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# PROPER DEVELOPMENT AND PREVENTION OF OVERWEIGHT THROUGH PHYSICAL ACTIVITY DURING PHYSICAL EDUCATION CLASSES

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**Abstract**

In today's world, childhood obesity is becoming increasingly common, even from an early age. Although the general public is aware that excessive body weight in children is not a healthy condition, it is rarely treated as a serious threat to health and quality of life. Childhood obesity can lead to long-term health consequences such as type 2 diabetes, cardiovascular disease, fatty liver, and other chronic conditions. In addition to physical complications, it also carries significant psychological consequences, including low self-esteem, anxiety, depression, and exposure to bullying and social isolation. This paper aims to explore the prevalence of childhood obesity, its consequences, and the need for early prevention through education, healthy nutrition, and physical activity.

Keywords: childhood obesity; physical education; physical activity; prevention; school interventions

## 1. Introduction

In modern society, one of the key areas of education is physical education from an early age. Physical activity refers to any bodily movement that contributes to improving or maintaining physical fitness, general health, and well-being. It is practiced for various reasons, such as strengthening the musculature and cardiovascular system, improving athletic abilities, regulating body weight, and preventing various health conditions.

Regular physical activity has a positive effect on the immune system and plays a crucial role in preventing so-called "lifestyle diseases" such as heart and cardiovascular diseases, type 2 diabetes, and excessive body weight. Beyond the physical benefits, physical activity significantly contributes to mental health by reducing stress and depression and boosting children's self-confidence.

For this reason, physical education from an early age is essential in today's modern lifestyle. Children spend increasing amounts of time in sedentary positions—at school, in front of televisions, computers, or mobile devices—which can lead to improper posture and the development of various physical deformities. Integrating physical activity into children's daily lives from the earliest age contributes to the development of healthy lifestyle habits, socialization through sports, reduced risk of deformities, character building, development of teamwork and friendships, and overall improvement of their health and well-being.

## 2. Theoretical Background of the Research

Childhood obesity is defined as excessive body weight relative to a child's height. Unlike adults, where obesity is typically measured using the standard Body Mass Index (BMI) formula, for children there are special growth charts based on age and gender that help determine whether a child is overweight. What is particularly important to emphasize is that obesity significantly shortens life expectancy and therefore represents a serious health risk—especially when it begins in childhood.

Obesity is considered one of the most insidious chronic diseases because its consequences are not immediately visible. A child may gradually gain weight without any noticeable effects, while health problems only emerge after years of the body being burdened with excess weight. In addition to the physical strain on the body, obesity disrupts sugar and fat metabolism and causes changes in certain hormones, further compromising the child's health.

Studies show that more than one-third of children aged six to eight—typically second-grade students—are either overweight or obese. Most of these children live outside the Skopje region. Although recent years have shown a plateau in the increase of overweight children, the situation remains alarming. Health professionals emphasize that the best prevention lies in healthy eating habits and regular physical activity, recommending at least one hour of daily physical exercise to maintain a healthy weight in children.

According to data from the Institute of Public Health (IPH), in 2016, 36.1% of all second-grade children (aged six to eight) were overweight or obese. In 2017, that figure rose to 37.4%, and in 2018, it was 36.9%. Looking only at the percentage of children diagnosed as obese: 17.9% in 2016, 16.9% in 2017, and 18.6% in 2018. According to the European Childhood Obesity Surveillance Initiative (COSI) of the World Health Organization (WHO), in 2016, North Macedonia ranked 10th out of 40 countries included in the study.

Preventing the development of obesity in children is now a global health priority. Since obesity is considered a multifactorial disease, effective prevention strategies must address all relevant aspects—personal, environmental, and socioeconomic. The early years of life are critical for the formation of habits, which is why preventive approaches must begin during this period to influence lifestyle choices and reduce the risk of becoming overweight or obese.

For young children, preventive strategies should primarily target parents and caregivers, as well as schools, the social environment, media, and the broader community. Since children spend a significant portion of their time in educational institutions, schools are an ideal setting for implementing interventions that promote healthy eating and an active lifestyle. Increasing physical activity in schools can be achieved by encouraging children to move and play during breaks and by expanding the number of mandatory physical education classes. In this way, the school becomes not only a place of learning but also a foundation for building a healthier and higher-quality life.

## 3. Research Methodology

### 3.1 Problem Statement and Research Overview

In recent years, the number of children with excessive body weight at the early stages of education has been steadily increasing, posing a serious health and social issue—both globally and within the Republic of North Macedonia. This growing trend is becoming alarming and clearly indicates the need for systematic research and the implementation of specific preventive and intervention measures.

### 3.2 Research Objective

The aim of this action research is to identify the key factors contributing to excessive weight among primary school students and to explore effective and applicable methods for increasing children's interest in regular physical activity. The research also aims to highlight the benefits of physical activity as a preventive tool, while proposing concrete activities that can be incorporated into the regular curriculum or extracurricular programs within schools.

### 3.3 Research Hypotheses

The main hypothesis of this research is that students' interest in physical activity is directly influenced by the human, financial, and organizational resources provided by the school. From this central hypothesis, the following specific assumptions emerge:

- There is insufficient investment in equipment necessary to attract students' interest and to foster a desire for increased physical activity.
- There is a need to develop organizational mechanisms and skills that enable the monitoring and evaluation of physical activity development among all students.

- Teachers should be better informed and educated about the benefits of physical education for students' health and its importance for their overall development.

### 3.4 Organization, Implementation, and Data Collection

The research was conducted in two primary schools in Bitola: *"Todor Angelovski"* and *"Kole Kaninski"*. Data was collected through student surveys, observation of their physical activity, and consultations with students' parents.

## 4. Challenges We Face

One of the major challenges is identifying effective methods to increase the motivation for physical activity among overweight students. These students often cannot perform all activities at the same intensity and pace as their peers who do not struggle with weight issues, which further hinders their motivation and active participation. Previous studies indicate that this is one of the key barriers to establishing regular physical activity within this group.

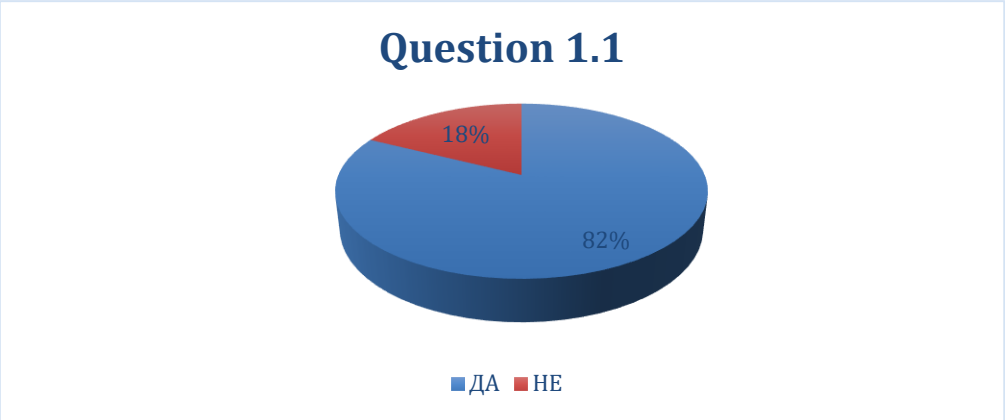
Teachers face the need for increased support—from both the school and the parents. With greater autonomy and more resources provided by the school, teachers would be able to more effectively focus on the individual progress of each student. This is especially important because each child has specific needs and varying physical capabilities, as well as different health conditions that must be considered when planning and implementing physical education lessons.

## 5. Analysis and Interpretation of Research Results

### 5.1 Analysis of the Initial Situation and Implementation of Interventions

To determine the current state of awareness regarding the risks and health hazards associated with excessive weight among students, a survey was conducted among teachers. The goal was to gather as much information as possible and gain insight into their perceptions and experiences related to the health issues of overweight students.

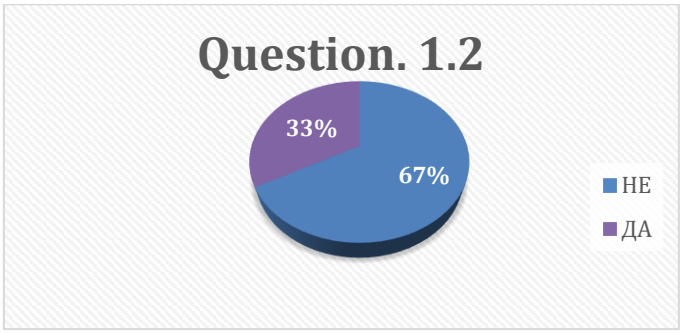
**Question 1.1:**
*"Do you believe that students with excessive body weight, given their current lifestyle and habits, are exposed to health risks and problems both now and in the future?"*




In response to this question, 82% of teachers stated that students with excessive body weight are at significantly higher risk of developing health problems, both in the present and in the future. In contrast, 18% believe that these students are not likely to experience any serious health issues.

**Question 1.2:**

*"Do you think that students with excessive body weight tire more easily or experience limitations when performing certain exercises or games during physical education classes?"*




According to the survey, 33% of teachers believe that overweight students tire more quickly and face certain limitations when engaging in various physical activities during physical education classes. On the other hand, 67% of teachers stated that these students do not experience significant limitations and do not fatigue more than their peers with normal body weight.

**Question 1.3:**

*"How important is physical activity for children in development in order to reduce excessive body weight?"*

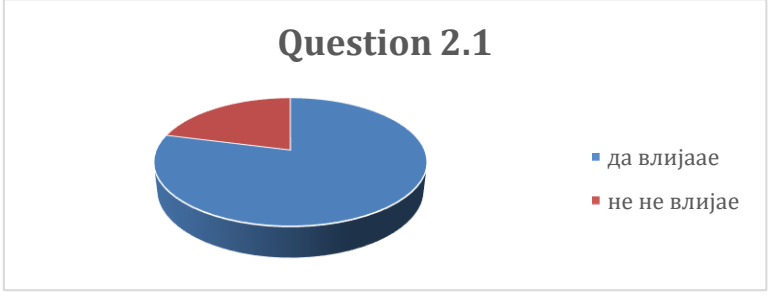



In response to this question, 86% of surveyed teachers agreed that physical activity directly contributes to the prevention of excessive body weight in children. Meanwhile, 14% believe that nutrition plays a more significant role in weight control.

The next survey we conducted focused on teaching methods and their impact on children. Three questions were included in this survey, the first of which was:

**Question 2.1:**

*"To what extent do you believe that the role of parents and teachers influences the fight against excessive body weight in students?"*



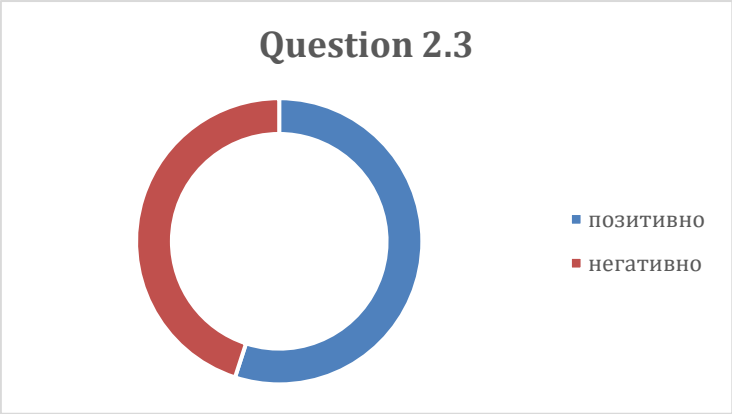
**Question 2.2:**

*"Do you think that students need more than 30 minutes of physical activity per day?"*

The survey results showed that 90% of teachers believe that students require more than half an hour of daily physical activity. Conversely, only 10% believe that 30 minutes of activity per day is sufficient to prevent excessive weight gain.

**Question 2.3:**

*"Do you believe that organizing additional physical activities would have a positive impact on children with excessive body weight?"*




In response to this question, 55% of teachers agreed that additional physical activities would positively impact children with excessive body weight. Conversely, 45% believe that increased physical activity might have a negative effect on this age group.

Based on the information and responses from the surveys, a plan was developed to establish open communication between the school, parents, and students. The goal was to consult with them regarding their interest and willingness to engage in physical activities that could positively influence the prevention of excessive weight and encourage children to participate more actively in physical exercise.

### 5.2 Analysis and Results of Interventions

The implementation of the interventions led to positive changes among the students, which can be observed through the following aspects:

- Students demonstrate a sense of involvement in activities, which motivates them to participate more actively.
- A sense of equality develops among all students, regardless of their body weight or physical abilities.
- Improvements in concentration and overall engagement during lessons are noted.
- Students gain greater self-confidence and begin to trust more in their own abilities.
- Social skills improve through team games and group activities.

From the school's perspective, the following outcomes were observed:

- Increased availability of resources and opportunities for physical activity.
- Active participation and commitment in the fight against excessive body weight among students.
- Promotion of overall health improvement and encouragement of healthy lifestyle habits within the school community.

## 6. Conclusion

According to estimates, there are more than 150 million children worldwide with excessive body weight, and if necessary, preventive measures are not taken, this number is expected to increase to 250 million by 2030. Physical education during the early years of primary education represents a fundamental phase in the development of a child's cognitive and motor skills. This initial phase forms the foundation for further success in education.

For more effective development of children at this age, the role of the physical education teacher is crucial, as they implement the educational process according to modern methods and principles. In many countries, this approach has proven successful, with a significant reduction in the percentage of childhood obesity and physical deformities.

The benefits of physical education are numerous and significant:

- Improvement of healthy growth and development in children.
- Development of daily habits for systematic exercise and body care.
- Prevention of physical deformities such as scoliosis, kyphosis, and others.
- Positive impact on the cardiovascular and respiratory systems.
- Strengthening of the musculoskeletal system.
- Encouragement of self-confidence, work habits, and persistence.
- Training for teamwork and development of respectful attitudes towards classmates.

During this period of primary education, parents also play an important role. Every parent should be fully aware of the importance of physical education in shaping their child's personal and psychological qualities. Parents should be regularly informed about their children's achievements in lessons and extracurricular activities to provide joint support for their development.

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### Appendix A: TEACHER QUESTIONNAIRE

This research is conducted at Primary School "Todor Anđeleski" – Bitola and Primary School "Kole Kaninski" – Bitola, with the aim to assess the current situation regarding physical education among students and the role of the physical education teacher.

The questionnaire contains questions that should be answered by circling the appropriate option, as well as providing comments, opinions, and suggestions. The collected information will be used exclusively for the purposes of this research.

Thank you for your cooperation!

**GENERAL INFORMATION**

**The questionnaire is filled out by:**

- Classroom teacher
- Physical education teacher

**Level of education:**

- Higher education
- Master's degree
- Doctorate (PhD)
- Other: _____

**Work experience:**

- Up to 10 years
- Up to 20 years
- Up to 30 years
- Over 30 years

**Gender:**

- Male
- Female

**RESEARCH QUESTIONS**

1. Do you think that students with overweight and their current lifestyle and functioning are exposed to health problems, both now and in the future?

- Yes
- No

2. Do you think that students with overweight get tired faster or have any limitations when performing exercises or games during class?

- Yes
- No

3. How important is physical activity for developing children in order to reduce increased body weight?

- Not so important
- Very important

4. Do you think that the role of parents and the role of teachers influence the fight against overweight among students?

- Influences
- Does not influence

5. Do you think that students need more than 30 minutes of physical activity daily?

- Yes
- No

6. Do you think that organizing additional physical activities would have a positive impact on children with overweight?

- Positive
- Negative

**PARENT QUESTIONNAIRE**

This research is conducted at the school to assess the current situation regarding physical education among students and to provide concrete recommendations for improvement.
The questionnaire contains questions to which you should respond by circling the appropriate answer, as well as provide comments, opinions, and suggestions. The information obtained will be used exclusively for the purposes of this research.
Thank you for your cooperation!

**GENERAL INFORMATION**

1. The questionnaire is filled out by:

- Parent of a child in primary school (lower grades)
- Parent of a child in upper primary school (higher grades)

2. Gender:

- Male
- Female

**QUESTIONS**

3. Do you agree that physical education classes should be conducted not only by the class teacher but also by a specialized physical education teacher?

- Yes
- No

4. If you answered "Yes," please explain why:

5. If you answered "No," please explain why: