ДРУЖЕСТВО НА КАРДИОЛОЗИТЕ В БЪЛГАРИЯ
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THE ROLE OF MUNICIPALITIES IN IMPLEMENTING THE NATIONAL PLAN FOR CARDIOVASCULAR HEALTH. THE EXAMPLE OF THE MUNICIPALITY OF TROYAN FOR THE PREVENTION OF CVD THROUGH RATIONAL NUTRITION OF CHILDREN AND MASS SPORTS

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РОЛЯТА НА ОБЩИНИТЕ В ИЗПЪЛНЕНИЕТО НА НАЦИОНАЛНИЯ ПЛАН ЗА СЪРДЕЧНОСЪДОВО ЗДРАВЕ. ПРИМЕРЪТ НА ОБЩИНА ТРОЯН ЗА ПРОФИЛАКТИКА НА СЪРДЕЧНОСЪДОВИТЕ ЗАБОЛЯВАНИЯ ЧРЕЗ РАЦИОНАЛНО ХРАНЕНЕ НА ДЕЦАТА И МАСОВИЯ СПОРТ

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Abstract. The first step in the successful implementation of the National Plan for Cardiovascular Health is the education of children and adolescents on proper nutrition and physical activity. A pioneer in the implementation of this philosophy is the Municipality of Troyan, through the implementation of the municipal program for nutrition and mass sports for children and students.

Key words: national cardiovascular plan, healthy lifestyle, diet, sport, overweight

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Резюме. Първата стъпка към успешното изпълнение на Националния план за сърдечносъдово здраве е образованието на децата и юношите относно правилното хранене и физическата активност. Пионер в прилагането на тази философия е община Троян чрез реализацията на общинската програма за хранене и масови спортове за деца и ученици.

Ключови думи: национален сърдечносъдов план, здравословен начин на живот, хранене, спорт, наднормено тегло

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Introduction

Cardiovascular disease prevention in Bulgaria

The Average life expectancy in Bulgaria is 68.3 years for men and 75.8 years for women, according to data from the European Society of Cardiology for 2020. 55% of deaths in men and 65% of deaths in women are due to cardiovascular diseases. A negative trend can be changed by controlling the risk factors leading to the development of hypertension, followed by the development of disability from CHF and stroke. This represents an opportunity for the prevention of cardiovascular diseases, such as hypertension and coronary heart disease, and diabetes mellitus as an already recognized vascular disease, and also metabolic diseases, hyperuricemia and obesity.

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Global growth in excess weight and obesity among children represents a significant public health challenge. Schools, a key social environment, can effectively influence the nutritional and physical habits of children, given the significant amount of time students spend there. School interventions can reach nearly all children and positively influence the socio-cultural and personal aspects of their environment, encouraging healthier habits. The inclusion of nutrition education in school meal programs, through practical lessons and promotion of healthy food, exerts a positive influence on dietary behaviour.

Physical activity programmes, such as regular physical education classes and extracurricular sports activities, are vital for encouraging healthy weight. Nutritional habits in schools are influenced by several factors, including the availability of food and drinks from vending machines and school shops, as well as the provision of nutrition education. In addition, schools can promote physical activity through structured programmes and mandatory physical education, including encouraging children to walk to and from school on weekdays. Schools are in a good position to encourage nutrition and physical activity and, in general, a healthy lifestyle.

Promotion of healthy nutrition – Bulgarian legislation on child and school nutrition

Order No. 6 of August 10, 2011, on healthy nutrition of children aged 3 to 7 years in children's facilities – in force from 15.09.2011, issued by the Minister of Health; published in the State Gazette No. 65 of August 23, 2011, amended and supplemented in the State Gazette No. 87 of November 5, 2019

Order No. 2 of March 7, 2013, on healthy nutrition of children aged 0 to 3 years in children's facilities and children's kitchens – in force from 01.09.2013; issued by the Minister of Health; published in the State Gazette No. 65 of August 23, 2011, amended and supplemented in the State Gazette No. 87 of November 5, 2019

SG. No. 28 of March 19, 2013, amended and supplemented SG. No. 85 of October 8, 2024.

Order No. 2 of January 20, 2021, on the specific requirements for the safety and quality of food offered in children's facilities, school canteens and retail facilities on the territory of schools and children's facilities, as well as for food offered at organized events for children and students - in force from 13.02.2021; issued by the Minister of Agriculture, Food and Forestry Promulgated by the State Gazette No. 8 of January 29, 2021, amended and supplemented by the State Gazette No. 84 of October 4, 2024.

In the State Gazette, issue 85 of 14.10.2025, Ordinance No. H-3 of 3 October 2025 of the Minister of Health was promulgated, which determines the requirements for ensuring healthy nutrition for students. With the adoption of the new ordinance, Ordinance No. 37 of 2009 on healthy nutrition for students is repealed.

The new Regulation No. H-3 on Healthy Nutrition for Students regulates the organization of student nutrition on the territory of schools, dormitories, sports, recreation and tourism facilities, personal development support centers, special educational support centers and other facilities, as well as the provision of food and beverages in a school environment, including through vending machines and catering services. The aim is to guarantee complete, diverse and safe nutrition for students, in accordance with their physiological needs and the principles of a healthy lifestyle

National programme for educating parents on healthy nutrition from the earliest days of a child's life, with the support of neonatologists and paediatricians in maternity hospitals and further guidance at children's health consultations.

- National program for training on students in primary and secondary school course for the benefits from healthy nutrition.
- By creation of a system of measures to encourage food suppliers and catering services in schools to become a model for healthy and balanced nutrition for adolescents.
- Update of food product regulations, revision of standards and reduction of sodium chloride content in food, with the option of partial replacement with potassium chloride. Reduction of sugar and saturated fat content.
- Introduction of a system of measures for clearer labelling of the caloric value of food products, as well as the quantity of sodium chloride, sugar, and saturated fats.
- Limiting advertising (especially in digital formats directed at adolescents) of foods and drinks with high fat, salt, and sugar content.

Implementation of measures to increase physical activity (Educational system, Ministry of Youth and Sports, Ministry of Health, local authorities)

- Improvement of physical culture and the development of motor habits among adolescents:

a. By strengthening the curriculum for Physical Education and Sports in middle school and high school, from 5th to 12th grade.

b. Information campaigns aimed at parents and adolescents on the benefits of physical activity and the harms of a sedentary lifestyle.

c. By strengthening the curriculum for Physical Education and Sports in bachelor's degrees programs in universities.

- Promotion of physical activity for all age groups at the municipal level through systematic promotion

of available sports and natural infrastructure, and the organisation of regular sports activities

• Encouraging employers to promote increased physical activity among staff, preserve existing good practices for an active lifestyle, and further develop them.

Program of the municipality of Troyan for healthy nutrition and mass sports as prevention against diseases in children

Back in 2013, at the initiative of the municipal leadership a workshop was held on the topic of „Problems of Children's and School Healthcare in Troyan Municipality", which discussed the comparative analysis of the health status of children and students in Troyan Municipality in 2012 compared to Lovech District and the country, the results achieved in ensuring rational nutrition for adolescents through children's dairy kitchens, children's and school canteen meals. Problematic topics and possible solutions to them were outlined in a discussion format.

As a result of the meeting, a Program for the Development of Child and School Healthcare in the Municipality of Troyan was prepared, which would identify the problems and outline the path to solving them through local health and preventive measures and activities for their implementation.

Development of healthy nutrition

Part of measures is the healthy nutrition of the growing population of Troyan and vulnerable groups of the population. The first step is to create a joint feeding of children - a children's milk kitchen and a mother's kitchen for preparing food for children from kindergartens in the municipality. The next step is the development of agricultural activities and management of municipal lands to provide ecologically clean fruits and vegetables to be used in the nutrition of children and vulnerable groups.

This initiative represents a genuine innovation within the country, combining two key components: sustainable health and social policy, and sustainable agriculture. Another significant innovation is the closed cycle of service provision – production of fruits and vegetables for direct consumption.

In 2017, a procedure for the exchange of good practices under the URBACT program was announced. Troyan Municipality was interested in the experience of the Municipality of Moin-Sartou (France) in providing organic products for children in kindergartens and educational institutions on its territory. The candidacy of Troyan Municipality as a partner in the network for the exchange of good practices was approved by the Municipality of Moin-Sartou (France), together with the Municipality of Rosignano Marittimo (Italy). In April 2018, the project was approved and launched. In the implementation of the project, Moin-Sartou shared its experience in the field of municipal agriculture, short food supply chains and healthy nutrition for children and students.

As an approach to adapting good practice to local conditions, Troyan Municipality has developed a system for its own production of vegetables and fruits. The intention is to organize the production of ecologically clean fruits and vegetables on municipal agricultural lands, which will provide part of the products for the nutrition of children and vulnerable groups using childcare and educational institutions and social services on the territory of the municipality.

In March 2019, on a municipal property with an area of 3 decares, the Municipality of Troyan established an apple orchard. The orchard is fenced and has an irrigation system installed. The choice of the type of fruit plantation was dictated by the fact that apples are the fruit that contains the most vitamins (A, B, C, E). They also contain trace elements (iron, copper, manganese), minerals (potassium, sodium) and a number of other substances useful for the human body. The orchard has 556 trees planted, of which 516 are apple trees of the fast-growing variety „Enterprise" and 40 pollinators of the variety „Golden Jena". The variety „Enterprise" was chosen because of its resistance to critical apple diseases. This will allow for fewer sprayings with preparations that are harmless to humans, and therefore cleaner agriculture. In this way, the idea of providing clean and useful fruits to children will be realized.

In addition to the apple orchard, Troyan Municipality created a plum orchard in 2013 as part of activity 4.2 of project BG161PO 001-1.1.10-0001 „Implementation of an innovative cultural event - Bulgarian Plum Festival". Plums of the „Stanley" variety have been planted on an area of 3 decares.

In November 2020, a greenhouse complex was created in the „Lug" district of Knezhki, Troyan (on the site of the former „Father Paisii" school), comprising:

• Three „Tunnel" type greenhouses, each with dimensions of 8 m wide, 25 m long, 3.50 m high, a covered area of 200 sq m and an irrigation system. The vegetables produced will be able to provide about 500 portions, which will satisfy the needs of the united children's nutrition;

• Two arable fields, each with an area of about 200 sq m. for open-air vegetable growing;

• A service building, including a utility room with a bathroom, a warehouse for inventory, two cold storage rooms – one for storing greenhouse production and the other for storing orchard production, with a room between them for preparing finished products for storage;

• In 2021, an apiary was created with 5 bee colonies, one of which was a donation.

Since August 16, 2023, Troyan Municipality is already a registered agricultural producer and holds Certificate No. 1899/20.02.2023 for a registered livestock facility: apiary. The greenhouses produce salads and onions (spring and fall), tomatoes, cucumbers, peppers, and spices annually. In the open arable fields, zucchini, pumpkins and potatoes are produced.

The vegetables are grown without artificial fertilizers and chemicals. Only manure is applied before each planting, and the sprays used when necessary are organic. Plums are used both for fresh consumption and for marmalade, without sugar and preservatives, sealed and sterilized in jars. The apples are stored in the cold storage rooms of the greenhouse complex and are used for fresh consumption and desserts. Both the marmalade and the honey produced are necessarily tested by a laboratory with an Accreditation Certificate, which is certified by a test report.

The produced fruits, vegetables and honey are used for the needs of the United Children‘s Nutrition for kindergartens. They are also provided to kindergartens in the municipality that are not covered by the united nutrition, as well as to Home Social Patronage, Home for the Elderly - Dobrodan village. We are working hard to make this good practice work for united nutrition in schools on the territory of the Troyan municipality.

Beyond being a valuable educational approach that raises children‘s awareness of the importance of food quality, the organic school garden takes on its full meaning when children are able to taste the products they have grown. The fact that meals can be prepared from children‘s own produce encourages them to eat more fruits and vegetables, as they take pride in trying what they have grown. In this sense, the organic school garden makes the gardening experience complete and authentic.

In practice, consuming fruits and vegetables from the school garden can change children‘s attitude towards them. While many children generally struggle with eating fruits and vegetables, those who have the opportunity to plant and follow the progress of their own crops are more likely to embrace eating fresh produce directly from the garden. In short, nurturing a healthy lifestyle begins with changing the way we eat.

The results of this innovative policy for Bulgaria are that children from the Troyan municipality have much better indicators in terms of physical development, obesity and diabetes than children in other municipalities of the Lovech district (according to the latest analysis of the health status of children from the RHI – Lovech). The French Municipality of Moan Sartu, the inspirer and partner in the project, which can be tentatively called: Education for a healthier life through healthy eating, does not provide information about changes in the health status of children.

DEvelopment of mass sports

A priority in the policy of the Troyan municipality, in addition to healthy nutrition, is the development of children‘s and youth sports and high sportsmanship, not only because of the natural conditions that our picturesque mountain town offers, but also with the long-standing traditions in the field of winter, team and combat sports. There are many athletes that we are proud of, and behind each of their achievements are the work of local clubs, the unreserved support of Troyans and the joy at every worthy performance of our athletes. There are 26 licensed sports clubs registered in the Troyan Municipality, all of them are also engaged in children‘s and youth sports. The number of children actively involved in sports, regularly registered in sports clubs is nearly 900, which constitutes 37% of children of active sports age.

The „Learn to Ski“ programme is not simply a training course - it is a way of inspiring children to engage with sport. This is a wonderful initiative by the Bulgarian Ski Federation, together with the Ministry of Youth and Sports and the Ministry of Education and Science. The Municipality of Troyan is proud to support it. Together with the „Sima“ Ski Centre, everything necessary is provided, from the slopes at Beklemeto, to medical services, ski instructors, and full equipment, so that children can learn in a safe and comfortable environment.

The programme is now in its seventh consecutive year, and interest continues to grow with each passing year. This year, 188 children participated - 148 from Troyan and 40 from Lovech. In the cross-country skiing discipline, 140 children were trained, and in alpine skiing - 48. We additionally support the participation of five more children, because we believe it is important that no child is left out of this opportunity. The programme includes students from almost all schools in the municipality: Primary School „St. Cyril and Methodius“, Primary School „Hristo Botev“, Primary School „Ivan Hadzhiyski“, Primary School „Vasil Levski“ (Troyan), Primary School „St. Kliment Ohridski“ (Troyan), Primary School „Vasil Levski“ (Cherni Osam village), Primary School „Vasil Levski“ (Oreshak village), and Primary School „Vasil Levski“ (Borima village). We look forward to the training continuing through the end of February, weather permitting. „The training is free — and that is the best thing about this programme.“ Children simply submit their applications to the Municipality, which then informs all schools .The result of the development of mass sports is the transition to the development of high sportsmanship. There are two biathlon clubs in Troyan, Ajax and Ambaritsa. Five of the twenty participants in the Olympics in Milan Cortina are from these clubs. The Bulgarian Olympic medal in biathlon belongs to Lora Hristova, a graduate of the Ajax club.

Since 2021, the „Start Swimming“ initiative has also been launched, through which children of all ages receive their first swimming lessons from the Invictus Swimming Club in Pleven at the school pool of „St. Kliment Ohridski“ Primary School. Over the past 2022, over 600 students have received free training in various styles, with a large number of them subsequently continuing to train at the club.

The conditions for all sports clubs are being improved and children are offered maximum access to sports events and competitions, which will improve their overall physical activity.

Analysis of the results obtained from the health status assessment

Comparison of the health status results for Lovech District and Troyan Municipality

1. The introduction of a unified nutrition programme for children from 1 to 6 years old in the Municipality of Troyan, with menus incorporating organic products (fruits, vegetables, and natural sweets) and “clean“ food produced through the municipality’s own agricultural infrastructure, reduces the risk of obesity and excess weight in the youngest age groups.

2. For the municipality, those suffering from diabetes mellitus are under 1 %, compared to 2.36% for the district.

3. Obesity is not a problem for students in Troyan Municipality. This is a result of the municipality‘s targeted efforts over the past 10 years to introduce healthy eating among children and students. Another factor is the opportunity provided for physical activity among adolescents, developed mass sports, sports schools in schools, various sports clubs operating on the territory of the municipality. The number of obese students in the municipality is three times lower than in the district.

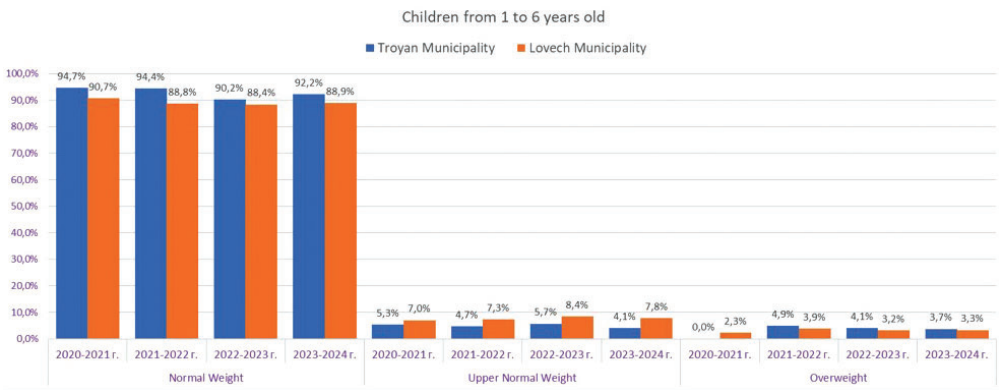
4. The relative share of students with diabetes in the municipality is three times lower than that in Lovech district.

5. The height and weight indicators of students in the municipality are better than those in the district.

These analyses are reflected in the following two graphs.

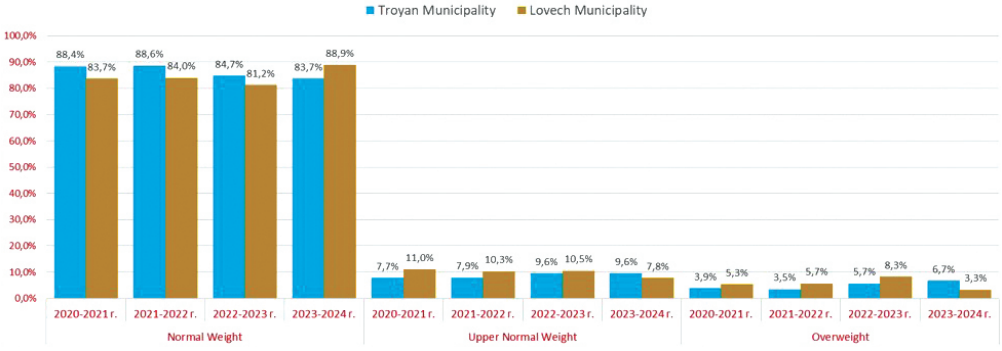
Children from 1 to 6 years old

	Normal Weight				Upper Normal Weight				Overweight			
	2020-2021 г.	2021-2022 г.	2022-2023 г.	2023-2024 г.	2020-2021 г.	2021-2022 г.	2022-2023 г.	2023-2024 г.	2020-2021 г.	2021-2022 г.	2022-2023 г.	2023-2024 г.
Troyan Municipality	94.7%	94.4%	90.2%	92.2%	5.3%	4.7%	5.7%	4.1%	-	4.9%	4.1%	3.7%
Lovech Municipality	90.7%	88.8%	88.4%	88.9%	7.0%	7.3%	8.4%	7.8%	2.3%	3.9%	3.2%	3.3%



Students from 7 to 19 years old

	Normal Weight				Upper Normal Weight				Overweight			
	2020-2021 г.	2021-2022 г.	2022-2023 г.	2023-2024 г.	2020-2021 г.	2021-2022 г.	2022-2023 г.	2023-2024 г.	2020-2021 г.	2021-2022 г.	2022-2023 г.	2023-2024 г.
Troyan Municipality	88.4%	88.6%	84.7%	83.7%	7.7%	7.9%	9.6%	9.6%	3.9%	3.5%	5.7%	6.7%
Lovech Municipality	83.7%	84.0%	81.2%	88.9%	11.0%	10.3%	10.5%	7.8%	5.3%	5.7%	8.3%	3.3%



Development perspective: Creation of a mother kitchen that will provide dietary nutrition according to the principles already outlined for all students until the completion of the high school course. Currently, the „St. Kliment Ohridski“ school is undergoing reconstruction, during which a central kitchen is being built where meals will be prepared for all students through to the end of the high school programme.

Summary of the report: The creation of the National Plan for CVD is necessitated by the high number of patients with these diseases in Bulgaria, followed by the large number of complications leading to disability and mortality. All this leads to a low life expectancy, the lowest compared to other European Union countries, and a low quality of life.

We have a low mortality rate in patients with ischemic heart disease and acute coronary syndrome, but the number of patients is not decreasing. In cerebrovascular disease, we are leaders of the negative trend of many patients who are inadequately treated and subsequently disabled.

All this can only change with early prevention, including education through the example of healthy eating in childhood and adolescence, which continues throughout life – creating a need and healthy habits for physical activity and mass sports.

Troyan Municipality proves in practice that municipalities can play a leading role in the approval and implementation of the National Strategy for the Promotion of Healthy Eating and Nutrition. It provides an example of how, by creating a system for healthy eating for children of kindergarten and primary school age and mass sports, the number of overweight and obese children and those with diabetes can be reduced.

The municipality has created a mother kitchen where food is prepared according to the requirements for healthy eating. The fruits and vegetables come from the municipal orchard and greenhouse, where organic farming is practiced.

Schools are a priority setting for obesity prevention efforts because they reach the majority of school-age youth. They provide regularly scheduled opportunities for physical activity and offer nutritious foods in school meal programs.

Schools can adopt school and extracurricular programs, policies, and practices that are cost-effective and resource-saving, helping students:

- Eat more fruits and vegetables.
- Consume fewer foods and drinks high in added sugars or solid fats.
- Increase the daily number of minutes of physical activity.

In-person learning offers children ongoing access to physical activity, healthy nutrition, and services from school nurses and counsellors. This holistic approach supports obesity prevention for all students. A comprehensive school-based strategy is particularly effective among elementary and middle school students, though evidence on the most effective approaches for teenagers remains more limited.

A holistic approach means regularly addressing nutrition and physical activity in schools. It can involve school nurses, parents, caregivers, and other community members, such as pediatricians and after-school program providers.

- The holistic approach supports the health and well-being of all students.
- Students are not discriminated against based on their weight or body size.
- Overweight and obesity are sensitive issues for students and families and should be addressed with compassion, understanding, and care.

School-based programs to promote physical activity and improve nutrition quality have not been shown to increase depression, anxiety, or body dissatisfaction. However, it is important to note that many studies do not collect information about these adverse effects. The good results provide grounds for the next stage of developing the program and covering all children and young people of school age.

No conflict of interest was declared

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