobic exercise with prolonged use can reduce body fat mass [24]. It is also known that up to several months of regular practice are needed to achieve the cardiovascular effect of running at a low pace [29]. It has been established that organized physical exercises three times a week bring the greatest effectiveness if the course duration exceeds 8 weeks [12]. In this regard, it was decided to organize a long-term experiment for 12 months in order to observe the actual results.

To date, there are no unambiguously recommended aerobic training programs for overweight women. It is known that during high-intensity aerobic exercise in women aged 45-50 years, the level of cardiac tropin may increase, which indicates damage to the fibers of the heart muscle [8; 29]. It has also been found that high-intensity aerobic exercise is not recommended as a regular exercise for menopausal women, despite the fact that pulmonary ventilation improves [24]. In general, we pay attention to the opinion of experts who note that aerobic exercise can have different effects on body composition when it comes to women before or after menopause [26]. Thus, the observed parameters and the studied groups of people correspond to the recommendations reflected in previous scientific studies.

One of the main indicators of health studied in the experimental groups is the body mass index, since overweight women participated in the experiment. A change in body mass index in adults implies only an increase or decrease in body weight due to the lack of body growth in length. In the age group of women from 22 to 26 years old, significant changes were observed towards the harmonization of the physique. Despite the fact that the average remained within the overweight range, the changes were more significant than in the group of women aged 48 to 54 years. For comparison, the Student's T-test in Group 1 was 7.5 versus 4.2 in Group 2. Thus, regular jogging three times a week for 30 minutes for 12 months can contribute to the normalization of the physique of overweight young and mature women. However, women aged 48 to 54 years old may be advised to increase their training loads and adjust their nutrition in order to achieve a more pronounced effect. Also, in order to correct their physique, mature women may need a longer cycle of jogging before menopause and during menopause than the one proposed in the experiment.

A number of studies indicate that short-term high-intensity workouts improve the function of the respiratory system, in particular, improve lung ventilation [24]. On the other hand, high-intensity cardio loads can be dangerous for the condition of the heart muscle and lead to impaired vascular heart function in mature women.

Also, high-intensity cardio is undesirable for all overweight people, regardless of age [29]. In this regard, it is important to evaluate the effect of moderate cardio loads on lung function in women of different ages. As this study showed, women in the age group of 22-26 years experienced a significant improvement in respiratory function under the influence of prolonged low-intensity jogging for 1 year. Statistically significant changes occurred in this age group, and lung capacity improved by an average of 0.5 liters. Significant improvements in breathing quality were also found in the group of women aged 48-54 years. The average increased by 0.2 liters. Thus, we can say that the technique of jogging three times a week for 30 minutes for 12 months can be effective for both young and mature women who are overweight. It should also be noted that younger women have achieved more significant changes with the same workload.

In addition to the obvious effect of prolonged aerobic exercise on body weight and respiratory function, there is a possibility of improving physical fitness. Reducing body fat can make it easier to perform many exercises, in particular, strength exercises. According to the results of the experiment, in the group of women aged 22-26 years, the results significantly improved when performing pull-ups while lying on the crossbar. There were also significant improvements in the results of this test in the group of women aged 48-54 years. However, in group No. 1, the results increased more significantly. The student's T-test is 6.6, while in group 2 it is 4.1. It can be assumed that as a result of the training program, changes in body mass index in both experimental groups contributed to an increase in the relative strength of overweight women. In this case, age also affects the productivity of aerobic training. With the same jogging training programs, the average performance of strength exercises in the group of young women is higher (the result improved by an average of 2 times) than in the group of mature women (the result improved by an average of 1.3 times).

Along with the effectiveness of performing power movements, the quality of movement performance is an indicator of the effectiveness of the training program. Prolonged exercise or recreational physical education has been proven to save energy consumption by improving muscle control [13]. The results of this study indicate that the dexterity of movements in the group of women aged 22-26 years significantly improved at the level of $p < 0.01$, while in the group of women aged 48-54 years, the results in the dexterity test also had a significant improvement, however, inferior to group No. 1 ($p < 0.01$). In general, the improvement in the quality of movements can largely be the result of using various general development exercises in each of the classes. The gained motor experience combined with the effect of jogging is undoubtedly a trigger for improving agility in women, regardless of age. Prolonged and regular jogging in combination with warm-up and hitch can be recommended to improve the quality of movement in overweight women, regardless of age. However, it is important to know that the process of improving the quality of movement in the older age group will be slower than in younger women.

The mobility of the hip joints and the condition of the musculoskeletal system as a whole depend on the quality of human movements. In this regard, age may be a factor that negatively affects muscle elasticity. Properly organized training sessions should help improve joint mobility, which should subsequently lead to a reduction in injuries and inflammation [17]. The study showed that women of different ages who do not exercise regularly may have satisfactory hip joint mobility (when bending forward). Nevertheless, regular jogging and general development exercises can significantly improve flexibility, regardless of the age of the participants ($p < 0.01$).

Changes in physical performance indicators indicate the complex nature of the effects of the training programs performed. The physical activity performed as part of the experiment was aerobic in nature, and therefore the cardiovascular system's response to physical activity in women was expected to improve. However, in the group of women aged 22-26 years, the results in the Harvard step test were significantly higher ($p < 0.01$) than in the group of 48-54 years ($p < 0.05$). Long-term experience of running in young and mature women can be useful for optimizing the use of oxygen in muscles, which is beneficial for further progress. In the future, we can hope for a further improvement in physical performance in overweight women and the emergence of a willingness to perform higher-intensity exercises.

Conclusions

1. The body of mature women in the presence of overweight needs regular aerobic exercise to reduce the risk of concomitant diseases. The effect of classes depends on the age of the women.

2. The use of a training program three times a week for an hour for 12 months, including jogging (30 minutes), warm-up (15 minutes) and hitching (15 minutes), can significantly improve the harmony of the physique, breathing quality, increased strength, agility, flexibility and physical performance in women of the age groups 22-26 overweight and 48-54 years old.

3. The age of overweight women affects the productivity of jogging. A more pronounced effect, under equal conditions of occupation, in younger women (weight loss, improved breathing quality, increased strength, dexterity, and physical performance). Additionally, more thorough research can answer the question of how the jogging program should be changed for overweight women aged 48-54 in order to achieve a more pronounced health effect.

Conflict of interest. The authors state that there is no conflict of interest.

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Надійшла до друку 15.09.2025