



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

REPORT OF NATIONAL ANALYSIS

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 TURKEY

ZÜHAL GERS, MEVLÜDIYE ÇAKIR

Kayseri İl Millî Eğitim Müdürlüğü, Kayseri, Turkey
zhlgers@hotmail.com, cakirturk38@hotmail.com

1 Introduction

No doubt that any country aiming to catch the high social and economic development level of other modern countries needs physically and mentally strong, healthy and skillful citizens. In this regard, human resource is the most important factor in the technological and social development. It is well known that human nutrition plays a vital role in pushing the human capacity to the maximum level in terms of physical and mental functions. To achieve this, the individuals should eat adequately and balanced in the family environment, and also gain positive eating habits (1). Having a healthy life in the adulthood is primarily related with developing proper eating habits in the childhood or youth (2).

Nutrition can be defined as processing the nutrients in the organisms to grow and develop, live on and protect health. Therefore, in order to keep the children healthy they should be provided with adequate and balanced nutritional elements (5). One of the most important factors which directly affect a child's physical and emotional development and social behaviors is getting nourished with adequate and balanced food that is proper for the age, gender and activities (2). Childhood nutrition is the primary factor that affects growth and development which are vital for a healthy life. 1-5 years is the most important period in terms of gaining achievements and skills. In this period, preschooler children begin to give signs about or develop certain attitudes towards food; they are no more interested in food, instead they pay more attention to what is going around. In this challenging but temporary period for the family, the children become more and more selective about food. Vegetables are the least preferred group of nutrients by the children in this period; they dislike eating mixed food and would like to see the food in the form that they can easily identify. All kinds of food should be served to a child; no food should be routinely given and his or her certain behaviors to refuse the food should not be allowed or tolerated (10).

Most of the eating disorders in the preschool age mostly stem from psychological reasons. Some children refuse to eat just to draw attention. The aim of nourishment in the preschool age is to achieve optimum growth and development through adequate variety of food. In this period, characterized with



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slow growth and fast motor development, the aim should be organizing the meals, developing dining habits and giving lifelong positive eating habits.

2 How is child nutrition organized at national level in kindergartens and schools (ref. to children 4 to 10 years old)

2.1 General description of the situation

Schools play an important role in giving the children and adolescents healthy nutrition and physical activity habits. In the national efforts for the prevention of chronic diseases such as childhood obesity, coronary heart disease, diabetes and cancer the schools play a crucial role. The nutrition programs which are applied at schools significantly increase children's educational potential, academic performance and life quality.

Children grown healthy to adulthood are the key fact for the healthy future of a nation (11). The main aim of nutrition in childhood is to ensure adequate growth and prevent deficiencies. Personal needs for nutrients may vary according to genetic and metabolic differences (10). While adequate and balanced nutrition is the key to a healthy and quality life in all the periods of life, it becomes much more important at the school age as growth and development go faster and learning and cognition functions become more important (11).

School is the most important environment in the social order since it is the first place for the children to start social relations and interactions (2). It is seen that the food applications at schools started first with milk and fruit distribution in America in 1940's and later continued in Europe in the following decades. Today, children are offered various food options and opportunities at schools. In addition to "National Breakfast Program" and "National School Lunch Program" which are applied in some countries, there are also buying alternatives which offered to children such as snack bars, à la carte programs, automates and school stores (8). There are various programs, projects and studies which intend to identify and map the eating habits and food preferences of youth, so that prevent the chronic diseases such as overweight, obesity and type-2 diabetes which have been tremendously increasing for last three decades and increase the knowledge level of youth by educating them on healthy nutrition and healthy eating habits. As a result of these programs the prevalence of obesity decreased, the quality of diets and the level of activities increased.

Below are the nutrition programs applied in Turkey:

- "Akıllı Çocuk Sofrası (Smart Children Dining Table)" (MEB 2012 (National Ministry of Education)) - Developing healthy nutritional habits
- "Şarkılarla Besleniyorum (I am Nourished with Songs)" (MEB 2012) - Developing healthy nutritional habits
- "Beslenebilirim (I can nourish myself)" (MEB 2012) - Creating nutritional awareness in primary school students
- "Okulumda Besleniyorum (I am Nourished at School)" (MEB 2012) - Developing healthy nutritional habits
- "Yemekte Denge (Balance at Meals)" (MEB 2012) - Developing healthy nutritional habits
- "İlköğretim Okullarında Beslenme Eğitimi (Education on Nutrition at Primary Schools)" (SB 2012 (Ministry of Health)) - Developing healthy nutritional habits



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- **"Beslenme Dostu Okul (Nutrition Friendly School)" (SB 2012) - Developing healthy nutritional habits (3)**

Nutrition systems at schools in Turkey may vary according to teaching hours during the day. The students in state schools are not served snacks or meals in the midmorning or afternoon. During the elevenses, they often eat bag food that they bring from home according to a program prepared by the school administration or their personal preferences. At the lunch time, children eat bag lunch or buy food, often with low nutritional value, from the school canteen (4).

2.2 Which is the process to approve the food sold in the school

The food sold at school environment are controlled according to the general comminiques and regulations issued by the National Ministry of Education. The National Ministry of Education issued the communique No. 0.757.378-10.06E2852893 on 10.03.2016. The scope of this communique is: The Inspection of the Food Sold in School Canteens and Food Premises in Educational Institutions Regarding the Hygiene. According to this communique:

School Health Board Resolutions Report

The criteria for the food sold in school canteens, cafeterias, kiosks, also including the refectories of educational institutions with dormitories are as follows:

1. Foods not approved to be sold at educational institutions:

- Energy drinks, fizzy drinks, flavored drinks (cold tea, ice tea), coke, flavored natural mineral drinks, flavored syrups, flavored drink powder, flavored water, fruit drinks, fruit flavored drink powder, fruit flavored natural mineral drinks, artificial sparkling water, fruit syrups, sports drink, sports water, fruit nectar, fruit juice concentrate
- Fried food
- Crisps (potato, corn, shaped etc.), crunch appetizers
- All kinds of chocolate (sold separately or food additive, chocolate drops, cream chocolate, including the chocolate coated products), wafers (regular, with filling, coated etc.)
- All kinds of sweets and confectionery products (jelly candies, hard candies, soft candies, with or without filling, coated, dragee, all lolly-pops etc.)
- Guarana, guarana extract, caffeine added products
- Cakes and desserts (cakes, eclairs, croissant, doughnut, parfait, mosaic cake, muffins, cupcake etc.) with cream, chocolate filling, jelly.
- Pastry products with sugar (including dry baklava)
- Foods and drinks with sweetening agents
- Cream, cocoanut milk and cream
- Tea and types of coffee drinks (except high schools)

2. Foods approved to be sold at educational institutions:

- Fruits, foods that can be eaten raw (seasonal), salads (can be served with olive oil and lemon)
- Dried fruits (30 g, packed, without coating and sugar addition - fig, apricot, raisin etc.)
- Assorted nuts (30 g, packed, not sauced, salt free, unshelled - walnut, hazelnut etc.)
- Drinking water (without sugar and sweetening agent)
- Milk (UHT/Pasteurized milk)
- Freshly squashed orange and vegetable juice (without additional sugar and less than 250 ml)
- Yoghurt (100-150 g, packed)
- Ayran (bottled in 200-ml containers) (A traditional Turkish drink: water added yoghurt)
- Cheese (pasteurized)
- Daily boiled egg
- Breads with fruits and topping (fruits and topping: hard shelled fruits, dried fruits, oily seeds, spiced breads)
- Sandwiches without oil addition and made of whole wheat flour, bread with whole wheat flavor, multi-grain bread etc. and containing the following ingredients:
- - Egg and cheese
- - Tomato, carrot, lettuce, green pepper etc. except pickles
- Natural mineral water
- Sugar free chewing gums:

3. Packed foods and drinks approved to be sold if meet the following criteria (cake, biscuit, cracker, condiment added/flavored yoghurt etc.; condiment added/flavored milk):



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• Energy amount of the oil in the product shall not exceed 35% of the total energy. • Energy amount of the saturated oil in the product shall not exceed 10% of the total energy. • Energy amount of the natural and additional sugar in the product shall not exceed 35% of the total energy. Sodium amount shall be ≤ 200 mg. • In ice-cream, ice-milk, ice-milk with vegetable oil and milk desserts the amount of total energy and saturated oil shall be respectively ≤ 150 kkal and ≤ 3 g. • Edible iced products shall contain 99% or more fruit juice and be over 125 mL with no sugar added. • Crushed icy drinks shall contain 99% or more fruit juice and be over 200 mL with no sugar added. • The amount of sugar added in the production of condiment added and/or flavored drinking milk shall be: $\leq 5\text{g}/100\text{mL}$ and the total sugar (natural milk sugar and added sugar) shall be: $\leq 9,5\text{g}/100\text{mL}$. • The total amount of sugar added in the production of condiment added and/or flavored yoghurt shall be $\leq 12,5\text{g}/100\text{g}$. • Fruit and vegetable juice shall be 100% fruit and vegetable juice and be over 250 mL with no sugar added. • At high schools tea and types of coffee drinks shall not be more than 375 mL. 4. Snacks Approved To Be Sold If Meet the Following Criteria • In bun (1 large size=75 g), toast (15 g with Kashar cheese or 30 g white cheese) and bagel (1 small size=90 g) the energy, saturated oil and sodium content shall be respectively ≤ 250 kkal, ≤ 5 g and ≤ 400 mg. • In regular cake (home made/fast food: 1 large piece=60 g) the energy and saturated oil content shall be respectively ≤ 240 kkal and ≤ 3 g. 5. Hot and Processed Food Approved To Be Sold If Meet the Following Criteria (for 100 g) • In salted pastry products, sandwich, pasta, pizza, flat bread, roasted potato products, rice and spaghetti the energy, saturated oil and sodium content shall be respectively ≤ 250 kkal, ≤ 5 g and ≤ 400 mg. • In meat products (burger, meatball, nugget etc.) and sausages the energy, saturated oil and sodium content shall be respectively ≤ 250 kkal, ≤ 5 g and ≤ 450 mg. • In processed meat (salami, ham and sausage etc.) the energy and saturated oil and sodium content shall be ≤ 250 kkal, ≤ 3 g and ≤ 750 mg.

All kinds of pre-packaged food and sandwiches and other foods sold must be packaged and comply with the "Turkish Food Codex Regulation on Materials and Articles in Contact with Food" and "Communique on the Hygiene Rules at School Canteens".

Turkish Republic Ministry of Health, Public Health Institution of Turkey implements the Health Friendly Schools Project. In this project, the criteria about the Nutrition are as follows:

Creation of the Supportive School Environment

1. Food and Drink suppliers/sellers shall obey the healthy nutrition and the food safety rules. The food served at schools shall conform to the Nutrition Guide for Turkey. Foods and drinks rich in oil and energy but poor in vitamins and minerals shall not be sold.
2. Relevant institutions and organizations (Provincial Directorate of Food, Agriculture and Livestock, Municipality/Provincial Directorate of Administration/Administration of Industrial Zone, Provincial Directorate of Health) will support the inspection and controls of the enterprises selling and serving food or drink around the school. The school administrations will develop a proper attitude towards the food sellers around the school to apply healthy nutrition rules.
3. Schools shall carry out activities and events in which posters, brochures, radio broadcasts and films with proper positive messages about healthy nutrition and active life are used, and then these materials will be exhibited at available places in the school. Hygiene Guide, Information Series on Nutrition and Nutrition Guide for Health are available at the website of the Turkish Republic, Ministry of Health. The "ALO 174 FOOD LINE" telephone service and www.alo174.gov.tr website of the Ministry of Food, Agriculture and Livestock will be publicized.
4. The content of the bag lunch will be selected according to the weekly nutrition program prepared by the Ministry of Health and sent to the Provincial Directorates of Education to be distributed to the school



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administration. Photos of standard, proper and well-prepared lunch bags alternatively can be placed on the available noticeboards at schools.

5. The teachers shall control the content of the lunch bags every day.
6. The foods and drinks which are defined as rich in oil and energy but poor in vitamins and minerals according to the existing communiques or regulations issued by the Ministry of National Education shall not be advertised and/or sold.
7. According to the communiques or regulations issued by the Ministry of National Education, the school canteens will sell the drinks such as milk, ayran, yoghurt, etc. and freshly squashed fruit or vegetable juice and fruits and vegetables separately by piece or item. The canteens shall not provide the prohibited foods and drinks.
8. According to the communiques and regulations on canteen services, a commission consisting of the manager and the assistant manager assigned by the manager shall control the canteen at least once a month using the "School Canteen Control Form" in the annex of the communique.
9. The schools must have a sanitary, ventilated, well illuminated and big enough area/refectory where students can have their meals. In the Book of School Health published by the Turkish Republic Ministry of Health, the physical properties of the kitchens, refectories and canteens are described as follows: The floor and the walls of the kitchens, refectories and canteens must be coated with easy-to-clean material; the food must be prepared and distributed in a big enough room or area on the ground floor of the building. Cooking, eating, drinking and dish-washing areas must be physically separated. Ventilation, illumination, heating and drinking water must be sanitary and pest proof. Tables, chairs and other materials must be easy-to-clean. There must a proper refrigerating system. The employees regularly must go through medical examinations. Foods and drinks must not be left out.
10. Time for lunch shall be minimum 30 minutes.
11. Menus must be prepared according to menu models published by the Ministry of Health (Menu Models for the Full-day Schools and Sample Lunch Lists www.beslenme.gov.tr) or comply with the menu preparation criteria described in the same document.

2.3. Legal requirements relating to food sold, consumed and served at schools

Ministry Of Food, Agriculture And Livestock, The Communique On The Hygiene Rules At School Canteens

ARTICLE 1 – (1) The purpose of this communique is to set the specific hygiene, food safety and official inspection rules relating to the food premises such as refectory, canteen, cafeteria, kiosk or coffee shop which operates within the educational institutions or organizations.

ARTICLE 31 – (1) Food safety and hygiene inspection of food enterprises and premises shall be conducted according to the inspection program by the controllers authorized by the Provincial/County Directorates of the Ministry.

(2) Regulations relating to the employees of the Ministry of National Education, and procedures and principles for their training on food safety and hygiene are set by the Ministry of National Education. During the inspections, if the qualified controllers of the Ministry find nonconformities in the food enterprises or premises, they immediately inform the administrators of the school and the institution, and the ministry for immediate control and follow-up, if required the provincial/country directorate of health also must be informed about the nonconformities.



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(3) The controllers take legal action against if the food enterprises are not registered in the Ministry or violate the rules relating to food safety and human health.

(4) The enterprise place the informative materials such as advertisements, brochures, information and documents intending to promote healthy nutrition and safe food consumption and increase drinking milk easy-to-see places within the enterprise. To increase the efficiency of the inspections, the enterprise shall place the ad hoc advertisements in distinctly visible places within the enterprise, for example the advertisement on which the private telephone line of the Ministry "ALO GIDA 174" is displayed.

(5) If the enterprise suspects a food or drink may derange human health, it immediately stops the sales and the consumption of the food suspected and informs the Ministries of Health and Education to have the suspected product inspected by the relevant authorities.

2.4. Issues Identified

Safe food is a term used to define "The food product which has no nutritional loss, microbiological, chemical and physical hazard or risk for health and is appropriate to be consumed by the people. Foodborne disease is any disease resulting from the consumption of unsafe food. The changing circumstances of today's world are pushing more and more people to eat out. Every year a great number of people worldwide develop foodborne diseases because of the unsafe food that they eat out. Foodborne diseases risk the health of people and may cause deaths and economic loss. The statistics of World Health Organization (WHO) show that 1,8 millions of people died of diarrheal diseases in 2005. A great majority of these cases were caused by the consumption of unsafe food and drinking water. According to the statistics submitted to the WHO by the Ministry of Health in Turkey nearly 77 thousands of disease cases were reported in 2000. To ensure the food safety, many countries particularly the USA and EU countries developed and implemented various standards and management systems for food safety. Good Manufacturing Practices (GMP), Good Hygiene Practices (GHP), Standard Operating Practices (SOP) and HACCP became mandatory in many countries. The ISO 22000 is the final point reached in the historical development of these systems. The legislations which were enacted in Turkey during the last decade intend to make HACCP widely implemented in food enterprises. The content of ISO 22000 also covers the HACCP. Yet, there is a great need for information and publications relating to these systems which are new in Turkey.

3 Good practices

First nutritional programs for the primary school students in Turkey were initiated by the UNICEF in 1956-1957 as an experimental food aid program. CARE (Christian Action Research and Education) joined these programs in 1959-1960 which were originally initiated by the UNICEF. In 1965 UNICEF aids concentrated on a specific focus area but these nutritional programs were continued by CARE until 1975. In the third 5-Year Development Plan implemented between 1973 and 1977, the Turkish government requested the CARE stop the aid program and instead started to use its own resources to fund flour, margarine, rice and milk powder distribution to the students. This program never became a government program and was abolished in time. In the following years, milk distribution programs were implemented on and off in different parts of Turkey



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for different purposes (pilot testing). For example, in the 1984-1985 academic year 1,279,957 students in 14 cities were given 200 mL on the daily basis; in 1985-1986 academic year 215,380 students in the suburbs of the three big cities were given 200 mL milk three times a week; in 1987-1988 academic year 643,530 students were given 200 mL milk everyday during 10 weeks. During 2001-2002 and 2002-2003 academic years 1 million of students in the selected four provinces were given milk on the daily basis. Today, in Southeastern parts of Turkey this program still continues despite some minor problems. When the onset of these programs analyzed it is seen that, nearly in all countries, milk is the most preferred nutritional item in the school programs. The reason is that milk is both practical and contains various nutritional elements such as energy, protein, carbohydrate, fat, vitamin A, riboflavin, calcium and magnesium. Milk distribution programs at schools intend supporting the nutrition of children as well as giving milk drinking habit. Some studies on this subject show that the children having milk at school are better nourished and take more calcium, vitamin A and riboflavin compared to those who are not having milk.

According to the statistics of 2006-2007 academic year, there are nearly 14.8 millions of pre-primary, primary, secondary and high school students in Turkey. 336,000 (2.3%) of these students are at independent schools. Nearly 1/3 of the independent schools (110,172, 31%) are located in Istanbul. All of the independent schools serve their students lunch but some of them also serve snacks in the midmorning and the afternoon. The school meals/menus, with at least three but generally four varieties or open-buffet items, are usually non-nutritious and prepared considering the preferences of the children. Menus often include fried potato and pastry but rarely vegetable dishes and dairy products especially yoghurt. So, the menus are rich in fat and sugar but poor in mineral and fiber. Except the primary schools implementing nutritional programs the majority of the state schools do not offer the students midmorning or afternoon snacks. In these programs, the students bring their bag lunch from home according to their preferences or the program prepared by the teachers. However, these programs are usually underestimated or ignored by the parents and the teachers, so the students usually buy and eat nutritionally poor foods such as bun, burger, cracker, biscuit, cake, coke, fruit juice, chocolate, wafer, candies and chips (7).

The primary factors in the formation of eating habits are: personal eating preferences, preferences of the family, media and social norms and finally parents as a model in food selection. However, the personal preferences which influence the eating habits, behaviors, beliefs, knowledge, self-esteem, meal and snack patterns are efficient factors in weight control. Family, friends and the other people are the social environmental factors influencing the eating habits. Thus, eating habit of a person is the core his or her physical development, health and personality. Differentiated and increased interests, becoming independence and self-determinacy, social life and concerns related to integration with the others lead the youth to spend more time outside. This new situation initiates changes in eating habits and behaviors, causes eating too much fast food, applying wrong diets, skipping meals and suppressing the hunger with only snacks. Since behaviors are the responses to past events or stimuli, the intensity of the response will be concordant with the intensity of the event experienced in the past. Unavoidably, the intensity of these events will result in negative or positive behaviors. In other words, behaviors are the results of both the past experiences and the current situation. Social changes also modify the nutritional habits in time.



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Increased economic income usually results in preferring the refined foods with high energy content and low nutritional value instead of the traditional foods. Gaining nutritional habits and behaviors in early ages will be the key factor in the future to prefer foods with rich nutritional content, and to increase the life quality and keep healthy (8).

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

The nutrition of children in Turkey has significantly improved as a result of policies promoting breastfeeding and consuming iodized salt as well as economical development, urbanization, having a smaller family and the social changes. However, a significant percent of children in Turkey are still malnourished and suffer health problems or risks due to micronutrient deficiencies such as iron and vitamin deficiencies. This is an indication of the fact that the social services and social protection systems are still incapable to eradicate the child poverty and in some cases the parents and the nursemaids are ignorant of diet and nutrition. The findings of the nation-wide research conducted in 2011 have not been reported yet, and the statistical data related to the micronutrient deficiencies are limited. In addition to this, Demographic and Health Survey 2008 (DHS) reported that 10.3% of the children are stunted and 3.2% are severely stunted. While the ratio of stunted children under five was 16% in 1998, it decreased to 12.2% in 2003. The fact that stunted children are short for their age is a sign of chronic malnutrition. Nearly 1% of children under five in Turkey are undergrown. In other words, as a result of acute malnutrition the weight of these children is low in proportion to their height (5).

Malnutrition affects not only the survivability, physical health and stature but also the cognitive development. It has been described as a hidden global emergency. It persists in middle income countries as well as in the poor countries. WHO data cited in UNICEF's State of the World's Children report 2012 puts stunting at 29% for Egypt, 17% for Malaysia and 16% for Mexico but only 8% for Jordan and 7% for Brazil. In Turkey, malnutrition shows substantial variations between regions, and between urban and rural areas, which is unsurprising given the distribution of poverty in the country. The 2008 DHS, dividing Turkey into five main regions, showed that 20.9% of children in the "East" region were stunted, compared to 7.6% in the "West" region. For specific provinces or districts, the ratio may be still higher. Separately, the survey put the percentage of households using iodised salt in the East at 61 percent-twenty-four points below the national average. In its Concluding Observations in June 2012, the UN Committee on the Rights of the Child recommended that Turkey "continue its efforts to eradicate malnutrition, especially stunting, as well as improve neonatal care with special emphasis on the Eastern regions". Efforts to improve health and nutrition outcomes in difficult locations will be much more meaningful if they are made in the context of policies designed to overcome the wider economic and socioeconomic disadvantages of the population (5). The nutritional issues in Turkey are similar to the ones in the developing and developed countries. It is seen that bread and other cereals are the primary nutrients for the Turkish people. Bread alone provides the 44% of the daily energy while the other %58 comes from other products made of bread and other cereals. The analyzes show that during the last decade the consumption of bread, milk-yoghurt, meat and meat products, fresh vegetables and fruits decreased where as consumption of dried legume, egg and sugar increased. (6).



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Requirements and recommendations to support and improve healthy growth, academic achievement and health of the school children:

- The dishes or items in the school menus should be limited to 3 or maximum 4, which in some schools currently may contain up to 6-8 open buffet dishes or items,
- Menus must be prepared considering the healthy nutrition principles and nutritional needs instead of the students' personal preferences.
- Menus mainly must contain a balanced amount of vegetables, fruits, dried legumes and dairy products, but unhealthy products such as fried potato and pastry must be avoided or preferred less.
- Seasonal fruits should be preferred instead of canned or packed fruit juice,
- School menus should not contain any type of fizzy drinks,
- Salads should not contain mayonnaise,
- Menus should not contain desserts more than once a week and in the dessert selection milk desserts must be preferred,
- Fried products (potato, sausage, fish, pastry) must be avoided,
- Menus should not contain repeated dishes or ingredients,
- The snacks between the meals mainly should contain fruits,
- School canteens should not sell the foods rich in fat such as crisps, fried potato, hamburger and the drinks rich in caffeine such as cokes, energy drinks and ice tea,
- School canteens mainly should sell fresh fruit, salad, sliced wholewheat bread, cheese, varieties of yoghurt, ayran and milk,
- Vendors around the school selling insanitary and hygienically unsafe food such as bun, wafer, sweets, confectionery products and burgers must not be allowed.
- During the lunch and snack times the teachers should have their lunch with the students,
- Refectories should be well decorated and attractive for the students. For example, the interior illumination should be sufficient; posters promoting the healthy nutrition should be placed on the walls and there should be background music.
- The school should have proper and adequate area for physical activities.
- The lessons, courses, breaks between the lessons, and even the programs organized after the school should contain more physical activities,
- For these precautions and efforts, a strong cooperation with the families should be established.

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