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EXPERIMENTS CONDUCTED ON OVERWEIGHT STUDENTS AND THEIR ANALYSIS

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Abstract
This article focuses on experiments conducted among students with excess body weight and the analysis of their outcomes. The study was carried out in three secondary schools in Andijan province. During the experiments, students’ physical activity, dietary habits, and psychological well-being were examined. The aim of the research is to identify effective approaches to addressing the issue of overweight. The findings contributed to developing recommendations for optimizing physical education programs and promoting a healthy lifestyle.

Keywords: Excess body weight, students, physical activity, healthy lifestyle, experiment, analysis.

Introduction

The Law of the Republic of Uzbekistan dated September 4, 2015, No. O‘RQ-394 “On Physical Education and Sports,” the Presidential Decree of the Republic of Uzbekistan dated January 24, 2020, No. PF-5924 “On Measures to Further Improve and Promote Physical Education and Sports in the Republic,” the Presidential Decree dated January 28, 2022, No. PF-60 “On the Development Strategy of New Uzbekistan for 2022–2026,” and the Resolution No. PQ-392 dated November 15, 2024, “On Fundamental Improvement of Physical Education Teaching in General Secondary Schools and Measures to Enhance the Professional Development of Physical Education Teachers,” along with other relevant normative-legal acts and social needs, have initiated significant reforms in restoring the health of overweight students in school environments, encouraging their physical activity, and improving individualized exercise programs. The resolution places special emphasis on increasing physical activity among youth, developing sports infrastructure, and promoting a healthy lifestyle. At the same time, the issue of excess body weight is becoming increasingly pressing among adolescents and young people. According to the World Health Organization, more than 20% of adolescents suffer from overweight or obesity, which increases the risk of various chronic diseases. In Uzbekistan, the growing prevalence of overweight among students, particularly in urban areas, is noticeable. This is attributed to modern lifestyles, unhealthy eating habits, and low physical activity. Consequently, scientific research aimed at addressing this issue is considered highly relevant.
This article analyzes experiments conducted among overweight students in schools in the Andijan region. The study examined the effectiveness of physical education programs, nutritional counseling, and psychological support. The relevance of the research lies not only

in improving students' health but also in contributing to the state strategy aimed at enhancing the quality of life for future generations.

Research objective

The objective of the research is to identify effective approaches to improving the health of overweight students by fostering physical activity and healthy eating habits.

Main research tasks.

The primary tasks of the research are as follows:

1. Identifying overweight students and assessing their physical condition. The students' weight status was determined based on the Body Mass Index (BMI), analyzed in accordance with World Health Organization standards (18.5–24.9: normal, 25–29.9: overweight, ≥30: obesity).
2. Developing and implementing physical activity programs. A 12-week physical education program was introduced in each school, including aerobic exercises, strength training, and flexibility exercises.
3. Analyzing eating habits and providing nutritional counseling. Students' eating habits were studied using questionnaires and food diaries. Specialists provided recommendations to optimize calorie intake.
4. Assessing psychological state and providing motivational support. Students' self-confidence and motivation were evaluated using psychological tests (e.g., the Rosenberg Self-Esteem Scale).

Table 1: Research Tasks and Implementation Stages

Task	Implementation Method	Duration	Expected Outcome
BMI Assessment	Weight and height measurement, BMI calculation	2 weeks	List of overweight students
Physical Program	Aerobic and strength exercises	12 weeks	Improved physical condition
Nutritional Analysis	Questionnaires and food diaries	4 weeks	Analysis of eating habits
Psychological Support	Tests and motivational sessions	8 weeks	Increased motivation

During the research, students' physical condition and eating habits were analyzed, and tailored programs were proposed. The physical education programs included 60-minute sessions three times a week, consisting of aerobic exercises (e.g., running, cycling), strength exercises (e.g., weight training), and flexibility exercises (e.g., stretching).

Nutritional counseling was based on age-appropriate calorie norms. For instance, the daily calorie intake for 14–16-year-old students was set at approximately 2000–2500 kcal. According

to questionnaire results, 65% of students consumed high-calorie fast food. Consequently, they were recommended to increase their intake of fruits, vegetables, and whole grains.

Psychological support included individual and group sessions to boost students' self-confidence and motivation for a healthy lifestyle. Tests conducted using the Rosenberg Self-Esteem Scale revealed that 70% of students had low self-esteem, which hindered their active participation in the program. Therefore, motivational sessions incorporated success stories and positive affirmation techniques. These tasks formed a comprehensive approach to improving students' health. The results are analyzed in subsequent sections using tables and graphs.

Research Methodology

The research was conducted in three general secondary schools in the Andijan region: School No. 34 in Shakhrikhan District, School No. 15 in Qo'rg'ontepa District, and School No. 35 in Andijan City. A total of 120 students aged 14–16 participated, with 60 in the experimental group and 60 in the control group.

Research Methods

1. **Quantitative Methods**:
   - **Body Mass Index (BMI)**: Students' weight and height were measured to calculate BMI.
   - **Physical Activity Tests**: A 6-minute running test and muscle strength tests (sit-ups, pull-ups) were conducted.
   - **Questionnaires**: Standardized questionnaires were used to assess eating habits and psychological state.

2. **Qualitative Methods**:
   - **Interviews**: Individual interviews were conducted with students and their parents.
   - **Observation**: Physical activities and eating habits were observed.

Research Stages

1. **Preparation Stage (2 weeks)**: Students' physical condition and eating habits were analyzed. BMI was calculated, and overweight students were identified.
2. **Main Stage (12 weeks)**: The experimental group received a physical education program, nutritional counseling, and psychological support, while the control group attended only standard physical education classes.
3. **Final Stage (2 weeks)**: Students' physical condition, eating habits, and psychological state were reassessed.

Statistical analysis was performed using the SPSS software. Students' BMI, physical activity, and psychological state indicators were analyzed using t-tests and ANOVA methods. To ensure reliability, all measurements were conducted using standardized equipment, such as digital scales for weight measurement and stadiometers for height measurement. Physical activity tests were supervised by professional trainers.

Table 2: Research Participants

School	Number of Participants	Experimental Group	Control Group
Shakhrikhan School No. 34	40	20	20
Qo‘rg‘ontepa School No. 15	40	20	20
Andijan School No. 35	40	20	20

During the research, students’ privacy was ensured. Written consent was obtained from parents, and the study was approved by the Andijan Regional Education Department.

Analysis and Results

The research results revealed clear differences between the experimental and control groups. The BMI of students in the experimental group decreased by an average of 2.5 units (from 27.8 to 25.3), while the control group showed minimal change (from 27.6 to 27.2).

Table 3: BMI Changes

Group	Initial BMI	Final BMI	Difference
Experimental	27.8	25.3	-2.5
Control	27.6	27.2	-0.4

Physical activity tests showed that the experimental group increased their 6-minute running distance by an average of 15% (from 450 m to 520 m). Muscle strength tests also showed significant improvement, with the number of sit-ups increasing from 20 to 28. Analysis of eating habits revealed that 70% of students in the experimental group reduced fast-food consumption, while fruit and vegetable intake increased by 40%. Psychological assessments using the Rosenberg Self-Esteem Scale indicated a 25% increase in self-esteem among the experimental group.

Conclusion and Recommendations

The research results demonstrate that promoting physical activity and healthy eating among overweight students can lead to significant improvements. The experimental group showed substantial progress in BMI, physical activity, and psychological state compared to the control group, confirming the effectiveness of the comprehensive approach.

Recommendations:

1. Expand physical education programs in schools, with greater emphasis on aerobic exercises.
2. Organize regular seminars on healthy eating for students and parents.
3. Implement psychological support programs through school psychologists.
4. Conduct annual medical check-ups to detect overweight issues early.

These measures will not only improve students’ health but also promote a healthy lifestyle.

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