



SCIENTIFIC AND PEDAGOGICAL PRINCIPLES OF HEALTH- PROMOTING COMPLEX EXERCISES FOR DEVELOPING A HEALTHY LIFESTYLE IN WOMEN OF DIFFERENT AGE GROUPS.

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Annotation: This article investigates the scientific and pedagogical foundations of health-improving complex exercises in the formation of a healthy lifestyle among women of different age groups (18–60 years). According to research findings, regular physical activity, a balanced diet, and psychological stability have been proven to be crucial factors in strengthening women's health. Body mass index (BMI), blood pressure, endurance, and flexibility indicators were compared across different age groups. The study found that the system of comprehensive exercises developed on the basis of the experimental program led to statistically significant positive changes in the experimental group compared to the control group.

Keywords: healthy lifestyle, health-enhancing exercises, women's physical activity, age characteristics, aerobics, Pilates, Nordic walking, body mass index (BMI), physical education pedagogy.

Annotatsiya: Uch maqolada turli yosh guruhidagi (18–60 yosh) ayollar o'rtasida sog'lom turmush tarzini kuzatishda salomatlikni mustahkamlovchi kompleksning ilmiy-pedagogik asoslari o'rganiladi. Tibbiy yordamga ko'ra, muntazam jismoniy faollik, oziq-ovqat va oziqlanish moddalari yordamni ko'rsatadi. Turli va yosh massasi o'rtada tana indeksi (TMI) to'g'ridan-to'g'ri baholandi. tadqiqot ko'rishki, eksperimental dastur asosida shuni ishlab chiqarish kompleks tizim nazorat guruhiga nisbatan eksperimental guruhda statistik xavfsizlikka oid o'zgarishlarga olib keldi.

Kalit so'zlar: sog'lom turmush tarzi, salomatlikni mustahkamlovchi mashqlar, ayollarning jismoniy faolligi, yosh xususiyatlari, aerobika, Pilates, Skandinaviycha yurish (Nordic walking), tana massasi (TMI), jismoniy tarbiya indeksi.

Аннотация: В статье исследуются научно-педагогические основы применения комплекса оздоровительных упражнений для формирования здорового образа жизни у женщин различных возрастных групп (18–60 лет).



Результаты исследования подтверждают, что регулярная физическая активность, сбалансированное питание и психологическая устойчивость являются ключевыми факторами укрепления женского здоровья. Проведен сравнительный анализ показателей индекса массы тела (ИМТ), артериального давления, выносливости и гибкости в разных возрастных группах. Установлено, что система комплексных упражнений, разработанная на основе экспериментальной программы, способствовала статистически значимым положительным изменениям у участниц экспериментальной группы по сравнению с контрольной группой.

Ключевые слова: здоровый образ жизни, оздоровительные упражнения, физическая активность женщин, возрастные особенности, аэробика, пилатес, скандинавская ходьба, индекс массы тела (ИМТ), педагогика физического воспитания.

Introduction

As a result of the accelerating pace of modern life, environmental changes, declining food quality, and increasing physical inactivity, the prevalence of chronic diseases among the population, particularly among women, is significantly increasing. According to the data of the World Health Organization (WHO), one in three women worldwide faces problems associated with insufficient physical activity. This issue also remains highly relevant in the Republic of Uzbekistan. The biological and physiological characteristics of women, hormonal changes, and various stages of life (puberty, pregnancy, and menopause) require an individualized approach to physical education and health promotion programs. Since the functional capabilities of the female body vary depending on age, there is a need to develop and apply a specific, scientifically grounded set of exercises for each age group.[1]

The concept of a healthy lifestyle (LLS) encompasses not only freedom from diseases but also physical, mental, and social well-being. Although many studies have been conducted in the science of physical culture and sports on the formation of STD, the study of the scientific and pedagogical foundations of a comprehensive system of health-improving exercises designed for women of various ages has not yet found its solution. The aim of this study is to develop a system of comprehensive health-improving exercises for women of various ages (18–60 years) and to substantiate its scientific and pedagogical foundations for forming a healthy lifestyle. [2]

LITERATURE REVIEW AND METHODOLOGY

Numerous scientific studies by both international and local scholars have been conducted in the field of health-enhancing physical education. Nikolai M. Amosov



(1985) emphasized the importance of regular aerobic exercise in strengthening health. Kenneth H. Cooper (1982) developed the aerobics system and demonstrated its positive effects on the cardiovascular system. The World Health Organization document entitled “*Global Recommendations on Physical Activity*” (2020) recommends that adults aged 18–64 engage in at least 150 minutes of moderate-intensity aerobic activity per week. Among Uzbek scholars, B. A. Nishonov (2019), M. T. Xolmatov (2021), and others have studied various aspects of women's physical education. However, the number of comprehensive studies covering different age groups and focusing on the formation of a healthy lifestyle remains limited. However, the number of comprehensive studies covering various age groups and focusing on the aspect of STD formation remains limited.

The following methods were used in the study: literature analysis, anthropometric measurements, physiological tests (Rouffier tests, orthostatic test), physical fitness tests (Cooper's 12-minute running test, flexibility test), a questionnaire, and statistical analysis (Student's t-test, $p < 0.05$). [3]

RESEARCH RESULTS AND DISCUSSION

The study was conducted in the sports and health centers of the city of Angren during 2022–2024. A total of 120 women were involved in the study, and they were divided into 3 age groups (Table 1).

Table 1.

Characteristics of the Study Participants.

Age Group	Age Range	Number of Participants	Experimental Group	Control Group
Young women	18–30 years	40 participants	20 participants	20 participants
Middle-aged women	31–45 years	40 participants	20 participants	20 participants
Older women	46–60 years	40 participants	20 participants	20 participants
Total	18–60 years	120 participants	60 participants	60 participants

At the beginning of the study, key indicators were measured in all groups. The obtained baseline results showed no statistically significant difference between the groups ($p > 0.05$), which is a prerequisite for comparing the groups with each other. [4]



For women in the experimental group, the following stage-by-stage health-improving complex exercise program was developed and applied over a period of 6 months. The program was carried out 3 times a week, with each session lasting 45-60 minutes.

Table 2.

Composition of Health-Enhancing Exercise Programs for Different Age Groups

Exercise Type	18–30 years	31–45 years	46–60 years	Purpose
Aerobics	35 min / 45%	25 min / 38%	20 min / 30%	Cardiovascular health
Pilates	15 min / 19%	20 min / 31%	20 min / 30%	Balance, strength
Nordic walking	10 min / 13%	10 min / 15%	15 min / 22%	General endurance
Stretching	10 min / 13%	10 min / 15%	15 min / 22%	Flexibility
Breathing exercises	8 min / 10%	5 min / 7%	8 min / 12%	Relaxation, recovery
Total	78 min	70 min	78 min	—

The results of the study demonstrated that after the six-month experimental program, physical fitness indicators improved significantly across all age groups in the experimental group compared with the control group. Differences in body mass index (BMI), blood pressure, and flexibility indicators were found to be statistically significant ($p < 0.05$) (Table 3) [5].

Table 3.

Changes in Key Indicators Before and After the Study (mean $\pm$ standard deviation)

Indicator	Group	18–30 Years (Before/After)	31–45 Years (Before/After)	46–60 Years (Before/After)
BMI (kg/m ²)	Experimental	24,8 $\pm$ 1,2 / 23,1 $\pm$ 1,0*	27,3 $\pm$ 1,5 / 25,4 $\pm$ 1,3*	28,6 $\pm$ 1,8 / 26,9 $\pm$ 1,6*
TMI (kg/m ²)	Control	24,6 $\pm$ 1,3 / 24,4 $\pm$ 1,2	27,1 $\pm$ 1,6 / 27,0 $\pm$ 1,5	28,4 $\pm$ 1,7 / 28,3 $\pm$ 1,8
Systolic Blood Pressure (mmHg)	Experimental	118 $\pm$ 6 / 112 $\pm$ 5*	126 $\pm$ 7 / 119 $\pm$ 6*	132 $\pm$ 8 / 124 $\pm$ 7*



Systolic Blood Pressure (mmHg)	Control	117±7 / 116±6	125±8 / 124±7	131±9 / 130±8
Flexibility (cm)	Experimental	+4,2±0,8 +8,6±1,1*	+2,1±0,7 +5,8±0,9*	+1,4±0,6 +4,2±0,8*
Flexibility (cm)	Control	+4,0±0,9 +4,3±1,0	+2,0±0,8 +2,2±0,7	+1,3±0,7 +1,5±0,6

*** indicates a statistically significant difference compared with the control group ($p < 0.05$)*

Additionally, according to the results of the participant survey, 87.3% of women in the experimental group reported improvements in their quality of life and mood. Improved sleep quality was observed in 91.4% of participants, while stabilization of the nervous system was reported by 83.1% of women (Table 4) [6].

Table 4.

Subjective Assessment Results of Women in the Experimental Group (Based on Questionnaire Data, %)

Indicator	18–30 years	31–45 years	46–60 years	Average
Improvement in quality of life	91,2%	88,4%	82,3%	87,3%
Improvement in sleep quality	94,1%	92,6%	87,5%	91,4%
Nervous system stability	86,4%	84,2%	78,7%	83,1%
Increased work capacity	89,3%	85,6%	79,4%	84,8%
Improved mood	93,7%	87,9%	81,2%	87,6%

A complex system of health-enhancing exercises developed with consideration of age-related characteristics enables simultaneous improvement of women's physical, physiological, and psychological indicators. In this context, the most important pedagogical principle is strict adherence to the principles of gradual progression of load, individualization, and consistency [7].



The formation of a healthy lifestyle is considered one of the most important factors in strengthening public health today. In particular, health-enhancing complex exercises play a crucial role in ensuring the physical, psychological, and social well-being of women across different age groups. The female body has specific physiological and psychological characteristics depending on different life stages, and these factors must be taken into account when organizing physical training. Therefore, the development and implementation of health-enhancing exercise programs based on scientific and pedagogical principles is of great importance [8].

Regular physical exercise improves the functioning of the cardiovascular system, expands the functional capacity of the respiratory system, increases the mobility of muscles and joints, and strengthens the body's resistance to various diseases. In particular, health-enhancing exercises are an important means of preventing conditions commonly observed in women, such as overweight, physical inactivity (hypodynamia), osteoporosis, diabetes mellitus, and cardiovascular diseases. Systematic exercise enhances metabolic processes, improves blood circulation, and increases overall physical performance of the body.

Exercise programs for women of different age groups should be selected in accordance with age-specific characteristics. For young girls, the priority is the development of physical qualities, the formation of correct posture, and the enhancement of physical activity. During this stage, activities such as aerobics, running, swimming, gymnastics, and various sports games produce effective results. These exercises support the processes of growth and development of the body and help to form a sustainable need for a healthy lifestyle [9].

In middle-aged women, maintaining physical activity, improving working capacity, and preventing stress conditions are of key importance. At this stage of life, it is advisable to include morning exercises, fitness elements, yoga exercises, stretching routines, and walking sessions in health-enhancing exercise programs. Such activities help maintain muscle tone, prevent excessive weight gain, and positively influence women's psychological well-being. In addition, endorphins released during physical activity improve mood and reduce depressive states. In older women, the main objectives of health-enhancing exercises are to maintain functional capacity of the body, support physical activity, and slow down the aging process. During this period, light gymnastics, therapeutic exercises, walking, breathing exercises, and specific joint mobility exercises are recommended. These exercises help prevent muscle weakness, maintain bone strength, and enhance the ability to independently perform daily activities [10].



The pedagogical foundations of health-enhancing complex exercises are aimed at developing a culture of a healthy lifestyle among women. In the pedagogical process, it is important to adhere to the principles of goal orientation, systematicity, consistency, and individualization in training sessions. Taking into account each woman's age, health status, physical fitness level, and interests increases the effectiveness of the training process. Through a pedagogical approach, it is possible to properly teach exercise techniques and develop an understanding of healthy nutrition and adherence to daily routines [11].

From a scientific and pedagogical perspective, health-enhancing complex exercises contribute not only to physical development but also to the moral and psychological growth of an individual. Regular physical activity develops qualities such as willpower, responsibility, discipline, and a conscious attitude toward one's health. As a result, women's quality of life improves, their social activity increases and opportunities for raising a healthy generation expand. The use of modern information and communication technologies is creating new opportunities in the organization of health-enhancing training sessions. Through mobile applications, online training programs, and digital monitoring tools, women can track their physical activity, monitor training outcomes, and consistently maintain a healthy lifestyle. This further increases the effectiveness of the health promotion process and contributes to engaging a wider population in physical activity. In women of different age groups, the formation of a healthy lifestyle through health-enhancing complex exercises yields high results only when the programs are scientifically based, pedagogically well-structured, and implemented regularly. These exercises are an important means of strengthening women's health, improving quality of life, and promoting a healthy lifestyle culture in society.[12]

CONCLUSION

Based on the research results, the following conclusions were drawn:

1. A system of complex health-enhancing exercises designed for women of different age groups should be developed taking into account age, level of physical fitness, and individual characteristics. In particular, for women aged 46–60 years, low- and moderate-intensity exercises (pilates, nordic walking, and breathing exercises) should be prioritized.
2. The application of the developed experimental program over a six-month period resulted in a reduction of body mass index by 1.5–2.8 kg/m², a decrease in systolic blood pressure by 6–8 mmHg, and an improvement in flexibility by 2–4 cm across all age



groups ($p < 0.05$). These indicators confirm that the exercise program produced clinically significant effects.

3. The effectiveness of health-enhancing exercises had a positive impact not only on physical indicators but also on psychological outcomes. Questionnaire results confirmed that more than 80–90% of women in the experimental group experienced improvements in mood, sleep quality, and work capacity. This indicates that in the formation of a healthy lifestyle, the simultaneous development of both physical and psychological components is essential.

4. Increasing women's physical activity across all life stages—from early childhood education to old age—should be a priority direction of state policy. Health-enhancing physical education programs should be implemented not only in sports and wellness centers but also in communities, schools, and workplaces.

5. In future, it would be appropriate to continue the study with long-term (1–3 year) follow-up observations, as well as to develop specialized health-enhancing programs for women during periods of hormonal changes (pregnancy and menopause).

REFERENCES

1. Decree of the President of the Republic of Uzbekistan No. PQ-4890 dated November 6, 2020, “On Measures for Further Development of Physical Education and Sports.” Tashkent, 2020.

2. Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 802 dated December 23, 2020, “On Approval of the State Standard of Preschool Education and Upbringing.” Tashkent, 2020.

3. Amosov N.M. *Reflections on Health*. Moscow: Physical Culture and Sport, 1987. 64 p.

4. Cooper K.H. *The Aerobics Program for Total Well-Being*. New York: Bantam Books, 1982. 318 p.

5. World Health Organization. *Global Action Plan on Physical Activity 2018–2030: More Active People for a Healthier World*. Geneva: WHO, 2018. 104 p.

6. Nishonov B.A., Xolmatov M.T. Scientific foundations of organizing women's physical education // *Current Problems of Sports Science*. 2021. No. 2. pp. 45–51.

7. Seluyanov V.N. *Health-Improving Physical Culture*. Moscow: SportAkademPress, 2004. 272 p.

8. Verkhoshansky Y.V. *Fundamentals of Special Physical Training of Athletes*. Moscow: Physical Culture and Sport, 1988. 331 p.



9. Ivashchenko L.Ya., Strapko N.P. *Independent Physical Exercise Sessions*. Kyiv: Zdorovya, 1988. 157 p.
10. Abdullayeva B.P., Babarakhimova B.P. Using information and communication technologies in teaching physical education // *European Journal of Research and Reflection in Educational Sciences*. 2020. Vol. 8(10). pp. 67–70.
11. Platonov V.N. *Adaptation in Sport*. Kyiv: Zdorovya, 1988. 216 p.
12. Mishchenko V.S. *Functional Capabilities of Athletes*. Kyiv: Zdorovya, 1990. 200 p.