# Technology for implementing a physical training and health improvement program combining elements of aquafitness and uzbek national dance into the training process

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## Abstract

*Purpose:* To engage female students in mass sports using integrated elements of Uzbek national dance through aquafitness techniques.

*Methods:* Literature analysis, questionnaire survey, pedagogical observation, expert assessment, pulse measurement, pedagogical experiment, mathematical statistical methods.

*Results:* Classes were adapted taking into account the physiological, morphological, and psychological state of students and organized based on the principles of an individualized approach. For this purpose, aquafitness technology was utilized. In the classes, a health-promoting environment was created, stimulating physical activity through active games in the water, a specially designed set of exercises, as well as elements of musical national dance movements. This comprehensive approach served to develop psychomotor competencies in students such as movement culture, proper breathing, body control, muscle strength and endurance, as well as static and dynamic balance.

*Conlcusion:* The monitoring results showed that in the experimental group, indicators such as running speed, endurance, muscle strength, and flexibility significantly improved ($P<0.05$). Additionally, the respiratory system capacity, as measured by the Stange and Genche tests, as well as the functional state of the cardiovascular system, as indicated by the Rufe-Dixon index, demonstrated positive changes. In conclusion, it was found that combining elements of aquafitness and national dance is an effective approach to strengthening students' physical health, increasing their motivation, and fostering a healthy lifestyle.

**Keywords:** Aquafitness, national dance, physical fitness, morphofunctional indicators, health improvement technology, female students, sports pedagogy

## Introduction

In the world, strengthening the health of the younger generation, increasing their physical activity, as well as harmonizing physical education processes with highly motivated, socially significant activities, is increasingly recognized as one of the priority areas of modern global health policy. At the same time, negative factors such as physical inactivity, widespread prevalence of stressful lifestyles, emotional stress, and limited social activity, which are emerging in the technology-based digital environment of the 21st century, are considered among the factors posing a significant threat to the health of young people in particular. According to the latest global analysis published by the World Health Organization, the level of physical activity among young people aged 11-24 is insufficient, with more than 80% of them failing to meet the recommended minimum physical activity standards for health. This, in turn, is interpreted as one of the main factors disrupting the general health status, psychophysiological stability, and emotional well-being of young people. Therefore, in organizing modern physical education classes, along with traditional methods, it is considered an urgent issue to implement innovative health-improving technologies and increase their effectiveness by adapting them to the needs and psychophysiological characteristics of students.

## Results and discussion

To determine the physical development and morphofunctional state of students, the initial stage of the study conducted during the academic year revealed that all students in both the control and experimental groups were distinguished by their ability to maintain stability in the aquatic environment and possess basic swimming skills. However, due to the insufficient development of full swimming movement techniques and similar levels of general physical fitness, female students aged 18-21 with these characteristics were selected for the study.

The study was conducted during the 2023-2024 academic year, from September to May. A total of 72 female students studying at the faculties of foreign philology and natural sciences of the National University of Uzbekistan, Gulistan State University, and Urgench State University participated. During the monitoring process, the physical and morphofunctional indicators of the participants were systematically assessed, and statistical analyses were conducted based on the annual

dynamics of these parameters.

The natural massage properties of the aquatic environment had a positive effect on balancing muscle tone, reducing fatigue, and lowering stress levels. The sessions were conducted in specially equipped pools in accordance with sanitary-hygienic requirements and safety regulations.

In recent years, innovative approaches in the system of physical education and health improvement have been widely developing. One of these is aqua fitness, which is a safe and effective type of physical activity consisting of a set of exercises performed in an aquatic environment. The natural resistance of water strengthens muscles, develops coordination, and positively affects the cardiovascular and respiratory systems. At the same time, integrating elements of national dance with sports technologies allows for the development of psychomotor competencies, the instillation of national values, and the formation of positive motivation in students. The purpose of this study is to determine the impact of a health improvement program that combines elements of aqua fitness and Uzbek national dance on the physical fitness and morphofunctional state of female students.

The study was conducted during the 2023-2024 academic year with the participation of 72 female students aged 18-21 from the National University of Uzbekistan, Gulistan State University, and Urgench State University. They were divided into experimental group (EG) and control group (CG) based on random selection.

Experimental group - aquafitness classes (sports swimming elements + national dance movements)

Control group - standard swimming practice

Classes were held twice a week, 60 minutes each, for a total of 76 hours. Each lesson had a 3-stage structure:

1. Preparatory stage (6-10 minutes) - water adaptation and warm-up exercises;

2. Main stage (30-35 minutes) - endurance, strength, flexibility exercises and integration of national dance elements;

3. Final stage (5-8 minutes) - stretching, relaxation, breathing exercises and reflection.

Physical fitness tests:

3×10 m shuttle run, 50 m swimming, back-lying leg raises, flexibility test, hand grip strength, 60 m sprint, Cooper test.

Morphofunctional indicators:

Systolic and diastolic blood pressure, pulse rate, Stange and Genche breath-holding tests, Ruffier-Dickson index, body weight and height.

Mean values (x), standard deviation (σ), coefficient of variation (%) and Student's t-test were used for statistical analysis.

Physical fitness

In the experimental group, the performance in the 3×10 m shuttle run, 60 m sprint, and Cooper test significantly improved

**Table. Three-stage model of aquafitness training incorporating elements of Uzbek national dance**

| N | Training phase | Main content | Pedagogical tasks |
|---|---|---|---|
| 1. | Preparation | - Group formation<br>- Warm-up<br>- Adaptation to aquatic environment<br>- Breathing exercises | - Developing readiness for physical load<br>- Activation of body systems<br>- Reducing initial tension |
| 2. | Main | - A set of aquafitness exercises incorporating elements of national dance<br>- Perfecting movements to music<br>- Performing movement sequences<br>- Working in pairs and groups | - Development of physical qualities<br>- Formation of motor skills<br>- Integration with national culture<br>- Developing rhythm and coordination abilities |
| 3. | Concluding | - Relaxation<br>- Stretching<br>- Restorative breathing<br>- Self-reflection | - Reducing fatigue<br>- Restoring normal breathing<br>- Alleviating emotional stress<br>- Fostering a positive attitude |

(P<0.05).

The experimental group's results in muscle strength and flexibility were significantly higher than those of the control group.

Although the 50 m swimming performance showed positive dynamics, in some cases it did not reach the level of statistical significance.

Morphofunctional indicators

In the experimental group, the respiratory system capabilities significantly increased according to the Stange and Genche tests (P<0.05).

The Rufe-Dixon index showed a positive trend in the experimental group, with an improvement in the functional state of the cardiovascular system.

A decrease in body weight and heart rate was observed, indicating the metabolic effect of the wellness program.

In the control group, most indicators were limited to minimal and statistically insignificant changes.

## Conclusion

The obtained results showed that the combination of aquafitness and Uzbek national dance elements is an effective approach in the process of physical education. It not only improved physical fitness but also increased psychological stability, motivation, and social activity.The inclusion of national dance elements created a positive emotional atmosphere among students and enriched the classes from a cultural and educational perspective. This integrated approach aligns with the concept of "multimodal fitness" in international practices and allows for the application of Uzbek traditions to global sports practices.

The research results demonstrate that the program, developed by integrating elements of aquafitness and national dance, significantly improves the physical fitness and morphofunctional indicators of female students. As this program combines health-promoting, aesthetic, and sports components, it positively influences not only physiological indicators but also motivation and emotional state towards training. In this regard, it is recognized as an effective methodological approach that meets international sports and pedagogical standards.

The obtained results confirm that the program plays a crucial role in developing a healthy lifestyle, establishing regular physical activity among students, and strengthening their psychophysiological stability. This approach can be widely implemented in the future for female students in schools and colleges, as well as for adult audiences, serving to enrich the physical education process with national values.

Furthermore, organizing long-term monitoring studies to assess the program's effectiveness more deeply and adapting it to different age groups and educational institutions is considered an urgent scientific and practical task. On this basis, the integration of aquafitness and national dance elements can be recommended as one of the promising directions in the theory and methodology of physical education.

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