



Innovative teaching methodology of health friendly nutrition development and practice in pre-primary and primary education (HealthEDU) Project ref. No.:2016-1-LT01-KA201-023196

## **RESEARCH AND ANALYSIS OF THE LEGAL AND FACTUAL STATUS AND PROBLEMS IN THE SPHERE OF NUTRITION OF CHILDREN AT THE AGE OF 4 TO 10 YEARS OLD IN BULGARIA**

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### **1. Introduction**

Nutrition is of major importance for the proper development and growth of the child. It can be considered as the main precondition for the good health and the appropriate physical and psychological development. Proper nutrition increases the defense functions of the body, thus helping it to counteract not only to various chronic diseases, but also to the negative influences of the environment. The importance of proper nutrition is further fortified by the fact that at this early age the children shape up their physique, metabolism, their abilities for reasoning, analyzing and adapting to life. This is also the age at which are shaped up their attitudes towards the various foods (for example with less fat, salt and sugar) and the feeling of enjoyment from eating: the children build their eating habits, which can greatly influence their behavior in relation to food in the later stages of their life.<sup>1</sup>

More and more often the children tend to eat an unbalanced diet – they consume an insufficient amount of nutrients, or the opposite – too much.

Malnutrition can lead to slowing growth, lagging of the physical development, weakening of the immune system and worsening of the general physical condition and health.

During the last several decades we have witnessed processes of intensified physical and psychological human maturation, compared to previous generations. Together with sun radiation, the improved socio-economic conditions and the changes in the gene-fund, as preconditions for the appearance of this phenomenon, the scientists also point out the way of eating and the nutrition habits, which are being formed at an early age in childhood. The increased consumption of food, which is high in calories, which makes you feel food, but which lacks in protein, vitamins and minerals, combined with low physical activity can lead to obesity and over-weight among the children. This in most cases is a predisposition in weight problems at a later age. To go even further, epidemiologic researches establish that there is a connection between the intake of fats, saturated fats and cholesterol and a number of socially important chronic non-infectious diseases, related to nutrition – obesity, hypertonia, diabetes, metabolic syndrome, as well as the increased risk from cardio-vascular diseases.

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<sup>1</sup> **National center for protection of public health.** *Recommendations for healthy nutrition of children at the age of 3 to 6 years old in Bulgaria* [online]. Sofia, 2008, page 3 [Reviewed on 07.11.2016]. Accessible from: [http://ncpha.government.bg/files/3Preporiki\\_3-6\\_g.pdf](http://ncpha.government.bg/files/3Preporiki_3-6_g.pdf)



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The results from the national research on nutrition of infants and children of up to 5 years old and their raising in the families, implemented by the National center for protection of public health in 2007, present the most recent reliable information on the topic of nutrition of small children in Bulgaria. There are a few substantial problems in the feeding of children at the age of 3 to 5, such as high intake of sodium and a risk of thiamine, vitamin B12, folate, iron and calcium deficit. Nutrition of children up to 5 years old provides them with a normal intake of energy and protein. However, at the age of 3 and 4 there is increased intake of fats and insufficient consumption of carbs. 34% of the children at that age consume considerable amounts of soda drinks containing lots of sugar. The low consumption of milk and dairy products, as well as fish and whole-grain foods, is considered a serious problem. Comparing the results for the same age group obtained at an earlier research – from the year 1998 – outlines some positive trends, such as increased intake of fruits and vegetables, as well as the lower consumption of sugar and sweetened foods. The nutrition status of the small children, evaluated by means of the anthropometric indicators height and weight, demonstrate lagging in the reaching of the average height for the respective age. Children from 1 to 5 can also be considered as a risk group as far as weight is concerned. Some of the risk factors for this, outlined by the research, are the low education level of the mother, the low family income, single parenting or smoking during pregnancy.

The data from the last representative study of nutrition of students in Bulgaria (2010-2011), implemented by the National center for public health and analyses and Department “Pediatrics” at the Medical University of Sofia demonstrate that the nutrition of students in Bulgaria does not meet the contemporary recommendations and requirements for healthy eating. A high percentage of the students consume sweets once or more times per day (cakes, sweets, baklava) – 20,4%, chips and other types of snacks – 12,8%, pastry (pizza, cakes, patties, etc.) – 32,3%. Soda drinks, containing sugar, are consumed more than once a day by 20% of the students, while energy drinks - 7% of the interviewed children. Less than once a month consume: fish – 18% of the students, and fresh fruits and vegetables – 5,6%. 25% of the overweight children state that they consume pastry and potato chips more than once per day, while 57,3% state that they drink sodas once (32,8%) or more times a day (24,5%). 34% of the overweight children do not consume fresh fruits, while 32% - wholegrain bread. The data from a national representative research among students at the age of 6-19, conducted during 2010-2011 demonstrate that 30,2% of the studied students are overweight, out of which obese are 12,7%. Comparison with older data defines a worrying obesity trend among the children in Bulgaria.<sup>2</sup>

The consumption of grain products and more specifically bread among the children in Bulgaria is traditionally high. The most frequently consumed are the white bread and the “Dobrudzha” bread, and not the wholegrain bread, which Bulgarian children avoid or consume very rarely. Even if the food pyramid has grains in its basis, one of the negative trends in nutrition of Bulgarian children is the high intake of pastry, which introduces high amounts of fats in the young bodies.

Children at the average age of 7-10 years old consume an average amount of 70 gr. / day, which is within the recommended limits for whole-day nutrition in the country. The worrying trend is that most of the children consume these potatoes fried. From the graphic representative of the amounts and types of foods in the shape of a pyramid, it becomes obvious that the grain foods and the potatoes represent about

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<sup>2</sup> National center for public health and analyses. *National research of the nutrition status of students*. Sofia, 2010-2011.





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43% of the total quantity of food, which corresponds to the recommendations of the WHO. The trouble comes from their exuberant consumption, generating a high quantity of fats.

The data concerning the nutrition habits of the children in Bulgaria present an alarming trend, directly related to the influence from the family and social environment. This presupposes the conducting of a serious policy for promotion of healthy nutrition among the children and the forming of healthy eating habits in the school and family environment. As a result of the great vulnerability of children as far as the marketing pressure, directed towards them, efforts should be made for the lowering of the influence of commercials and the merchandizing of foods, which are high in sodium, trans-fats, sugar and salt.

The impaired nutritional status of Bulgarian children and the diseases, which this provokes, can be prevented through the implementation of a uniform, coordinated, multi-sectoral national policy. Personal responsibility is important for sure, but considering that young children cannot define by themselves what foods they should consume, the parents, kindergartens and schools play an important role in the shaping of healthy eating behavior. The level of awareness on the subjects related to healthy eating is also of great importance. Such awareness can be achieved through the introduction of special education with healthy nutrition focus delivered to children at a very young age or through provision of detailed information on the topic in the various school subjects and in the games, which are played at kindergartens.

In order to establish the principles of healthy nutrition in the schools and kindergartens, the Ministry of health issued Regulation № 6 as of 10 August 2011 for the healthy nutrition of children at the age of 3 to 7 years old and Regulation № 37 as of 21 July 2009 for the healthy nutrition of students. On the other hand the Ministry of agriculture and foods elaborated Regulation № 9 as of 16 September 2011 for the specific requirements towards the safety and quality of foods, provided in kindergartens and school canteens and the retail food shops in the schools, as well as towards foods and drinks offered at organized events for children and students. The Ministry of agriculture and foods also implements the European policy for better public health through the realization of the "School fruit" and "School milk" programmes. The "School fruit" scheme has the purpose of changing the tendency for lower fruit and vegetable consumption, increasing the consumption of fruits and vegetables among the children, as well as develop and encourage healthy eating habits, which the children can preserve as adults. The scheme "School milk" has the purpose of encouraging the consumption of milk and other dairy products, thus also improving the healthy eating habits of the children.

In addition to those has been developed and printed a "Collection of recipes for the school canteens and buffets", which gives practical directions for the observance of the contemporary requirements for healthy nutrition of children.

The issues related to healthy child nutrition have also been integrated in the National health strategy (2014-2020), which represents a leading strategic document, specifying the objectives of healthcare development until 2020. One of the main strategy priorities is Priority 1. Development of conditions for good health for all during the entire life. Policy 1.2. Health for children and youngsters (from 1 to 19 years old), which is a part of this priority, is a reflection of the understanding that the care for the health and development of children is an obligation of their parents, the state and the institutions. The included measures are focused on implementing an integrated approach for the sake of the children's health, the main determinant of which is none other than the healthy nutrition. The real implementation of the strategy takes place via a combination of management approaches and joint initiatives of the health system and the other public sectors with the objective of encouraging the health and welfare of Bulgarians.



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Another policy that policy makers establish in the strategy is Policy 3.1. Promotion of health and disease prophylactic, the measures of which are directly focused on: multi-sectoral cooperation and the inclusion of nutrition in the efforts for implementation of economic effective actions for encouraging healthy eating; promotion of healthy and balanced nutrition during all stages of life through the development of a supportive environment; development of a surveillance system, monitoring, evaluation of determinants through studying the nutrition status at a population level.

In its urge to initiate various approaches for improving child health, the Ministry of health sought the cooperation of the Ministry of education and science, recommending it to work on encouraging schools and kindergartens to establish an environment supporting health, as well as to provide to their children and students knowledge and information on the benefits of good health. The integration of health-educational programmes in kindergartens and schools should lead to the formation of individual responsibility towards the health and way of life of the children. Because of this the Ministry of education and science is about to broaden its active health-educational programmes in the sphere of personal hygiene, food and healthy nutrition, harmful personal habits, health risk factors of the environment, harmful effects of medications, etc. The long term results from school health education would be remarkably successful even if just a part of the negative behavioral patterns are removed.

The National health strategy 2020 makes an appeal for collaboration and recommendations also towards the Ministry of agriculture and foods. The main activities, which the MAF should carry out take the form of guaranteeing the mass consumption foods safety as well as the safety of the production and merchandising of milk and dairy products, meat and meat products, vegetables and fruits in compliance with the EU standards. It is the MAF responsibility also to implement systematic control over the adding of unregulated preservatives, colorants, taste intensifiers and other substances of this kind in foods and beverages.

Children's health is a main priority also in another strategic document – the National programme for improvement of the mothers' and children's health 2014-2010.

The provision of access to adequate and healthy nutrition to the children is a responsibility not only of the parents, but of society as a whole. In connection with this, the Ministry of healthcare in general and in particular the National center for public health and analyses elaborates national recommendations for healthy nutrition of children at the age of 3 to 6, which, considering the age of the children, is mainly brought to the attention of their parents.

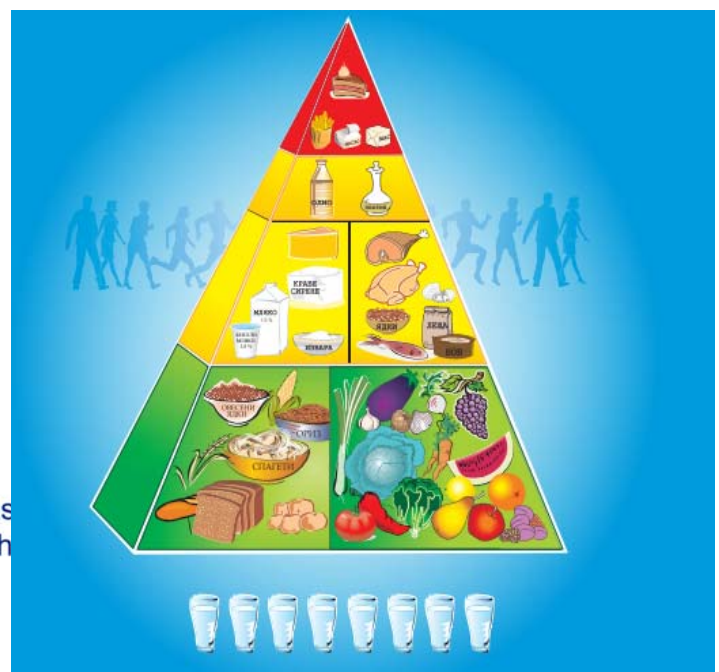
#### **Offer nutritious and varied food to the children.**

In order for them to be healthy, to grow and develop normally, children should consume well balanced and varied menu, which means meals that provide all the necessary nutrients in the amounts, which are adequate for the age. In general foods can be divided into six groups, depending on the nutrients they are richest in:

- 1) Grains (bread, rice, pasta products, corn, oatmeal, cereals) and potatoes;
- 2) Fruits and vegetables;
- 3) Milk and dairy products;
- 4) Meat, fish, eggs, beans and nuts;



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- 5) Added fat (butter, grease, sunflower oil, corn oil, olive oil and others);
- 6) Sugar, sweets, products of the sugar industry.

In order to guarantee variety of the consumed foods, the menu should include representatives of the first four groups.

It is advisable that the consumption of added fat and sweets is limited, because these lead to obesity. In addition to eating various foods, it is also important for the children to eat regularly – 4-5 times a day, because the regular intake of food has positive effect on digestion, prevents consumption of exuberant quantities of food at one time and the extra pressure on the digestive system. Good appetite would be a fact if we create a fixed eating regime, and not offer them snacks at random moments during the whole day.

**Add grain foods and/or potatoes to the children’s menu several times during the day.**

Grains (bread, pasta, rice) and potatoes are an important energy source due to being rich in starch and they should be at the basis of each main meal – breakfast, lunch and dinner. Wholegrain products (bread, wheat, corn, oats and others) contain vegetable fibers, vitamins from group B and a number of minerals. The fibers, which are contained in the coat of the grain stimulate the functioning of the gastrointestinal tract. Bread from wholegrain flour should be added to children’s menu starting from age two and gradually increasing its portioning. At the age of 4 to 6 half of the consumed bread should be wholegrain. Consumption of pastry products rich in fats, such as fried bread with eggs, banitsa and other similar foods, should be lowered to the possible minimum.

**Provide the children with various vegetables and fruits on a daily basis and preferably raw.**

Vegetables and fruits are particularly important for healthy nutrition, because they are rich in vitamins, minerals and biologically active substances. They are also the main source of vitamin C. Their energy value is really low due to the high amount of water. Still they are rich in fibers – cellulose, pectin – and contain almost no protein and fats. The regular intake of fruits and vegetables is important for the growth and development of the children and, in addition to that, lower the risk of gaining weight and becoming obese.

It is advisable for the children to eat vegetables and fruits several times during the day, if possible after each meal. The vegetables offered to the children should be varied and seasonal, which can be achieved through the inclusion of various yellow-orange types (carrots, pumpkin, tomatoes, peppers), green leafed vegetables (spinach, lettuce, green onions), green beans (peas, green beans), cabbage vegetables (white and red cabbage, cauliflower, broccoli, Brussels sprouts) and others. The fruits, which can be offered, include apples, pears, citrus, strawberries and other berries, melons, apricots, peaches, plums and many others. Obtained during the respective season, which they are characteristic for, the vegetables and fruits have best quality and composition.

The vegetables can be offered to the children raw and whole, or as a part of various meals, in soups, sandwiches, as a side dish or in the shape of purees and juices. The fruits can be whole, cut, grinded, served as a salad, as ingredients of creams, with grain or pastry snacks, as shakes or fresh juices. It is advisable that the fruits and vegetables are consumed raw, because thermic treatment destroys a part of the vitamins they contain. If it is not possible to provide raw fruits and vegetables, it is advisable that they are provided to the children frozen or preserved. The preserved fruits and vegetables should have no added sugar (for the fruits) or salt (for the vegetables). Uncut fruits and vegetables should be preferred before juices, because thus they preserve their healthy fibers.

Quite often the children dislike vegetables, which is why the personal example is really important, because children tend to eat the foods, which their parents or their friends consume often and with



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pleasure. If the child refuses to eat a certain vegetable, this food can be offered to it again after a certain period of time. Often a type of food that had been rejected by the child a few days ago today is eaten with pleasure. Quite a lot of children dislike hard and large vegetables, which means that the latter should be offered in a more attractive way to the children, as well as in smaller portions, with some tasty seasoning or as a side to some other favorite food, such as chicken for example. It is also quite favorable when the child has a chance to get to know the respective vegetable or fruit by participating in its purchase or picking from the garden, as well as in its cooking or preparation for eating. The intake of fruits and vegetables must be guaranteed by a minimum of 300 grams vegetables and fruits daily for children at the age of 3 to 5 years old and 350 grams daily for children at the age of 5 to 7.

**Offer milk and dairy products that are low in fat and salt on a daily basis.**

Milk and dairy products are very important foods for all ages and in particular for the youngest age of all. The publicly circulating theories about the negative influence of milk do not reside on any scientific grounds and are entirely untrue. Milk and dairy products are the best source of easily absorbable calcium, which on its part, is extremely important for the construction and good condition of children's bones and teeth. In addition to calcium, milk and dairy products are also rich in nutritious proteins, vitamins A and D as well as the whole array of vitamins from the B group.

Yogurt is very good for children's health and not only. The bacteria in the yogurt improve the digestive process, stimulate the bowel movements and improve immunity. They prevent the bad bacteria in the intestines to multiply and thus limit the cases of gastrointestinal disorders, as well as the duration and severity of those, if they take place. Yogurt could go together with slices of fresh or dry fruits, as well as freshly squeezed fruit juice. Fresh milk can be offered to the children not just for drinking, but also as a part of purees, soups and desserts. Fatty milk and cheeses, as well as cream however can generate a large amount of fats, which can be a precondition for gaining weight. This is the reason why after the age of three, the dairy products served to children need to be low in fat. At the age of 5 and 6 year olds it is recommended that the yogurt or milk consumed has 1,5-2% fat and the same goes for the cheese, which is preferable cow cheese and not sheep cheese. There is also a recommendation for lower cream consumption.

Salt is bad both for the adults, as well as for the children, which is why the cheeses they are fed should be low in salt. This could be done also by extracting a part of the excess salt by placing the piece of cheese in some water. The milk intake is guaranteed by a daily offering of a minimum of 350 grams of yogurt or fresh milk and a minimum of 25 – 30 grams of white and/or yellow cheese.

**Choose meats that are low in fat, replace meat and meat products with fish and beans.**

Meat, fish and eggs as well as all their vegetable equivalents, such as beans, lentils, nuts, are sources of iron and protein. This food group is important for the children's growth. The iron, contained in meat and fish is easily absorbable and helps the prophylactics and prevention of iron-deficit anemia. A number of vegetable foods, such as for example wholegrain foods, beans, lentils, wheat, spinach, nettles, onions, nuts, prunes, apricots and raisins are also rich in iron, which however is not as absorbable.

Iron coming from vegetable foods is easier introduced into the intestines with the help of vitamin C, which is quite abundant in green leaf vegetables, peppers, cabbage, broccoli, citrus, kiwi, strawberries and others. The absorption of iron coming from vegetable foods is improved also with the help of organic acids (lemon, yogurt), which are contained in citrus fruits and in dairy products. Consuming a balanced amount of meat together with the vegetable foods increases the speed of absorption of the iron within. Thus, the iron contained in spinach is used up by the body to a much greater extent, if it is eaten together with meat,



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yogurt or citrus fruits. Green tea and black tea contain phenolic compounds, which interact with the iron from vegetable foods, making it thus harder to absorb. Calcium in fresh milk also slows the processes of iron absorption. Because of this it is recommendable that teas and fresh milk are introduced one or two hours after the intake of vegetable foods that are a source of iron.

Fat meats and salami are characterized with a high content of fats and saturated fat acids, which increase the level of cholesterol in the blood, which is why their intake should be limited from the youngest age. Instead of those, the children can be served low-fat red meats or chicken meat without the skin.

Fish is a source of fats, which are extremely valuable for the functioning of the brain of the child, improving memory, preventing infections and auto-immune diseases. It is advisable that the child is served fish once or twice per week.

Eggs are also very important for the proper development of the children, because they provide ample amounts of easily absorbed protein. In addition to that, yolk is rich in minerals and vitamins from the B group. The iron that is contained in eggs is absorbed much harder than the iron coming from fish and meat, because it is connected with the protein. Children should consume a minimum of 5 eggs per week.

Beans and lentils are also rich in protein and in addition to it they also contain a number of minerals and vitamins from the B group, as well as vegetable fibers. Beans and lentils should be introduced into the menu at least twice a week. Nuts are a good source of protein and vegetable fat, but due to their high calorific value, it is advisable that their intake is limited to a reasonable amount (about 20 grams per day).

**Limit the overall intake of fats from the children, especially those of animal origin. When cooking, try to replace animal fat with vegetable oils.**

Unlike proteins and carbs, fats provide twice as much energy for the body – 1 gram protein/carb provides 4 Kcal, while 1 gram fats – 9 Kcal. The intake of too much fats leads to excessive weight and obesity among the children. Fats include three types of fatty acids, the proportion of which varies in the different products – saturated fatty acids, monounsaturated fatty acids and polyunsaturated fatty acids. The animal fats are mainly in solid form and are rich in saturated fatty acids. Unlike them, the vegetable oils are liquid and contain mainly monounsaturated fatty acids and polyunsaturated fatty acids. It is not advisable for the children to consume too much animal fats. The same is valid for adults alike, because this increases the level of cholesterol in the blood.

The technology of production of margarines requires liquid vegetable fats to become solid. This process leads to the formation of the so-called trans fatty acids, which increase the levels of the “bad” cholesterol and lower the levels of the “good” cholesterol in the blood. Trans-saturated fatty acids are mainly contained in the so very much loved chips and snacks, as well as in the hard margarines, which are a main ingredient for the sweets industry. The amounts of trans-saturated fatty acids in the margarines for direct consumption as spreads are lower, and thanks to the contemporary production technologies, they have been brought down to under 1%.

Purely practical pieces of advice, which can be followed during the elaboration of the children’s menus, are:

- 1) Lower use of fats during cooking, avoid frying;
- 2) The offered meats should have no visible fats; consumption of salami is not recommendable;
- 3) Vegetable fats are preferred before animal fats;
- 4) Consumption of chips, snacks and foods containing solid margarines should be limited.

**Limit the intake of sugar and sweets by the children. Avoid offering them soft drinks, which contain sugar.**



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Refined sugar and its substituted (fructose, glucose) are a source of energy only and not of any nutrients, necessary for the body of the child. Often consumption of drinks and foods, which are rich in sugar (bonbons, cakes, sweets, waffles, chocolate, etc.), leads to gaining weight and obesity and the appearance of teeth cavities. Compotes, jams, marmalades also contain sugar and in some case really big amounts of it. Honey can be used as a substitute. It is rich in bioactive substances. Some pieces of practical advice:

- 1) Avoid using sugar for sweetening drinks, fresh milk and yogurt need no sweetening;
- 2) When preparing desserts it is necessary to cut the amount of sugar in half and to compensate with adding fruits (fresh, frozen, dried);
- 3) Consumption of soft drinks, containing sugars, should be limited. These can be replaced by low mineral water or tap water;
- 4) It is advisable the children to be offered fruit juices without added sugar;
- 5) The intake of sweets by the children should be lowered to the possible minimum. Instead of dessert they can be offered fruit.

**Lower the use of salt when preparing meals, lower the intake of salty foods by the children.**

High intake of cooking salt is not good for the health of the human. The main reason for this is the contained sodium. Uncontrolled intake of sodium lowers the calcium content in the bones, disturbs the functioning of the kidneys and creates preconditions for higher blood pressure. The taste of the child should be trained to prefer foods, which have less salt. Technologically processed foods contain big amounts of salt. Such are chips, salty snacks, salami, cheeses, pickles, canned meats, fish and vegetables, etc.

Practical pieces of advice:

- 1) The menu of the youngest should exclude salty foods such as salty soups, pickles, salami, salty cheeses;
- 2) Salty white cheeses should be put into water for awhile in order to lose some of their salt;
- 3) Food offered to the children should be seasoned with little amounts of salt. Various other seasonings can be added instead.

**Make sure that the children drink enough water.**

Insufficient intake of water and liquids leads to lower mental and physical activity, to problematic concentration, to lack of energy, headaches, makes the regulation of the body temperature much harder. The main sources of water are: tap water, mineral waters with low mineralization, milk, ayran, soups, fruits and vegetables, juices, soft drinks, tea. The best source for hydrating the body is the water – tap water or mineral water. Tea, ayran and natural fruit juices without added sugar also provide the body with healthy nutrients and bioactive substances.

Practical pieces of advice:

- 1) Children need to drink 5-6 glasses of water per day, including the drinks;
- 2) Water intake should take place often and in small quantities;
- 3) Tap water and mineral water with low mineralization are preferred in comparison with drinks, containing sugar or other sweeteners.
- 4) The offered drinks should be at a moderate temperature. Not too hot and not too cold.

**Prepare and preserve the food in a way, guaranteeing its safety.**

Properly storing and preparing the foods guarantees that the loss of nutrients will be kept to the minimum as well as they are safe and with high quality. It is recommendable that the thermal preparation



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of foods, offered to children, takes place in the form of boiling, steaming, stewing or baking at a moderate temperature, because these methods of cooking preserve the healthy substances to the greatest extent. Considering that the greatest part of vitamins contained in the foods pass to the water, it is advisable that vegetables are cooked quickly and in small quantities of water. Meat or fish defrosting should happen slowly, in a refrigerator – thus preserving their quality and preventing spoiling. Unlike those, the frozen vegetables should not be defrosted in advance, but should be placed immediately in hot water. The food can be contaminated during its storage as well as during every stage of its preparation. In order to prevent poisoning of all types, which can be harmful to children's health, it is necessary that food is prepared observing all hygiene requirements. Practical pieces of advice:

- 1) always use safe raw foods and pure water;
- 2) the hands should be washed before and after the preparation of the food, after treatment of raw foods and before serving the cooked food;
- 3) all surfaces, plates, dishes and boards should be well cleaned and the sponges for washing and the kitchen towels should be changed with fresh ones often;
- 4) contact between raw and cooked foods during their preparation and storage must be avoided;
- 5) thermal processing of animal products, such as meat, eggs, fish, should take enough time for each specific product;
- 6) foods preserved in a fridge should be properly isolated in shut boxes or at least be covered well;
- 7) Food warming should take place at a temperature above 70°C in order for the germs that have multiplied during food storage to be killed.

**Involve the children in the preparation of the food.** Involving the children by the parents in the process of planning, shopping, preparation and cooking of the food is an affective and interesting way for the children to be introduced to new foods, for training and development of a health eating model. The children joyfully join their parents in the kitchen and often prefer to eat the foods with the preparation of which they have helped. The parents should encourage their children to participate actively in the food preparation process, naturally taking into consideration their age. The kids should be given an example who and how needs to be done, as well as to observe.

At the age of two the children could be given the task to clean the kitchen board and the table, to tear the salad, to break the cauliflower or broccoli into smaller pieces, to take the food products from one place to another.

At the age of three, the children can be assigned the above tasks, plus also: to wrap potatoes in baking folio, to knead dough, to pour and mix liquids, to mix the food substances, to spread butter, soft cheeses on slices of bread, as well as to dispose of waste.

Children that are four years old can also be assigned to peel a boiled egg, a tangerine, an orange, to cut green onions with scissors, parsley or dill, to mash a banana with the help of a fork or to set the table.

In addition to everything already mentioned, 5-6 year olds could measure the food ingredients and products, to beat eggs, to mix different mixtures.

It is important to encourage the children to feed themselves without anybody's help.



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**Make sure the children exercise on a daily basis. In addition to eating a healthy diet, the children must also involve in sports regularly.** Physical activity is good for their psychological and social development, for staying in good shape, maintaining a healthy weight and better appetite.<sup>3</sup>

In addition to the recommendations for the youngest, the National center for public health and analyses at the Ministry of healthcare in Bulgaria develops national recommendations for healthy nutrition of children at the age of 7 to 19 years old.

**Consume various foods. Make sure you eat without a rush and in a calm environment.**

Balanced nutrition is extremely important for children to grow healthy, strong, sharp and smart. The diet can be called balanced when the children are not consuming too much or too little food. There is no food or group of foods, which can provide the body with all nutrients it needs, which means that we need to eat various foods. On a daily basis the children should consume the following four groups of foods:

- 1) Grains and potatoes;
- 2) Vegetables and fruits;
- 3) Milk, white and yellow cheese, cottage cheese;
- 4) Meat, fish, eggs, beans, nuts.

The foods and beverages, which should be consumed in rather limited quantities, fall in the following two groups:

- 1) Fats – butter, grease, oil and other of the kind
- 2) Sugar and sweets, as well as drinks containing sugar – bonbons, chocolate, waffles, cakes, etc.

**Do not miss breakfast, eat regularly!**

The first breakfast for the day is very important, because after the long night rest the children need to recharge in the morning with nutrients and energy, necessary for studying, games and sport. The breakfast of children at the age of 7 to 19 years old can include milk with cereal and fruit, a sandwich with white/yellow cheese or ham, an egg, a freshly squeezed juice, fresh milk or yogurt.

The human body constantly needs energy, which is why it is important to eat regularly. In addition to the morning breakfast the children should not miss on the other meals for the day – lunch and dinner. Between the main meals the children can boost themselves with fruits, fresh juices, yogurt with fruit, a small wholegrain sandwich, etc.

**Consume grains! Prefer wholegrain bread!**

Grains and potatoes can be considered as some of the main foods for the human, because they are a source of many food substances and provide the body with most of the energy it needs during the day. Wholegrain foods, such as wholegrain bread and rye bread, corn, brown rice, oat flakes are very rich in vegetable fibers, vitamins and minerals, which are good for the children's health. It is important that the children consume bread, other grain foods or potatoes every day. It is recommendable that the bread is wholegrain. It would be best if the potatoes are boiled or roasted, not fried. Pastry products rich in fats should be avoided.

**Consume more fruits and vegetables, if possible at every meal!** Fruits and vegetables can be categorized as some of the most nutritious foods, because they have lots of vitamins, minerals, fibers and

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<sup>3</sup> **National center for protection of public health.** *Recommendations for healthy nutrition of children at the age of 3 to 6 years old in Bulgaria* [online]. Sofia, 2008, [Checked on 16.11.2016]. Accessible from: [http://ncpha.government.bg/files/3Preporoyki\\_3-6\\_g.pdf](http://ncpha.government.bg/files/3Preporoyki_3-6_g.pdf)





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biologically active substances, which stimulate the growth and development of the body and its resilience to various diseases. Due to their high water content and the lack of fats, fruits and vegetables do not lead to gaining weight. It is important for the children to consume fruits and vegetables every day. It is also important that the fruits and vegetables consumed are varied – yellow, orange, red and green fruits and vegetables.

**Consume milk and dairy products every day!**

Yogurt and fresh milk and dairy products, such as white and yellow cheese, cottage cheese as well, are irreplaceable for the children. They provide the body with easily absorbable calcium, protein and vitamins, which are really important for the growth and structure of the children's bones and teeth. Yogurt has another positive effect on the body – improves digestions and fortifies the immune system. It is important that the children consume milk or dairy products on a daily basis at least 3 or 4 times. The fat content for this age group is 1,5-2%. In addition to the low content of fat, it is also advisable that the amount of salt is also limited.

**Select meats without visible fats and often replace meat with fish, beans or lentils!**

Animal foods, such as meat, fish, eggs as well as some of the vegetable foods – beans, lentils, soy, nuts are a valuable source of protein, which is very important for the children's growth and development. Meat and fish provide the body with easy to absorb iron, which supports the process of red blood cells formation, increases resilience towards infections and improves the attention, concentration and strength. Fish also contains valuable fats, which are favorable for the functioning of the brain and heart. This is why it is really important that at least one of these foods is consumed every day. Bird meats should be consumed without the skin and the red meats without visible fats. It is recommendable that the children eat twice a week fish, beans and lentils. Eggs should also be present on the weekly menu – a minimum of 5 eggs per week, which includes the eggs that have been added as ingredients to other meals.

**Limit the intake of fats in general and particularly animal fats. Avoid fried foods!**

Similarly to the other food substances, fats are also important for the normal functioning of the human body. They are the strongest source of energy and enable the process of absorption of vitamins A, D, K and E. Still we need to be careful about how much fatty foods we consume, because too much of it can lead to gaining weight and obesity. Animal fats, as well as the solid margarines should not be present on the children's menu. They contain substances, which, if accumulated in large amounts, can lead to cardiovascular diseases. In addition to the well-known fats, contained in butter, oil and meat, some of the so called "hidden" fats are present in most processed foods, such as chips, snacks, salami, cakes, sauces, fried foods. Because of this it is important that the children choose foods, which are low in fats, which means lower consumption of salami, sweets and pastry. The children's menu should not contain fried foods and products containing hard margarines – cookies, waffles, etc.

**Limit the consumption of sugar and sweet foods! Avoid the consumption of soft drinks, containing sugar!**

The sweet taste and the fast generation of energy in the body is the reason due to which children, and adults as well, love to consume sugar and sweet foods. The excessive consumption of foods and beverages containing sugar, lead to gaining weight and spoil children's teeth. The sweet effect of sugar could be achieved also with honey, which is rich in substances, which are good for the health. We should be careful with honey as well and consume balanced amounts of it. The frequent consumption of soft drinks, containing sugar, should be limited. In the child's menu those could be replaced by fresh fruit juices, milk or tea, without added sweeteners.



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### **Limit the consumption of salt and salty foods!**

Salt provides to the body sodium and chloride, which are important for the organic processes. Still, excessive consumption of salt can lead to a loss of calcium in the bones and an increase of the blood pressure. A great part of the processed foods, such as salami, white cheeses, pickles, preserved fish, dry soups, chips, sauces and others, are characterized with a high content of salt. Children with preference for salty foods could be “reeducated” with a gradual decrease in the amount of consumed salt. For seasoning the food you can use vegetable seasonings, lemon juice or vinegar instead of salt.

### **Consume sufficient amounts of water and liquids!**

Water is life. It gets into each cell and participates in all cellular processes. It regulates the body functions, the body temperature, the exchange of substances, digestion, etc. It is responsible for our senses and it makes it possible for our thoughts to move, for us to feel and have a good mood.<sup>4</sup> Dehydration leads to lowering the children’s mental and physical activity. The best solution for hydrating the body is drinking water, as well as low mineralization waters. Liquids such as tea, ayran, fresh juices contain many good substances. Children at the age of 7 to 19 should consume 1,5-2 liters of liquids – water, milk, juice, tea and so on. It is recommendable for the water to be at moderate temperature as well as to be drunk in small amounts regularly.

### **Be active every day!**

**Healthy body weight is very important for the health.** The secret for achieving and maintaining normal weight is balance between food consumed and energy spent. In order to maintain their weight within the healthy limits the children should be physically active about one hour every day. They can walk, play and engage in sports. It is advisable that the time spent in front of a computer is cut.

### **Observe the hygiene rules when eating, preparing or storing food!**

In addition to consuming varied and healthy food, the meals and snacks served to the children should also be safe and clean. The food could be polluted at any moment from its preparation, storing or consumption. So it is important for all hygiene requirements to be observed. It is important also for the children to wash their hands prior to every meal, to use individual dishes and cutlery, to wash the fruits and vegetables well before eating them, and never consume foods with expired term for safe consumption.<sup>5</sup>

## **2 How is child nutrition organized at national level in kindergartens and schools**

### **2.1. General description of the situation**

Care about the children’s health is among the priorities in the national policies, related to the protection of public health, conducted by the Ministry of healthcare and the Ministry of agriculture and foods. The formation of healthy eating habits among the children inevitably leads to improving the community health and long term lowering the risk of socio-relevant diseases – cardiovascular diseases, diabetes, malignant tumors. Healthy nutrition of the children from the earliest age – in kindergarten and primary school – is

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<sup>4</sup> Karadzhov, Stoil. *Electrochemical activation of solutions with low mineralization water* [online] [Checked on 18.11.2016 ]. Accessible from: [http://iict.bas.bg/SPIR/presentations/S\\_Karadzhov/Electrochemical%20Activation.pdf](http://iict.bas.bg/SPIR/presentations/S_Karadzhov/Electrochemical%20Activation.pdf)

<sup>5</sup> **National center for protection of public health.** *Recommendations for healthy nutrition of students at the age of 7 to 19 years old in Bulgaria* [online]. Sofia, 2008, [Checked on 21.11.2016]. Accessible from: [http://ncpha.government.bg/files/4preporaki\\_uchenici\\_17-19g.pdf](http://ncpha.government.bg/files/4preporaki_uchenici_17-19g.pdf)





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extremely important for their growth and development. This is the period of human development, in which the person is forming his/her long-term eating habits – whether good or bad – which at a later stage could hardly be changed. Due to this reason, it is important that the actions, oriented towards healthy eating, should take place from early childhood with the purpose of forming a healthy eating model of eating and behaving, which counter-acts to the negative eating habits. Early childhood is the age at which the culture of nutrition and the taste to various foods is shaped up. The limiting of access to unhealthy foods in the school buffets and cantinas should be taking place in combination with the provision of safe healthy foods. In addition to this, the children need free access to information about which foods are good and which are not.

## **2.2. Which is the process to approve the food sold in the school**

The conditions of school and kindergarten nutrition are defined and controlled by the local governments. For the children in kindergartens and schools with whole day organization of the learning process, the local authorities provide lunches, which meet the state educational standards for the physical environment and the information and library provision at kindergartens, schools and centers for support for personal development. The standard represents a multicomponent system of minimal and obligatory requirements towards the physical elements of the educational environment, in order for conditions for effective learning/teaching process to be guaranteed. The activities of the municipalities in this connection are supported by the school boards – independent voluntary associations for supporting the activities of kindergartens and schools.

The foods provided in kindergartens, school cantinas and the retail sites on their territories are delivered by providers that meet the hygiene and/or the veterinary and sanitary requirements, fixed with a legal act, which possess an elaborate technological documentation about the food groups, which they produce on site or about the observance of the national standards and standards developed by branch organizations and approved by a competent body. These sites also need to have introduced:

- ✓ Good practices for production and trade with foods and a system for analysis of threats and control points or procedures corresponding with their principles, when the overall introduction of the system is impossible.
- ✓ A system for food safety.

The food provided to children in educational institutions must be prepared in correspondence with the physiological norms for feeding of the Bulgarian population and with the “Collection of recipes for school cantinas and buffets”.

For each budgetary year the Ministerial Council of the Republic of Bulgaria defines the amounts for supporting the nutrition of one child and one student. The amounts from the state budget for supporting the children from the preparatory groups and the students from 1st to 4th grade in the state and municipal kindergartens and schools are provided for the following activities:

1. Provision of breakfast, milk, vegetables and/or fruits to the children from the preparatory groups in the kindergartens and schools, as well as for grades I through 4;
2. Supporting lunch for the students from grades I through IV in the state and municipal schools, involved in whole day studies.

The kindergartens and schools receive funds for supporting nutrition on the basis of the submitted request for support. The allocation of envisaged funds for each school year takes place by 31 Dec on the previous year. The allocation is done by a committee, formed by the senior authorizing officer, which includes also headmasters of kindergartens and schools.



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Kindergartens build kitchen blocks, meeting the requirements of Regulation № 5 as of 2006 for food hygiene, according to which the project, the technological plan and the location of the premises where foods are produced, cooked or processed allows good hygiene, including protection of foods from contamination risks between and during the operations. When the construction of a kitchen block is impossible, the food is delivered from an external provider to dedicated offices for food portioning, which have to meet the above mentioned requirements of Regulation №5 from 2006.

The food in kindergartens is prepared in accordance with the requirements of Regulation № 6 from 2011 for healthy nutrition of children at the age of 3 to 7. The weekly menu is elaborated with the participation of a medical specialist and/or food technologist. Samples are set aside from the daily menu and are preserved in a fridge at a temperature from 0 to 4°C for more than 48 hours. The samples from the Friday menu are preserved until Monday at noon. Only foods, which meet the requirements for safety and quality according to the Law on foods are used for nutrition of children at kindergartens and schools. The foods are accompanied by documents proving their safety, according to the enforced laws.

School nutrition is organized at cantinas and buffets, subsidized by the state budget through the budgets of the ministries, administrations and other budgetary organizations – for the state schools and from the municipal budgets – for the municipal schools.

School nutrition is organized through:

1. The budgetary activities;
2. Specialized municipal enterprises;
3. Merchants in relation to the Trade Law.

School cantina nutrition is assigned after a tender procedure. When we speak of state schools, the tender is conducted by the school itself, while in the care of municipal schools – it is organized by the respective municipality. The criteria and procedures for selecting providers for each municipality are fixed in the respective Regulation on the procedure for adoption, management and ordination of municipal property and in particular in its part Tenders. The firm, which places automats in the schools, is also selected via a tender procedure, which is conducted by the municipality or by the school. An example of how the entire process of organization of the nutrition of students in schools could be given with the Sofia municipality, which applies the Regulation for the terms and conditions for conducting tenders and more specifically Chapter four: Tenders for organizing school cantina nutrition. The tenders are implemented after decisions of the Municipal council and mayor's orders. With his/her order the municipal council assigns to the mayor of the respective region, where the school is situated, the responsibility to conclude with the school headmaster the contract with the tender winner. The tender is conducted following an established procedure and documentation. The tender committee comprises of a minimum of 7 persons and includes the headmaster and the accountant from the respective school, two representatives of the school board, a representative of the local administration of the region, a layer from the regional administration, a representative of department "Education" at Sofia municipality, a representative of the Sofia regional health inspectorate (SRHI) – a nutrition and diet specialist and a representative of the Bulgarian agency on food safety (BAFS) – a specialist on safety and quality of foods. The school board can invite other parents as witnesses, without the right to a vote. At the end of each school term the management board of the school board elaborates an evaluation of the provided service from the subcontractor, the observance of the active legislation and the requirements related to it.

### **2.3. Regulatory requirements related to the food sold, consumed or served in the school**



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The main legal and regulatory acts, which define the requirements for access to healthy nutrition, as well as the quality and safety of the foods, which are provided by kindergartens and schools in Bulgaria are:

- Law on foods;
- Law on pre-school and school education;
- Regulation № 9 as of 16 Sept 2011 for the specific requirements to the safety and quality of the foods, offered at kindergartens, school cantinas, as well as retail shops on the territories of schools and kindergartens, as well as to foods, offered during events organized for children and students;
- Regulation № 6 as of 10 August 2011 for healthy nutrition of children between the age of 3 and 7 in kindergartens
- Regulation № 37 as of 21 July 2009 for the healthy nutrition of students.

The law on foods defines:

1. Requirements to the foods, the measures and the hygiene and safety conditions, the packaging, the etiquettes, the presentation and promotion;
2. Requirements towards all the stages of production, processing and distribution of foods;
3. The terms and conditions for production and trade with foods
4. The rights and obligations of the persons, who produce or trade in foods;
5. The rules for implementing official control, including verifying the regulatory requirements;

Here is also particularly forbidden the dissemination and selling of genetically modified foods in kindergartens, children's kitchens and schools, as well as the introduction of products and ingredients, which include or have been produced by genetically modified sources.

*The law on pre-school and school education* fixes the public relations, connected with the provision of the right to pre-school and school education, as well as the organization, the functioning, the management and the financing of the system for pre-school and school education. The law also defines the responsibilities of local authorities to secure and control the conditions of child and student nutrition. The mayors of the municipalities control the way of spending the funds provided to the municipal kindergartens and schools for food. According to the law, the lunch for children at kindergartens and schools with day-long education process, should be organized on premises, which meet the state educational standard for the physical environment and the information and library provision to kindergartens, schools and centers for support of personal development.

*Regulation № 9 as of 16 September 2011* defines the specific requirements towards the safety and quality of the foods offered at kindergartens, school cantinas and buffets on the territories of schools, as well as of foods, offered to children during organized events. The foods offered at kindergartens, schools should meet the requirements for safety and quality, specified in the European and Bulgarian legislation. Each batch of foods is accompanied by a document, specifying the origin of the foods and a document specifying its compliance and safety.

The previously packed foods, offered at educational institutions should have a wrapping, which protects from external pollution and does not change its organoleptic characteristics<sup>6</sup>. It is not allowed at educational institutions to be offered foods, which show signs of decay or their term for durability has

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<sup>6</sup> Organoleptic characteristics – the properties of certain substances, which arouse the senses – smell, taste, feeling the texture.





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passed. As far as fresh fruits and vegetables are concerned, the latter should not contain remaining pesticides or nitrates above the maximum allowed levels.

Meat products, which are offered to kindergartens, school cantinas and retail shops on the territories of schools, should be produced following specialized standards, and when such are missing, should be produced following technological documentation. Yogurt, cheese and yellow cheese should be produced following the national standards for production of Bulgarian yogurt, white cheese and yellow cheese. Dairy products, for which there is no Bulgarian state standard, should be produced following technological documentation. Ayran, which is offered to children, should be obtained from homogenization of Bulgarian yogurt and drinking water, without adding cooking salt.

Fish and fish products, offered to children in kindergartens, school cantinas or buffets, should come from regulated sites for obtaining and processing of fish and production of fish products. Fish should be cooled, coming from fresh or salty water. Frozen fish should be well cleaned from skin, backbones, intestines and it should be filleted and cut into smaller pieces. It is forbidden to offer salty, smoked, dried, marinated or canned in any other way fish or caviar, as well as clams, oysters, calamari, octopi, crabs and other non-fish hydrobionts.

Eggs, which are offered in kindergartens, school cantinas and buffets, should be grade "A", which means fresh eggs, which are consumed within 28 days from them being laid.

In kindergartens, school cantinas and buffets should be offered only cow milk butter, sunflower oil and olive oil. Foods that contain other fats, such as hydrogenated vegetable fats and vegetable fats, for which it is not clear how they have been processed, are forbidden. Sunflower oil should be produced following a branch standard, and the olive oil should be Extra Virgin or Virgin.

Flour, which is inserted in foods, offered in kindergartens, school cantinas and buffets, is white, "Dobrudzha" or "Type", produced strictly observing the state standard, and/or whole-grain flour. The same goes for the offered bread, with the specific requirement for the whole-grain to include no colorants.

Fresh fruits and vegetables, which are offered in kindergartens, school cantinas and buffets, must meet the requirements for quality set by the general standard and the specific standards for market offers. Canned products from fruits and vegetables should not contain preservatives, colorants and sweeteners and their packaging should be perfectly closed with no damages. The children should only be offered 100 % fruit and/or vegetable juices, fruit and fruit-vegetable nectars, in which the content of mono and disaccharides does not go beyond 20 % of the total mass of the product. The chutney, which is offered in kindergartens, schools and buffets, should also be produced in strict observance of a branch standard.

The nuts, which are offered in school cantinas and buffets, should be whole, healthy, normally developed, without damages from pests. The nuts most certainly should not be fried. Nuts are not allowed to be offered to the children in kindergarten.

Fruit and herbal teas without any colorants or taste intensifiers are offered to children in kindergartens, school cantinas and buffets.

*Regulation № 6 as of 10 August 2011 for healthy nutrition of children at the age from 3 to 7 in kindergartens* fixes the requirements for healthy nutrition of children at the specified age, organized on the territory of municipal, state or private kindergartens or other establishments for child-care.

Healthy nutrition from the age of 3 to 7 years old in kindergartens is organized through:

1. provision of nutritious and varied food;
2. a sufficient intake of vegetables and fruits;
3. limiting the intake of fats, sugar and salt;



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4. intake of sufficient liquids.

In order to guarantee the healthy nutrition of the children in kindergartens, the following amounts for daily intake of energy, protein, fats and carbs are recommended:

Age (years)	Energy Kcal/day	Total protein		Fats		Carbohydrates	
		E %*	Gr/day	E %	Gr/day	E %	Gr/day
3 – 5	1570	10 – 15	39 – 59	25 – 35	44 – 61	50 – 65	196 – 255
5 – 7	1770	10 – 15	44 – 66	25 – 35	49 – 69	50 – 65	221 – 288

Table 1. Recommended amounts for average daily intake of energy, total protein, fats and carbs (average amounts for both girls and boys)

The allocation of the energy contents of the food among the various food intakes during the day is recommended to be:

Meal	Five meals a day schedule (E %)
Breakfast	20
Morning refreshing breakfast	5 – 10
Lunch	30 – 35
Afternoon	15
Dinner	25

Table 2. Allocation of the energy contents of the food for the various meals during an entire day

In kindergartens are used foods, which correspond to the requirements for quality and safety according to the Law on foods and are accompanied by documents, proving their safety. At least one expert with qualifications or education in the sphere of food technologies should participate in the process of preparing food for children. In kindergartens where the children stay until the evening, the food schedule includes four meals – breakfast, lunch, and two refreshing snacks in the morning and in the afternoon. For them the food is offered following preliminarily developed weekly menus, which have been shaped up by medical experts and/or food technologists.

It is not allowed the children to be fed with food that has been cooked and is left over from the previous day. When creating menus, the experts use the recommended daily product selections:





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Products	Age (years)	
	3 – 5	5 – 7
1. Grains and potatoes	200	220
1.1. Bread and pastry (net weight)	80	80
Including white bread, „Dobrudzha” bread (net weight)	50	45
Including whole-grain, type, rye-wheat, rye bread (net weight)	20	25
Including flour (for pastry, meals, desserts and others) (net weight)	10	10
1.2. Rice (net weight)	15	15
1.3. Pasta (net weight)	25	35
1.4. Other grains (wheat, corn, oat flakes, corn flakes) (net weight)	20	20
1.5. Potatoes (net/gross weight)	60/75	70/90
2. Vegetables and fruits, total (net weight)	500	600
2.1. Vegetables – total, fresh and canned (net/gross weight)	200/220	250/275
2.2. Fruits – total, fresh, dried, compotes (net/gross weight)	200/230	250/280
2.3. Vegetable juices, fruit juices and nectars (net weight)	100	100
3. Milk and dairy products	430	430
3.1. Milk (net weight)	400	400
Including milk with 3 – 3,6 % fat (net weight)	250	200
Including milk with 2 % fat (net weight)	150	200
3.2. Cheese, cottage cheese, yellow cheese (net weight)	30	30
4. Foods, rich in protein	110	125
4.1. Meat, meat products in total (net weight)	50	55
Including meat (net weight)	45	50
Including meat products – chicken liver (net weight)	5	5
4.2. Fish (net weight)	20	25
4.3. Eggs (net weight)	20	20
4.4. Beans (beans, lentils) (net weight)	10	10
4.5. Nuts, seeds (net weight)	10	15
5. Added fats (net weight)	25	25
Including milk butter (net weight)	10	10
Including vegetable oils (net weight)	15	15
6. Sugar, honey and foods with high content of added sugar – jams, marmalades, chocolate and others (net weight)	30	30

Table 3. Recommended average daily amounts (net/gross weight, grams per day)

The intake of varied food is ensured through daily inclusion in the menu of a minimum of one representative of the following groups of foods:

1. grains and potatoes;
2. vegetables;
3. fruits;
4. milk and dairy products;
5. protein rich foods – meat, birds, fish, eggs, beans.



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The intake of grains (or cereals) and potatoes is guaranteed through a daily offer in the main meals of at least one representative of the grains/potatoes group and through a 4 times a week offer of whole-grain products. The offered breads, pastry and potato products should have a low content of fats, salt and sugar.

The intake of fruits and vegetables is guaranteed by daily inclusion in the menu of a minimum of 300 grams vegetables and fruits for the children at the age of 3 to 4 and 350 grams for the children at the age from 5 to 7. The refreshing breakfast before lunch contains only fresh fruits – whole, cut, grinded or as a fruit salad. The offered vegetables and fruits should be seasonal and preferably fresh. It is recommendable to offer frozen vegetables and fruits instead of sterilized. Dried fruits and vegetables can be offered separately or as ingredients of multi-component foods. It is preferable that the jams and marmalades offered have fruit content, which is minimum 60%. Offering jams and marmalades with added sugar, which represents more than 50 % of the total amount, is forbidden.

The intake of milk and dairy products is guaranteed through:

1. Daily inclusion in the menu of a minimum of 350 grams yogurt or fresh milk and at least 25 – 30 grams of cheese and/or yellow cheese on a daily basis;
2. Inclusion of yogurt as a breakfast component, refreshment, included in meals, desserts, separately or with fresh, dried fruits or fruit juices;
3. Inclusion in the menu of fresh milk as a drink or as a component in purees, soups and desserts.

The fresh milk, yogurt and other dairy products should have fat content about 2 % in at least 2 of the weekly servings, and in the other days of the week – from 3 % to 3,6 %. The amount of fruits, fruit puree, fruit juices added to the yogurt should be at least 6 %. It is forbidden to offer children sweetened fresh milks or yogurt, except when the added sweetness comes from fruits, cocoa, oat flakes, or other natural sweeteners. It is forbidden to offer to children fresh milk or yogurt, cheese and other dairy products with added vegetable oils.

Meat and meat products should have no visible fats, tendons and bones, while chicken should also be skin-less. Grinded meat should have a low amount of fats and salt. The preferred grinded meat should be from veal or if the grinded meat should be mixed, it is preferable that the veal is a minimum of 60% of the total. It is not allowed for such industrially prefabricated meat products as meatballs, kebabs, etc. to be offered to children in kindergartens. Salami are not allowed during the main meals for the day.

Fish is included as a main course at least twice per week. It can also be offered as fish soup or fish can be integrated into sandwiches. The fish should be fresh, as rarely as possible frozen or preserved (preserved fish should be low in salt) and be offered without bones.

The menu should include fresh eggs, preserved in fridges.

Beans (beans, lentils) should be included in the menu one or two times per week.

Intake of liquids is ensured by provision of the following drinks and water:

1. Drinking water, bottled low mineralization natural waters with fluorine of a maximum of 1,5 milligrams/liter, spring waters;
2. 100 % natural juices from fruits and vegetables;
3. Fruit and fruit-vegetable nectars, which include a maximum of 20 % mono and disaccharides from the total mass of the product;
4. Milk, dairy and dairy sour drinks;
5. Fruit and herbal tea;
6. Boza with natural sweeteners.



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The consumption of fats is lowered by limiting the fats inserted in the meals, by using culinary technologies (boiling, steaming, stewing, baking). The consumption of fats is also limited by allowing fried foods only twice a week and only if the following requirements have been observed:

1. For frying are being used only fresh fats, the frying should not take place at a temperature that is too high.
2. Hydrogenated vegetable fats are not used for the frying.
3. The fat from the fryers is changed after the foods for the day have been fried.
4. No fat that has been used for frying can be used again for the preparation of meals.

The consumption of added sugar is lowered by inserting not more than 5 % sugar in team, cocoa, fresh milk and yogurt as well as through offering cakes with cream and/or buttery cream, syrup pastry, waffles, chocolate sweets, locum, bonbons.

As far as the consumption of salt is concerned, efforts are made in order for its amount in meals and snacks to be lowered. Also, salty products such as cheese and olives, are previously desalted before being served to the children or inserted into meals. There is no possibility for adding salt during the eating time.

**Regulation № 37 as of 21 July 2009 for the healthy nutrition of students** fixes the requirements for providing healthy nutrition to the students in cantinas, buffets and automats for serving snacks in various establishments – schools, sports clubs, relaxation areas, student tourism, etc. The healthy nutrition of students is ensured by providing full and varied food, daily consumption of vegetables and fruits, sufficient intake of milk, dairy products and other protein rich foods, increased consumption of whole-grain foods, limiting the intake of fats, sugar and salt.

The following energy equivalents are used for calculating the energy value of food services:

1. One gram of protein delivers 4 Kcal energy;
2. One gram of carbs delivers 4 Kcal energy;
3. One gram of fat delivers 9 Kcal energy.

Fresh milk, yogurt and dairy products, which are offered to students, should have fat at a maximum of 2% without any added vegetable fats. It is not allowed for fresh milk and yogurt to be sweetened with anything but fruits, cocoa, oat flakes, vegetable fibers – all of them natural sweeteners. The amount of fruits, fruit puree, natural juice added to yogurt should be a minimum of 6 %. Ayran should be served without added salt.

School cantinas, buffets and automats should offer only the following drinks:

1. Bottled natural mineral waters, spring waters;
2. National 100 % fruit or vegetable juices;
3. Fruit and fruit-vegetable nectars, which do not contain more than 20% mono and disaccharides from the whole mass of the product;
4. Milk, dairy and sour dairy drinks with fat limited to a maximum of 2%;
5. Fruit and herbal tea;
6. Hot chocolate.

School cantinas, buffets and automats do not provide:

1. fried potatoes and fried cereals;
2. extruded cereals with added fat;
3. fried nuts;
4. fried pastry;
5. sweet and chocolatey products, except chocolate;



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7. sweet products with high content of fat and sugar – cakes with cream and/or buttery cream, syrup pastries;
8. Dry soups and dry bullions.

Buffets and automats can provide sandwiches, pastry, fruits, vegetables, cookies, dairy or dairy-fruit or cereal or cereal fruit desserts and chocolate.

During the preparation of food for school cantinas and buffets, at least one expert with education or qualifications in the sphere of public nutrition should be involved.

The following amounts of daily intake of energy, protein, fats and carbs have been recommended:

Age* (years)	Energy Kcal/day	Protein		Fats		Carbs	
		E %**	gr/day	E %	gr/day	E %	gr/day
6 – 10	1890	10 – 15	48 – 71	25 – 30	53 – 74	55 – 65	260 – 307
10 – 14	2415	10 – 15	60 – 91	25 – 30	67 – 94	55 – 65	332 – 392
14 – 19	2760	10 – 15	69 – 104	25 – 30	77 – 108	55 – 65	380 – 449

Table 4. Recommended values for average daily intake of energy and nutrients for students at the age of 6-19 years old.

The allocation of the energy intake among the various meals of the day is as follows:

Meals	Four meals a day schedule (E %)	Five meals a day schedule (E %)
Breakfast	25	20
Morning refreshment snack	–	10
Lunch	30	30
Afternoon refreshment snack	20	15
Dinner	25	25

Table 5. Allocation of energy intake among the different meals for the day.

The food served in school cantinas is offered in accordance with previously prepared daily and weekly menus, which are developed together with one medical specialist or nutritionist. Leftover food from the previous day is not allowed to be offered again to children. The following exemplary product amounts are considered for the daily menus:





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Products	Age (years)		
	6 – 10	10 – 14	14 – 19
1. Grains and potatoes			
1.1. Bread and pastry (net weight)	150	200	250
Including whole-grain, type, rye-wheat, rye bread (net weight)	75	120	190
Including flour (for pastry, meals, desserts and others) (net weight)	20	20	22
1.2. Rice (net weight)	16	18	22
1.3. Pasta (net weight)	15	20	25
1.4. Other grains (wheat, corn, oat flakes, corn flakes) (net weight)	20	20	25
1.5. Potatoes (net/gross weight)	75/100	100/130	110/150
2. Vegetables and fruits, total (net weight)			
Vegetables – total, fresh and canned (net/gross weight)	300/330	300/330	350/380
Fruits – total, fresh, dried, compotes (net/gross weight)	280/320	400/460	400/460
Including fresh fruit (net/gross weight)	220/250	300/350	300/350
Vegetable juices, fruit juices and nectars (net weight)	0	120	150
3. Milk and dairy products			
Milk (net weight)	400	400	400
Cheese, cottage cheese (net weight)	30	40	50
4. Foods, rich in protein			
Meat, meat products in total (net weight)	55	80	85
Including meat (net weight)	50	75	80
Including meat products – chicken liver (net weight)	5	5	5
Fish (net weight)	30	40	40
Eggs (net weight)	23	23	23
Bean foods (beans, lentils) (net weight)	10	15	18
Nuts, seeds (net weight)	20	25	30
5. Added fats (net weight)			
Fats (total)	26	32	36
Including milk butter (net weight)	10	10	10
Including vegetable oils (net weight)	16	22	26
6. Sugar, honey, foods with high amount of added sugar			
Sugar, honey, jams, marmalades, chocolate and others (net weight)	25	35	45

Table 6. Exemplary product amounts for daily nutrition of students from the age of 6 to 19 years old.

School canteens provide varied food products and include on a daily basis at least one representative of the following food groups:

1. Bread, pastry, pasta, rice, wheat and other grain foods, potatoes;
2. Vegetables;
3. Fruits;
4. Milk and dairy products;
5. Meat, birds, fish, eggs, beans.



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The provision of whole-grain products takes place by including in the menu only whole-grain bread at least twice a week and whole-grain pasta – macaroni, noodles, spaghetti, or whole-grain pastry at least once a week.

The provision of fruits and vegetables (fresh, frozen, dry, preserved with low content of sugar/salt) takes place via daily inclusion in the menu of a minimum of 400 grams of vegetables and fruits per day. The daily menu includes fresh seasonal vegetables (as a salad or siding) and/or fresh seasonal fruits (whole, cut, grinded, as a fruit salad or freshly squeezed juice).

The provision of milk and dairy products takes place via daily inclusion in the menu of at least 400 grams yogurt or fresh milk and a minimum of 30 grams of cheese on a daily basis. Yogurt is included as a breakfast component, as a part of meals, desserts, pure or together with fresh cut fruits, dried fruits, freshly squeezed fruit juice. Milk is offered as a drink or included in purees, soups, desserts.

The menu includes fish once a week.

The fats consumption is limited by lowering the input of fats during the preparation of the meals. Bird meat is offered without skin, while veal, pork and lamb – without visible fats. The main meals (breakfast, lunch and dinner) for the day do not include salami. The children are served meat products and salami with lower amounts of fat, as a part of the refreshment snacks in the morning and afternoon. The same goes for the dairy products – cheese, yellow cheese and cottage cheese. The school cantinas offer fried foods a maximum of two times per week. The main culinary technologies used are boiling, steaming, stewing and baking.

The consumption of refined sugar is lowered by limiting the input of sugar in team, cocoa, fresh milk and yogurt (not more than 5% added sugar) and through offering of sweets (with the exclusion of sweets with high amounts of fat and sugar) only twice per week.

The consumption of salt is limited by:

1. Lowering the amount of salt used during the preparation of the meals and the refreshment snacks;
2. Desalting in water of such salty products like cheese and olives;
3. Including pickles in the menu only during the winter season and offering them only once per week and in case of full board (in boarding houses for example where dinner is included) – twice per week;
4. Excluding the possibility for adding salt during meals.

The buffets provide a compulsory assortment of foods and drinks, which includes the following groups:

1. sandwiches;
2. pastry with vegetable and/or dairy filling;
3. milk – yogurt, fresh milk, ayran, dairy and dairy-sour drinks;
4. fruits and vegetables according to the season;
5. natural fruit and vegetable juices;
6. bottled natural mineral or spring waters.

The school buffets, which provide refreshments to the students, provide on a daily basis a minimum of one of the following kinds of sandwiches:

1. group one – with a dairy component;
2. group two – with low-fat meats and meat products, fish, eggs;
3. group three – with vegetables, which can be fresh, boiled, roasted, stewed, canned.

The products from the three groups can be combined. The sandwiches from the first and second group include a component of fresh vegetables. The bread or sandwich loaf should be whole-grain at least in one of the options in each assortment group.





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#### **2.4. Issues identified, on a local, regional or national basis, which create problems before the providers of food for the children and the meeting of all regulations and requirements.**

Compared to safety, which is guaranteed through a number of legal directives, some of which we already mentioned, the quality of the foods is not covered by regulations. This is the reason for the general public opinion that producers focus mainly on covering the safety requirements and leave quality behind. This comes from the fact that the quality can be defined as a varying term, which has no fixed definition in the case of food. The quality of foods to a great extent is defined objectively or subjectively on the basis of: 1) functionality, i.e. do the food characteristics meet the requirements of the consumer; 2) food properties: dietary purpose, necessary nutrients, minerals and vitamins: and 3) organoleptic characteristics: taste, look, aroma<sup>7</sup>. With the purpose of regulating at least the quality of food, served in kindergartens and schools, the Ministry of agriculture and foods issued the already mentioned Regulation № 9 as of 16 September 2011 for the specific requirements towards the safety and quality of the foods, offered in kindergartens, school cantinas and buffets or retail shops, as well as to foods, served during organized events for children and students.

Despite the strict requirements of the regulation and the high public interest on the subject of healthy nutrition of children, the quality of the food offered to students and the access to unhealthy packaged foods in the buffets and retail shops on the territories of schools and other educational institutions, is still an issue. This thesis is confirmed also from a research, conducted by Foundation “Capital” and “Economedia”<sup>8</sup> concerning the healthy nutrition at school, according to which the parents still discover forbidden foods being sold at school buffets – jelly bonbons, lollipops, chips, juices with preservatives and colorants and others. Parents, for whom the healthy nutrition of their children is a priority, implement various strategies in fighting the unhealthy foods. They make efforts in creating healthy eating habits for their children – to pay attention what they eat, not to succumb to direct and indirect marketing provocations – as well as to the seeking of support in the face of headmasters of schools and merchants.

According to the research, the topic for school nutrition of children does not interest inly the parents, but also the teachers and headmasters of the educational institutions. The teachers consider that the healthy lifestyle is not sufficiently discussed at home. The headmasters on the other hand do not have the absolute freedom to select the provider, which is going to deliver the food for the students. And finally the merchants, who blame the assignors of the tender procedures in dishonesty and lack of transparency.

In opposition to a number of factors that define the food choices children make, such as fashionable trends, demonstration of social status, available foods at the buffets and others, the parents undertake various measures. Some send their children to school with homemade sandwiches, fruits and vegetables in their bags. Others do not give pocket money in order to prevent the purchase of unhealthy foods. The research underlines that there is a number of cases, in which during parents meetings decisions for stopping pocket money are reached. Still if only one parent breaks the promise, the outlined strategy is bound to fail. Another common practice among the children, which also makes it hard for parents to

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<sup>7</sup> Dimitrova, Asya. *The healthy aspect of quality*. In: Regal [online]. № 3, 2015, page 6. [Checked on 02.12.2016]. Accessible from [www.regal.bg/getatt.php?filename=o\\_2567292.pdf](http://www.regal.bg/getatt.php?filename=o_2567292.pdf)

<sup>8</sup> Stoilova, Zornitsa. *Fight for food*. In: Capital [online], 2015. [Checked on 02.12.2016]. Accessible from [http://www.capital.bg/politika\\_i\\_ikonomika/obshtestvo/2015/11/06/2644303\\_borbata\\_za\\_hranata/](http://www.capital.bg/politika_i_ikonomika/obshtestvo/2015/11/06/2644303_borbata_za_hranata/)







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manage the process, is the food exchange – those who purchase food from the buffet sometimes exchange it for various services. In addition to this, there is an opinion among the children that it is not trendy to bring homemade food in school. Some of the parents, who participated in the research, share that for better success they combine various practices – they prepare homemade food and do not give pocket money for buying foods from the buffet. In addition to this they rely on the consistent and detailed explanation of the bad influences on the health of colorants and preservatives.

According to the parents, who took part in the research, the legal tools they have for handling the problem do not lead to the sought effects. Those of them, who have already informed the Bulgarian agency on food safety or the regional health inspectorates, share that their efforts remain without results. There are cases, in which the parents do not even manage to attract the attention of the school administration.

According to the parents, the problem with nutrition at cantinas and buffets to a large extent is due to the fact that they do not participate in the decision making process. A good example in this direction is Sofia municipality, which changed the Regulation on the conditions and rules for conducting tenders in January 2015 and gave a chance to the parents to participate directly in the process of selecting food providers. On representative of the school board participates in the tender committee. The school board can invite other parents as observers, without the right to a vote. The mayor of the respective region and “Education” department at the Sofia municipality, the school headmaster, together with the school board implement ongoing control on the implementation of the contracts and observance of the offered quality and the organization of school cantina nutrition. In case the school board discovers that during one school year term the cantina is attended by less than a half from the initially registered students, it informs the headmaster of the school and “Education” department at Sofia municipality so that the reasons for this reflux are identified and taken care of.

The companies, which serve school cantinas and buffets also have their worries and problems. Some of them consider that the tender procedures are conducted without publicity and transparency, as well as without free and loyal competition and equality. Bureaucracy is also a major obstacle, which providers need to overcome. One of the food providers at a school in the capital, who participated in the research, conducted by Capital and Economedica, shares: „We do not offer forbidden items, but the students go out of the school and buy these things from nearby retail shops. Is it appropriate that the school would prohibit these items, considering that its gate is wide open and all children can run outside for coke and chips“<sup>9</sup>.

Other providers face problems when meeting the requirements, because there is a discrepancy between the existent products on the market and the regulatory requirements concerning the menus and the food in school cantina and buffets. Thus for example provider “Kids’ students’ nutrition” shares his concerns about the offering of varied dairy products because of limits to fat, salt and fruit contents. Distributors offer small packages, but with higher fat content. There are also no small packages of yogurt with pieces of fruit. The existing small packages only have fruit essence and colorants. The available ayran on the market have salt. Another problem they face in their everyday work is related to the fact that according to the regulations the natural fruit and vegetable juices should be 100% pure. At the moment on

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<sup>9</sup> Same source.





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the Bulgarian market there is no mass production of fresh juices. The production on site is also problematic, considering that most school cantinas do not have the necessary conditions.<sup>10</sup>

The problems, which all interested parties face, are really serious, but the common objective – healthy nutrition of the children – is motivating enough, so that they all make efforts for discussing, collaborating and generating effective solutions.

### 3. Good practices

**Project „Let us eat healthy“**, financed under the programme EYD 2015 - 2020 /DCI-NSAED/2014/53/ „Eat responsibly! An action-oriented global learning program for EYD 2015 and beyond“/. Participants in this project are organizations, coordinating the “Eco-schools” programme in Bulgaria, Romania, Slovakia, Slovenia, Malta, Croatia, Czech Republic, Latvia and Poland. The main project objectives are:

- to contribute to the mobilization of young people to understand better the interconnected world they live in, to be motivated and qualified in order to undertake actions in favor of the global problem, related to responsible nutrition in the new member states through a programme for global education, focused to actions in schools and kindergartens, as well as the community;

- To help the teachers to integrate these issues in their teaching programmes;
- To develop students’ critical thinking and to give them an opportunity to undertake actions and to increase the awareness of the parents and the community as whole.

#### Main priorities and project activities:

A1: Increasing the knowledge and capacity of candidate-partners through trainings on integrated global education and sustainable food consumption, training and guidelines on the programme DEAR: Development education and awareness raising – development of education and key competences.

A2: Implementation of a school programme on the issues of sustainable nutrition through organizing working groups on a national level, through programme funds and databases of educational sources.

A3: Strengthening the knowledge and skills of teachers and educators through training, collection of good practices, participation in EYD 2015 – European Forum, sharing of everything learnt from the project;

A4: The implementation of the programme in the schools follows these steps:

- Development of a management team;
- Development of a teaching plan of the work;
- Review of the situation, action plan;
- Communication;
- Action campaign;



<sup>10</sup> „Kids’ students’ nutrition“ Ltd. *Healthy nutrition* [online] [Checked on 05.12.2016]. Accessible from <http://ncphp.government.bg/files/Здравословно%20хранене.swf>





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- Nutrition eco-code.

A5: Reaching the parents and the community in general via local activities, an internet page, social media. The project topic is focused on painful and really important problems, related to nutrition of our young ones and the international dimension of the work within a partnership of organizations from 8 European countries will enrich all of us with new ideas and approaches for handling the problems.<sup>11</sup>

„**Culinary recess - Manjitsu**“ is a project initiated by Lidl Bulgaria, which aims to introduce to children from 1<sup>st</sup> to 4<sup>th</sup> grade in a fun and interesting way with major topics on what a healthy and balanced diet is. Parallel with that the project aims to motivate the children to share what they learn at home and to join more actively the process of food preparation together with their parents.

For guaranteeing sustainable results, the project had been divided into two stages. During the first stage Lidl Bulgaria engages itself in presenting with instruments for measuring weight, body fat, muscle mass and other indicators. The instruments remain at the schools and the objective of this stage is to create opportunities for weight monitoring in active age and giving an opportunity to the parents to receive information regularly.



The second stage includes a visit to the “Culinary recess - Manjitsu” at the schools, participating in the initiative, which takes place within one day, during which Lidl implements two culinary classes, each of those with 60 minute duration. The culinary lesson is envisaged for children from 1<sup>st</sup> to 4<sup>th</sup> grade. During the lesson the children participate in the preparation of quick but healthy meals with the help of professional cooks, they learn how to set the table on their own for dinner and what are the healthy ingredients of the various food products. The final stage of the project includes the children’s initiation through a game platform “Manjitsu” – a table with iPads and an educational game, at which each participant has the opportunity to play and to learn more about the ingredients of the different products as well as some interesting facts about them. The game is accessible also as a mobile app in Google Play Store and AppStore.

The project has been implemented at:

- Secondary school „St. St. Kiril & Methodius”, Velingrad
- Secondary school „Otets Paisii”, Kurdjali
- Secondary school „Dimitar Talev”, Dobrich
- 22 Secondary school „Georgi S. Rakovski”, Sofia
- Primary school „Vasil Petleshkov”, Plovdiv

<sup>11</sup> Project „Let us eat healthy“. In: *Bulgarian movement „Blue flag”* [online]. 06 December 2016 13:07:49, [Checked on 05.12.2016] Accessible from: [http://www.blueflag.bg/projects\\_5.php](http://www.blueflag.bg/projects_5.php)





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Each of the 5 selected schools is able to apply for a financial subsidy after the end of the project, for the purpose of improving the sports and recreation facilities on their territories. One of the schools will win the financial subsidy for improving the conditions for sport and recreation.<sup>12</sup>

**Campaign „Let us be healthy“** is implemented by Image Consult Ltd. in partnership with the Municipality of Plovdiv in all kindergartens on the territory of the municipality over a period of 6 years now. The campaign aims at improving the contemporary training programmes, elaborated for the youngest children, among which is also the programme for healthy eating. With the help of animators, the kids get to know the main food groups and the necessity to eat nutritiously and with various foods. The animators use



an illustrative “feeding plate”, which reflects the world trends in simplifying visual materials. The children compete in teams in a number of fun thematic games. During the last 5 years, within the framework of the “Let us be healthy” campaign, have been carried out more than 850 performances before 76 000 children on the need for varied nutrition, consumption of fruits and vegetables and doing regular sports.<sup>13</sup>

<sup>1</sup>Source: <http://www.gustonews.bg/repository/originals/Media-76543-pic.jpg>

#### **4. Identified problems at national levels/initiatives that should be implemented (i.e. non-formal education initiatives) and conclusions**

Healthy nutrition of children at an early age is really important for their development and growth. This is the period of human development, during which are shaped up the sustainable eating habits, whether good or bad, which are really tough to change during later stages of life. Because of this it is important that the actions in the sphere of healthy nutrition be implemented in early childhood for the purpose of shaping a healthy model of eating and behavior, which to counteract to the negative influences, which excessive weight and bad eating habits has on the human health. It is exactly at this early age that the culture of eating and the taste to different foods is shaped up.

The latest researches concerning the eating habits in Bulgaria demonstrate worrying data, which define the eating status of Bulgarian children as damaged and unbalanced. This data arouses worries not only among the parents, but also among the policy makers, which triggered a targeted and multi-sectoral national policy, aiming at installing the principles of healthy eating in schools and kindergartens. In their will to apply various approaches for improving the kids’ health, the Ministry of healthcare and the Ministry of

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<sup>12</sup> **For our tomorrow: Culinary recess.** In: *LIDL*. “[online]. 06 Dec 2016 13:11:16, [Checked on 05.12.2016] Accesible from: <http://www.lidl.bg/bg/8689.htm>

<sup>13</sup> **The sixth issue of the campaign on healthy nutrition and sport “Let us be healthy” started.** In: *Municipality of Plovdiv*. [online]. 06 Dec 2016 13:13:26, [Checked on 05.12.2016] Accesible from: <http://www.plovdiv.bg/стартира-шестото-издание-на-кампания/>





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agriculture and foods work together in collaboration and issue a number of regulatory documents, establishing health, safety and quality standards for the food served in schools and kindergartens.

The real implementation and execution of the legislative frame though inevitably leads to problems and challenges that the control bodies observing the compliance with the rules face. The same goes for all the other interested parties – parents, teachers, headmasters, food providers. All this presupposes targeted measures from the decision makers and the control bodies in order for the inconsistencies and loopholes to be overcome for the purpose of securing healthy nutrition of children at kindergartens and schools, and not only there.

Children's nutrition is a responsibility both of the parents and the policy makers, as well as of society as a whole. Understanding their social duty and thinking for healthier future generations, various non-governmental organizations and local authorities implement various campaigns and projects, focused on sustainable healthy nutrition of children and youngsters. The administrations of Bulgarian educational institutions are open to such initiatives and join them willfully, thus supporting the children to shape up healthy eating habits and a positive attitude towards various healthy foods.



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