Co-funded by the
Erasmus+ Programme
of the European Union



# PRACTICAL GUIDE FOR HEALTHY EATING

## "INCREASING FOOD LITERACY COMPETENCIES OF ADULTS"

2020-1-TR01-KA204-092828

2022

Co-funded by the
Erasmus+ Programme
of the European Union



# "INCREASING FOOD LITERACY COMPETENCIES OF ADULTS"

FOODTR

**2020-1-TR01-KA204-092828**

# 2022

**CONTENTS**

**TABLES AND FIGURES**

**PREFACE**

*"Increasing Food Literacy Competencies of Adults" Project is coordinated by Central Research Institute of Food and Feed Control from Turkey and funded by the Erasmus+ Program of the European Union in the field of Strategic Partnership for Adult Education. Project partners are General Directorate of Agricultural Research and Policies, Bursa Provincial Directorate of Agriculture and Forestry, Bursa Metropolitan Municipality (TARIMAS) and Bursa Technical University from Turkey. Overseas partners of the project are Food Canning National Technology Center (CTC) from Spain, Széchenyi István University (SZE) from Hungary and Food and Fermentation Technologies Center (TFTAK) from Estonia.*

*Food literacy is having the knowledge, skills and attitudes necessary to access and evaluate the information related to food and nutrition, to make appropriate choices for a healthy and balanced diet, to prevent food waste and to have positive consumption attitudes towards sustainable food systems. With the "Increasing Food Literacy Competencies of Adults" project, it is aimed to increase the food literacy skills of individuals, to ensure their access to healthy and reliable food, to understand the importance of food literacy within the society.*

*"Guide for Healthy Eating" will give information and recommendations to promote an adequate and healthy diet of target groups (consumers, local farmers, homemade food entrepreneurs, parents, housewives, retired people to improve their health and nutrition status. The practical guide aims to be a useful and easily understandable tool, complementary with other products of the project for target groups and aims to deliver key recommendations for healthy eating.*

# 1. INTRODUCTION

Nutrition is one of the most basic requirements for survival since the existence of human history. Nutrition is the use of nutrients in the body by consuming nutrients that provide bioactive components and nutrients necessary for the maintenance of life, growth and development, improvement and protection of health, improvement of life quality and productivity. In the twenty-first century we live in, scientific/evidence-based studies and research focusing on the interaction of health and nutrition support the importance of nutrition on health. Healthy nutrition is based on adequate and balanced nutrition [1].

In order to protect health and prevent nutrition-related diseases, food-based nutrition guides and food guide visuals are used to transmit scientific-based nutrition information to the society. The World Health Organization (WHO) and the Food and Agriculture Organization (FAO) support the efforts to develop food-based nutrition guides and food guide visuals, and consider them as an important part of nutrition policies [2]. Differences in food sources, dietary habits, cultural characteristics, food supply and health problems necessitated countries to develop their own nutritional guidelines. Prevention of diseases by developing a healthy diet pattern and healthy lifestyle is of great importance in societies. In order to achieve the expected quality of life in the globalization process, it is necessary to increase the nutritional awareness of all individuals and the society, and to transform healthy nutrition into a lifestyle [3]. The healthy life and economic development of the society depends on the health of the individuals who make it up.

The basis of health is adequate and balanced nutrition. In this direction, the aim is to protect and improve the health of all individuals throughout life, to increase the quality of life and to ensure the adoption of a healthy lifestyle (healthy diet and physical activity habits, prevention of alcohol and tobacco use) [4]. Minimizing or eliminating the nutritional problems (weakness, stunting, anemia due to iron deficiency, iodine deficiency diseases, folic acid and vitamin D deficiencies, dental caries, obesity, etc.) that exist in the society, improving the quality of life, and preventing chronic diseases related to nutrition (heart disease, vascular diseases, hypertension, some types of cancer, diabetes, osteoporosis, etc.) can be achieved by improving the lifestyle, improving environmental conditions, providing access to and consumption of healthy food. Sustainable food security is possible by raising awareness and education of the society on food safety, food, nutrition and health in order to improve health [5].

## 2. HEALTHY EATING PATTERN

Adequate and balanced nutrition (healthy nutrition) is of great importance at every stage of life, from infancy to old age. In this direction, the aim is to protect and improve the health of all individuals throughout life, to increase the quality of life and to ensure the adoption of a healthy lifestyle. For healthy nutrition, it is necessary to consume foods based on food diversity and to educate the public in this direction [6].

Healthy nutrition recommendations should be developed in accordance with the country's nutritional status, nutritional habits, cultural structure and environmental differences. For this purpose, nutrition and health research reflecting the country is needed. "Nutrition Guidelines", which are prepared according to the outputs of the evidence-based data obtained, are used by consumers, policy makers, nutrition and health professionals to educate the public and to share messages about healthy nutrition recommendations with the society [7].

***Nutrition guidelines are based on food and its main purpose is to,***

- Giving the right messages to the public
- Avoiding information pollution and differences between institutions and individuals in the messages given
- Ensuring unity with the educational materials used

## 2.1. Food Pyramid

Nutrition is the consumption of food for growth and development, maintenance of life, protection and improvement of health. In addition to hereditary characteristics, climate and environmental conditions, functional nutrition has an important effect on maintaining a healthy life. Food pyramids have been developed to balance daily food consumption amounts in order to maintain a healthy life (Figure 1). The food pyramid contains 5 basic food groups: meat, eggs and legumes, milk and dairy products, cereals, vegetables and fruits, fat and sugar. Therefore, the food pyramid is a guide that includes the foods that individuals should take on a daily basis. Countries have food pyramids and nutrition models suitable for their own conditions, social and traditional structure [8].

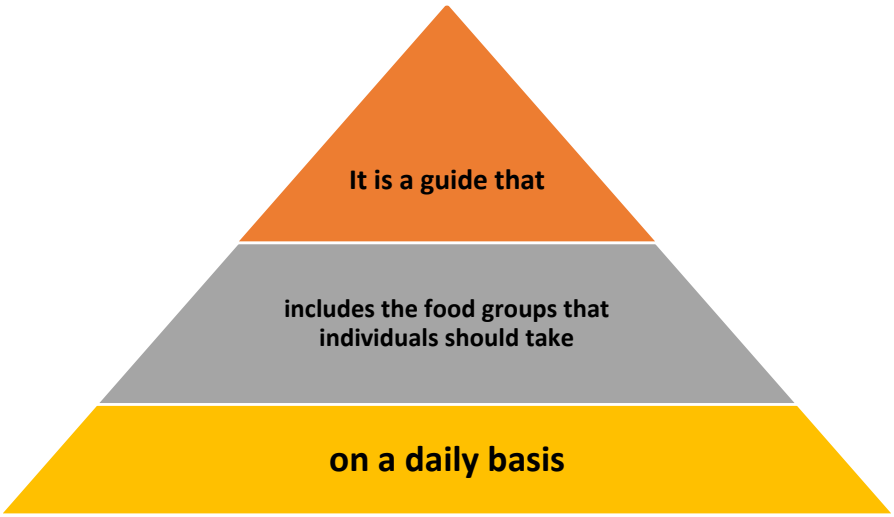
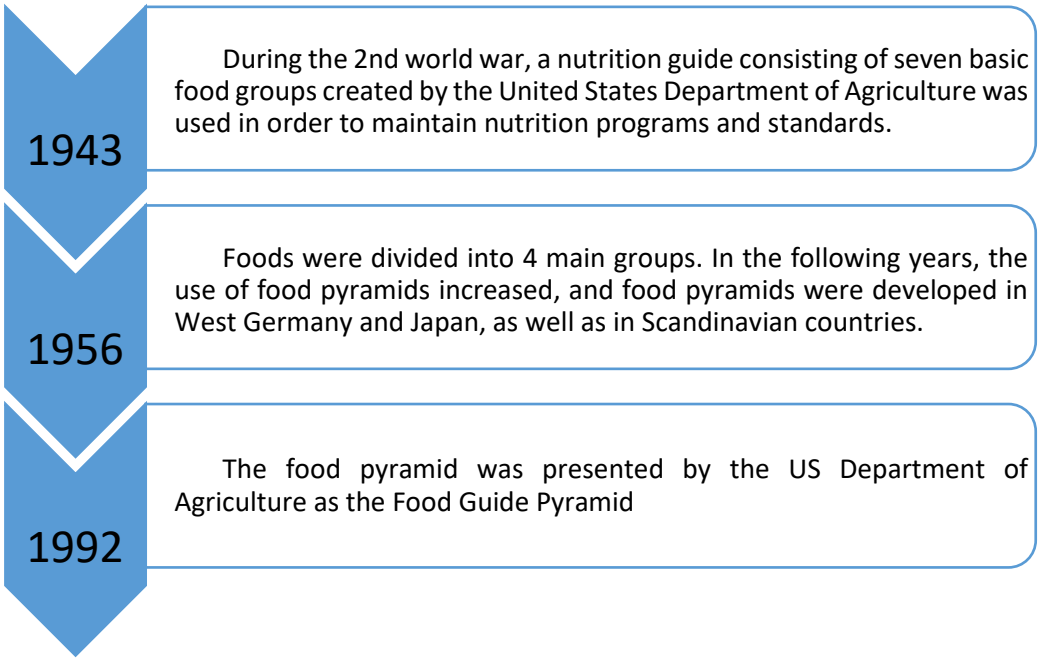



**Figure 1.** Food Pyramid

It has been developed to balance daily food consumption amounts for the continuity of a healthy life.

### 2.1.1. History of the Food Pyramid

Countries have developed and used food pyramids and nutrition models according to their own nutritional conditions and social structure.




According to the first pyramid, bread, cereal, rice and pasta are located at the widest base of the pyramid as 6-11 servings, followed by fruits (2-4 servings), milk, yogurt, cheese (2-3 servings), meat, chicken, fish, dried legumes, eggs and nuts (2-3 servings) lastly, oils and sweets (less use) were included as the smallest portion (Figure 2).

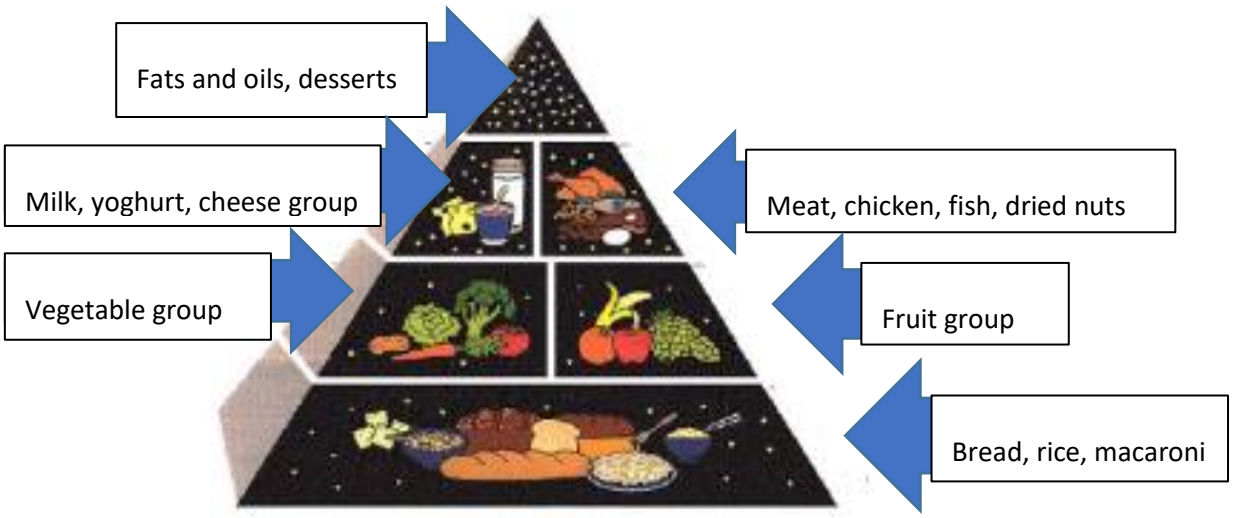



**Figure 2.** U.S. Department of Agriculture Food Guide Pyramid

However, as a result of increasing obesity in the USA, the validity of this nutrition pyramid has started to be discussed. It was updated as "Mypyramid" in 2005 (Figure 3). Perhaps the most important change is that a picture of a mountaineer representing the exercise is placed on the stairs that make up the pyramid. In addition, vegetables and dairy products, which were narrower than grains in the previous pyramid, were also divided equally by the grain group and included in the pyramid. A narrower area was used for the proteins placed after the fruit and a narrow line was used for the oils.


**Figure 3.** Mypramid model (https://en.wikipedia.org/wiki/MyPyramid)

It was replaced with “myplate” in 2011 (Figure 4). Half of the plate was divided into fruits and vegetables, the other half was grains and proteins, and dairy products were additionally placed on a separate small plate, and these groups were also of different sizes. Unlike the pyramid, the vegetable and fruit groups are handled separately in the plate model. In the plate model, it is a guide on how much food should be consumed according to the areas covered by the food groups. Each country has made changes in the pyramid according to their own food habits, local foods and conditions [9].

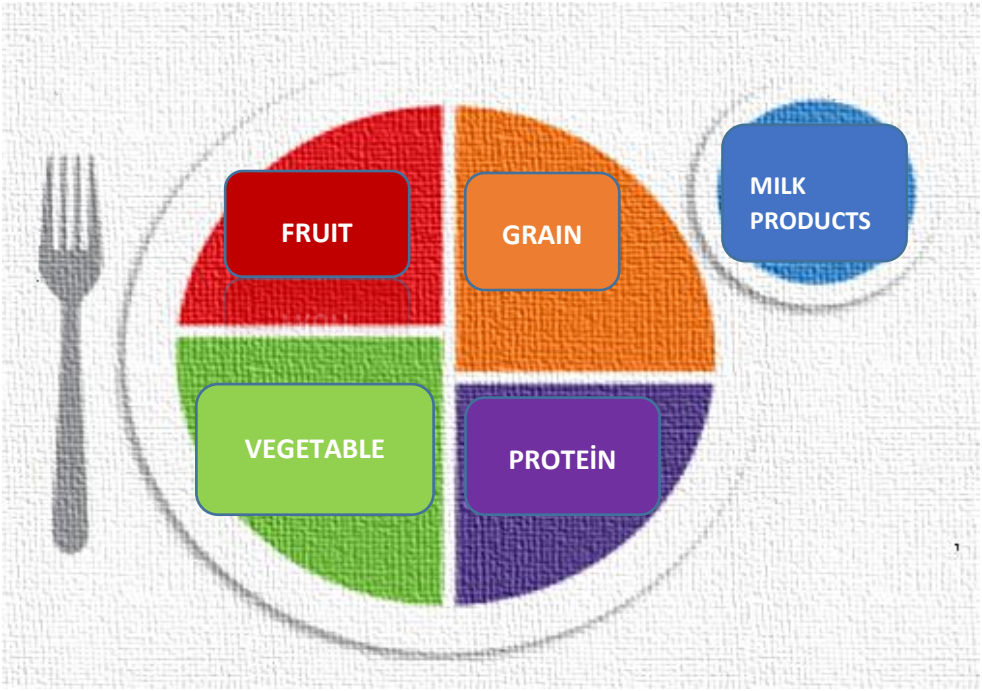



**Figure 4.** Myplate model

### 2.1.2. The Purpose and Characteristics of the Food Pyramid

The nutrition pyramid is a guide that outlines how much of each food group should be consumed each day. The nutrition pyramid is based on the principle of meeting the daily nutritional needs of people for a healthy diet, taking various foods and maintaining the calorie balance. The daily energy requirement differs from person to person. According to this requirement, calorie balance can be easily achieved by consuming a certain number of portions from each group in the pyramid.

In fact, although each of them may look different, the food pyramids basically have the same purpose. These pyramids which determine the amount of portions that individuals should consume daily and the nutrients they should take aim to establish a diet that allows for a healthier and longer life and protects them from chronic diseases [10].

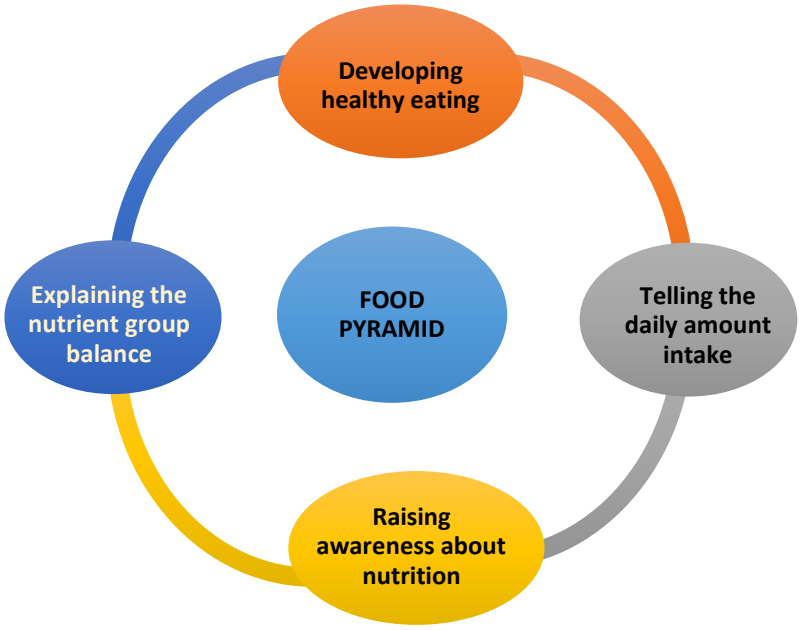



**Figure 5.** The aim of food pyramid

### 2.1.3. Food Pyramids Reflecting Traditional Diets of Countries

Countries have felt the need to develop a unique food guide due to the differences in food sources, nutritional habits, cultural characteristics, food safety, nutrition and health problems. For the visual representation of food guides, different symbols (various geometric shapes such as circles, triangles and pyramids), graphics representing cultural elements or different symbols are used in different countries.

By using different images such as four-leaf clover in Turkey, healthy dinner plate in England, three-dimensional food pyramid in Germany, food circle in Portugal, food guide pagoda in China, rainbow in Canada, food flag in Thailand, food guide spinner in Japan, the ladder in France, the house in Hungary and the compass in Denmark, adequate and balanced nutrition information is provided to the society [11].

### 2.1.4. Food Pyramid in Turkey

Considering the food production and nutritional status in Turkey; it has been decided that it is appropriate to use four basic food groups in the planning of the basic foods that should be taken daily, and these four food groups are expressed with the "four-leaf clover" model (Figure 6). The use of clover is symbolic because it symbolizes happiness in Turkey. In addition, its heart-

shaped leaves evoke health and love. The circle surrounding the leaves has the expression “Adequate and Balanced Nutrition” in the lower part, and the olive branches in the upper half. The lower half of the circle is surrounded by the expression 'adequate and balanced nutrition'. Olive branches that symbolize peace and refer to olive oil, which is a very important component of the Mediterranean diet [12].


**Figure 6.** Four Leaf Clover Model

Model includes dairy group, meat group, vegetables and fruits, cereals. Fats and sugary foods used to meet the energy deficit of people are planned by diet experts according to the needs of individuals.

In order for a person to live a healthy life, grow, renew, develop and work, a sufficient and balanced diet is necessary. The role of the food pyramid in adequate and balanced nutrition is to express the food groups that should be taken daily according to age, gender and physical activity in the most understandable way. For a healthy and regular diet, the food pyramid should be well known. Food pyramids vary according to the living conditions and nutritional habits of societies. One of the prerequisites for healthy generations is adequate and balanced nutrition. Diseases caused by malnutrition (such as diabetes, obesity, cancer, cardiovascular diseases) due to reasons such as decreased physical activity, spending meals outside the home, and increased

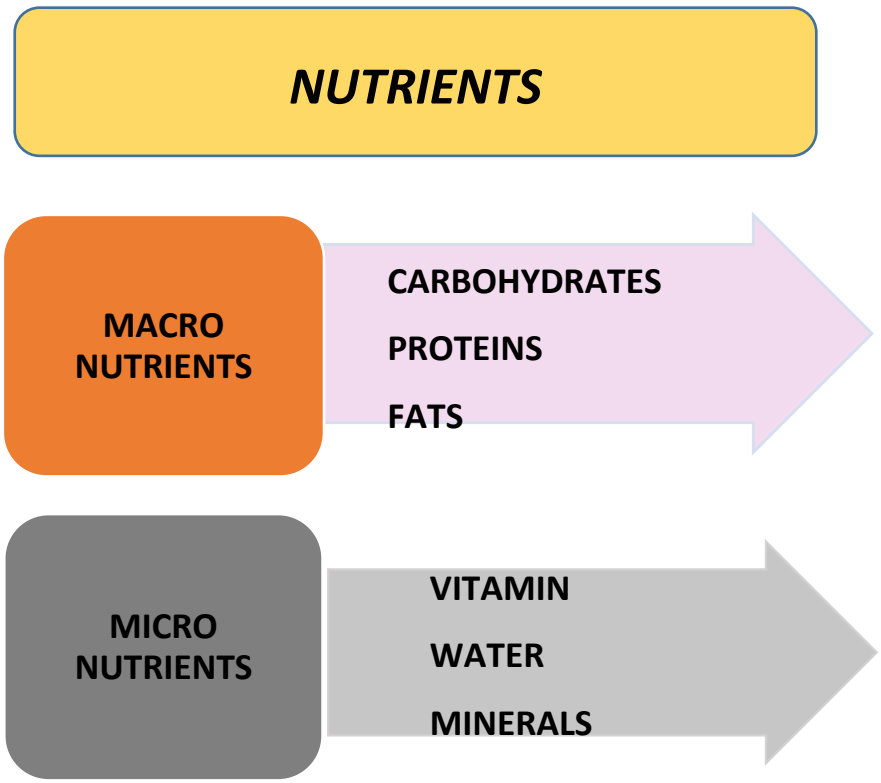
consumption of snack foods with high energy value and low nutritional quality with the modernized lifestyle in recent years. It is one of the major nutritional problems. In order to prevent this, it is thought that it would be appropriate for public and private institutions, education and the food sector to cooperate so that the food pyramids can be understood and individuals can use them in their own proper nutrition. In addition, it has become important for today's conditions to carry out studies to further functionalize the food pyramid in community nutrition and to understand its awareness in healthy life.

## 3. NUTRIENTS

Adequate and balanced nutrition is the condition of getting enough of the nutrients necessary for the growth, regeneration and functioning of the body and using them appropriately in the body. Nutrients are molecules found in the composition of foods and have various functions in the body. If these nutrients cannot be taken at the level of the body's need, malnutrition occurs because sufficient energy cannot be produced and body tissues are not made [13].

It has been scientifically determined that malnutrition in the first 1000 days following the birth of a child reduces the capacity of that child to benefit from nutrition and nutrients in later life, which reduces the success and health capacity of these children in later life.

Nutrients taken into the body play a fundamental role in providing the energy necessary for the protection of organs such as the heart, brain, liver and life-supporting functions such as breathing. Nutrients have three main functions such as supporting growth and development, providing energy and regulating metabolism [14]. There is no single nutrient that contains all nutrients at a level that meets the body's needs. Nutrients in the structure of foods are divided into two large groups within themselves.

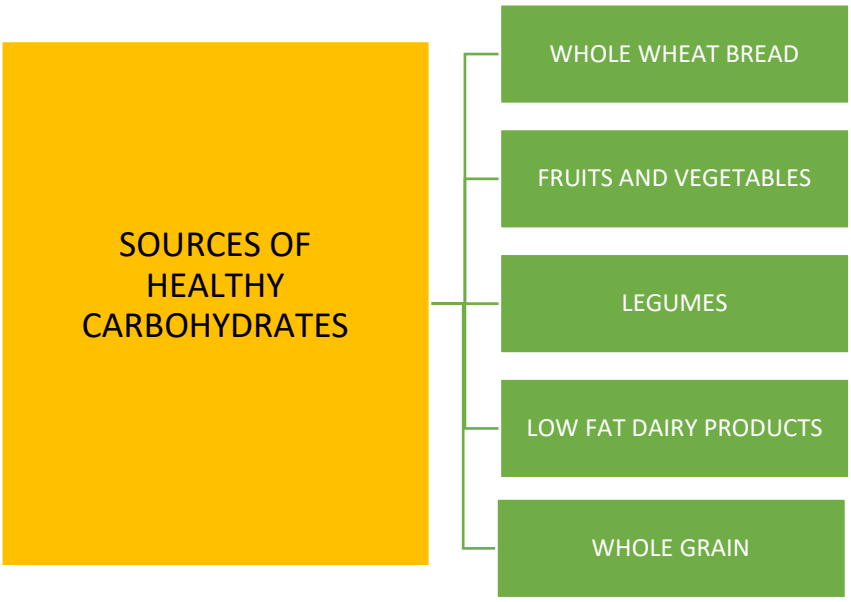


**Macro Nutrients:** Macro nutrients consisting of carbohydrates, fats and proteins are taken in large amounts in the daily diet and provide energy to the body.

**Micro Nutrients**: Micro nutrients consisting of vitamins and minerals are very important in the body, but they are needed in small amounts and help in energy production.

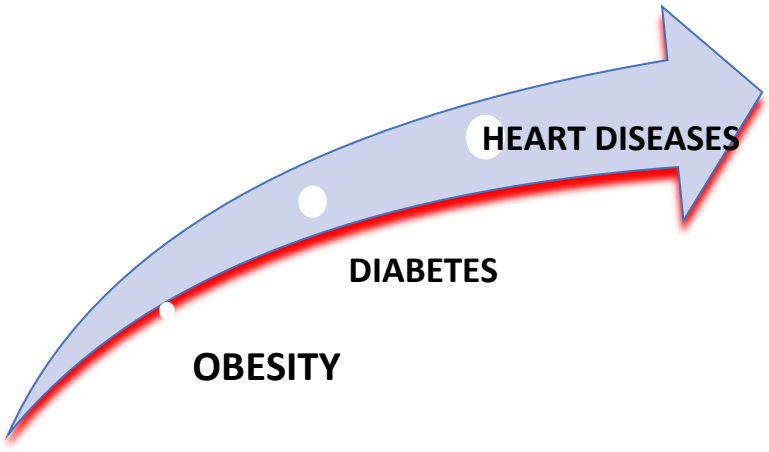
## 3.1. Carbohydrates

It is the most abundant essential organic substance in nature, a source of nutrients and energy for our body. It plays an important role in blood coagulation, reproduction and immune system. Along with fat and protein, it is one of the 3 macronutrients that make up the bulk of our diet. Healthy sources of carbohydrates are shown in the figure.




Diet experts recommend that we get 45-65% of our daily energy needs from fibrous carbohydrates.

Carbohydrate intake varies depending on age, activity level, and metabolic health. Excessive carbohydrate consumption may increase the risk of obesity, diabetes and heart disease [15].




## Which foods contain carbohydrates?

Carbohydrate is found in foods in 3 different forms; sugar, starch and fiber.

- **Sugar:** Added to chocolate, sweets, white bread, carbonated drinks; naturally occurring in honey, syrups (maple), nectars, dairy foods, fruits and vegetables.
- **Starch:** Bread, rice, potatoes, beans, breakfast cereals, whole wheat pasta and cereals with high starch content provide slow-released constant energy throughout the day.
- **Fiber:** Compounds found in the cell walls of plant foods that we cannot digest. Protects the digestive system, provides saturation; It gives energy, contains B vitamins, vitamin E, various minerals. Good sources of fiber include shell vegetables, nuts and seeds, whole wheat bread-pasta, whole grains, brown rice and pulses (beans, lentils). Soluble fibers such as bananas, apples, carrots, potatoes, oats and barley help keep blood sugar and cholesterol under control [16].

**What are the functions of carbohydrates?**

- Its most important task is to provide energy in the body 1 g of carbohydrates gives an average of 4 calories of energy.
- Necessary for cognitive functions as glucose is the only energy source the brain uses
- Preventing proteins from being used for energy
- It keeps water and electrolytes in balance in the body

## 3.2. Proteins

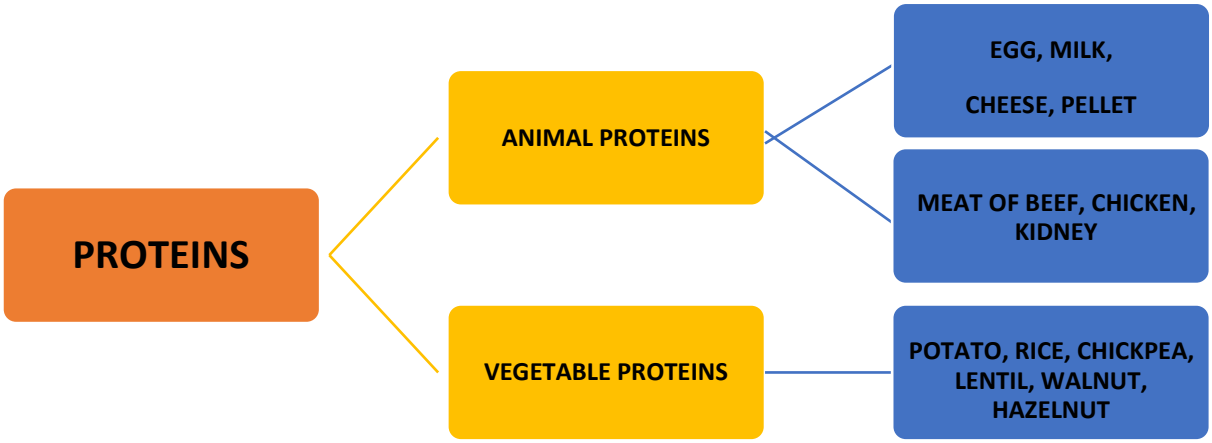
Protein is one of the basic building blocks in living things and is of great importance for the continuation of life. It has many functions in the human body; therefore it should be taken enough. It is mostly found in animal foods such as meat, milk, fish, but vegetable proteins should also be consumed. Disruption of the balance in protein intake may pave the way for the development of many diseases such as diabetes and cancer. In its deficiency, there are problems such as decreased body defense and inability to synthesize collagen. In case of excessive intake, it can cause problems such as kidney and liver failure. For this reason, a regular amount of protein should be taken every day.

**Foods with high levels of protein:**

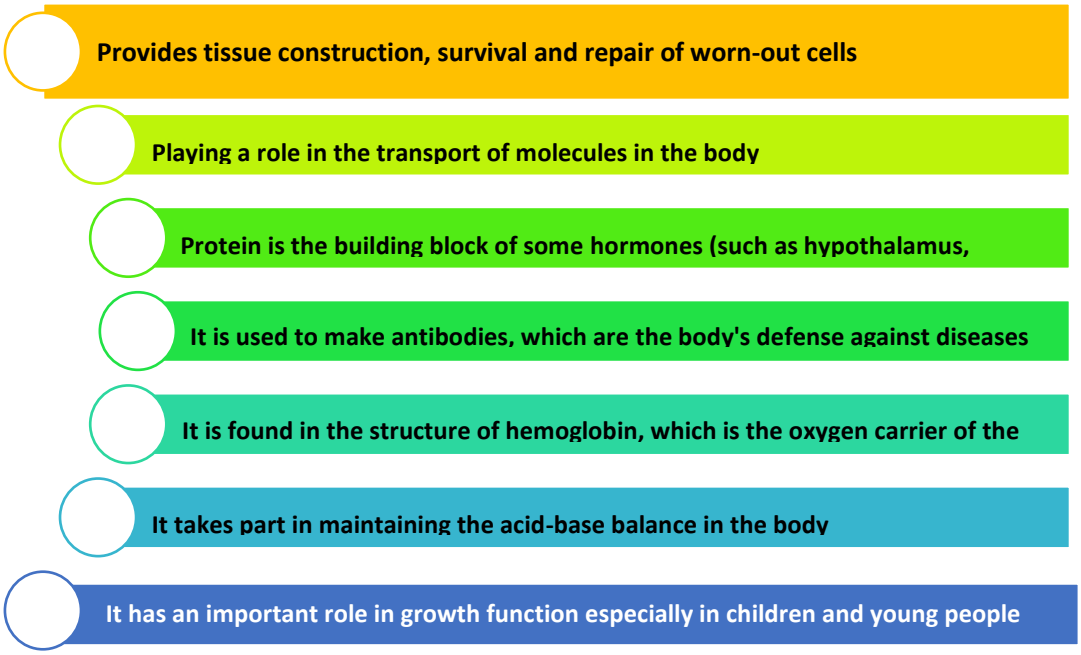
Proteins are one of the essential nutrients for growth and development and are the building blocks of the cell, the smallest part of the body. The smallest part of proteins are amino acids. Depending on the source and type of protein, its use in the body is different. The degree to which the body utilizes protein is expressed as the "quality of proteins". Protein quality depends on the type and amount of amino acids in the protein composition; state of digestion and absorption; ultimately depends on its translation into body proteins. The quality of the protein indicates the degree to which the body utilizes it or is converted into body proteins. When breast milk and eggs are taken into the body, 100% of them are used, so it is an example protein. Since other animal foods such as milk and meat can be digested by 91-100%, they are called good quality proteins [17].

**10-15% of daily energy needs are met from proteins.**

Since proteins form the basic structure of the cell, they are found in plant and animal foods. Animal protein sources: Eggs, beef, chicken, mutton, fish, liver, kidney, cow's milk, cheese, cottage cheese are rich sources of good quality protein. Vegetable protein sources: Potatoes, rice, corn, soybeans, chickpeas, lentils, beans, sesame, peanuts, walnuts, hazelnuts and wheat products are rich sources of protein because they are difficult to digest.




## What are the functions of proteins?



### 3.3. Fats

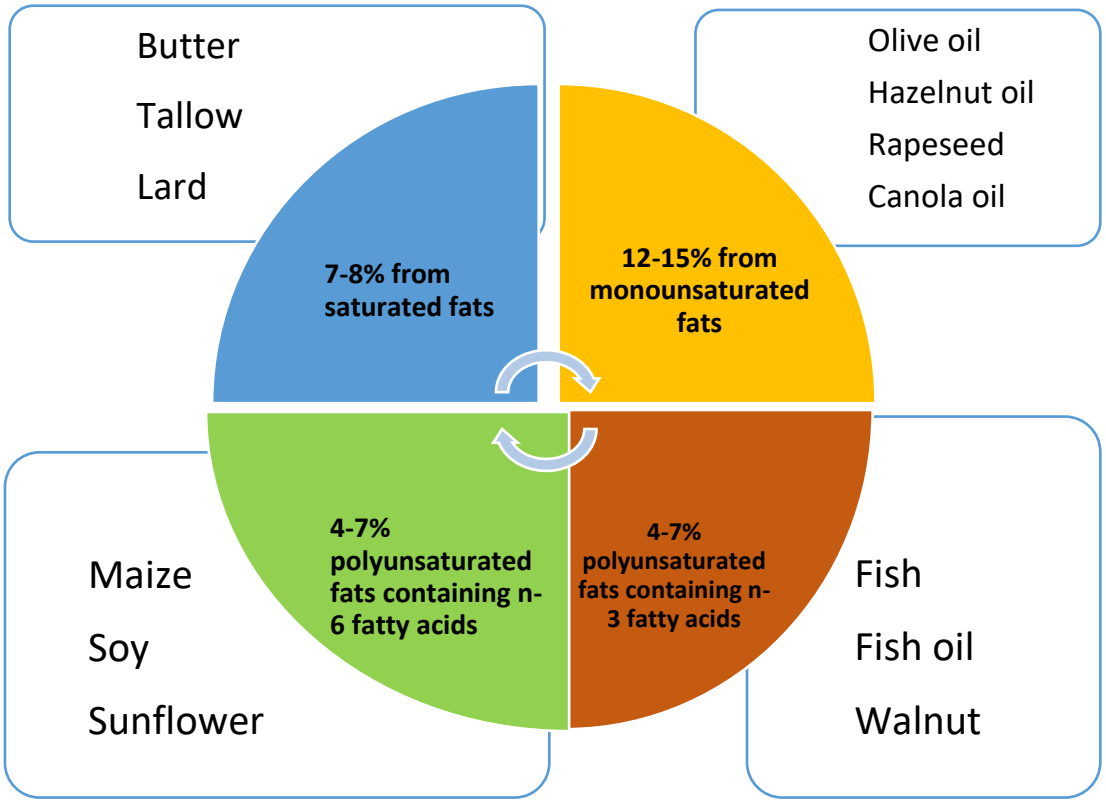
Fats are organic compounds composed of fatty acids and glycerol. It gives twice the energy of carbohydrates and protein. It is important because the excess energy in the body is stored as adipose tissue (adipose tissue).

**Fat makes up about 18% of the human body. The main energy store of the human body is fat.**

In case of a decrease in energy expenditure, the body cannot use fats as an energy source and fats are stored in the body. An example of this is the increase in body weight over time. Fatty acids that make up oils are divided into saturated and unsaturated fatty acids. Saturated fatty acids are of animal origin, and unsaturated fatty acids are of vegetable origin [18].

**It is recommended by experts that 20-35% of the energy in the daily diet should come from fats and the intake of trans fatty acids should be less than 1% of the energy.**

The distribution of energy from fat according to food groups is given in the figure below:




## What Are the Functions of Fats?

It maintains and balances body temperature

The fats around the organs protect the organ against external influences

It is necessary for the absorption of fat-soluble vitamins (A, D, E and K) in the body.

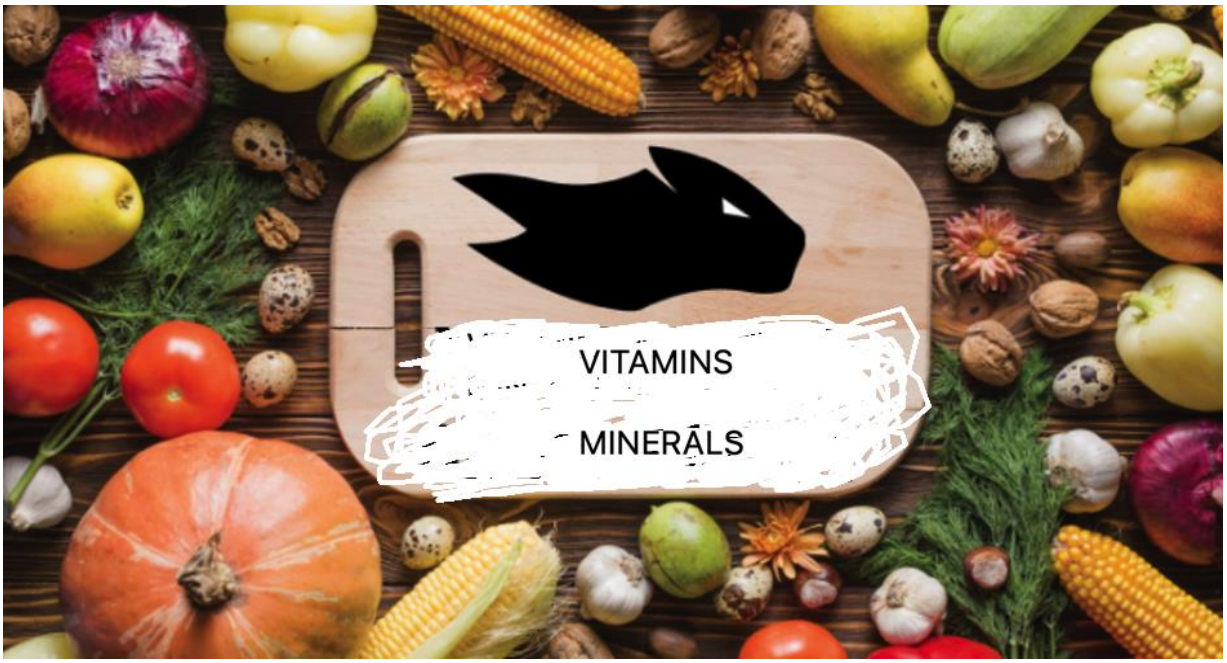
It protects body temperature against heat exchange of the environment

It provides energy

It participates in the structure of some hormones and hormone-like elements that are useful in the functioning of the body

### 3.4. Vitamins and Minerals

Vitamins and minerals are not used as energy sources in the body. The task of vitamins and minerals is the correct execution of body functions**.**

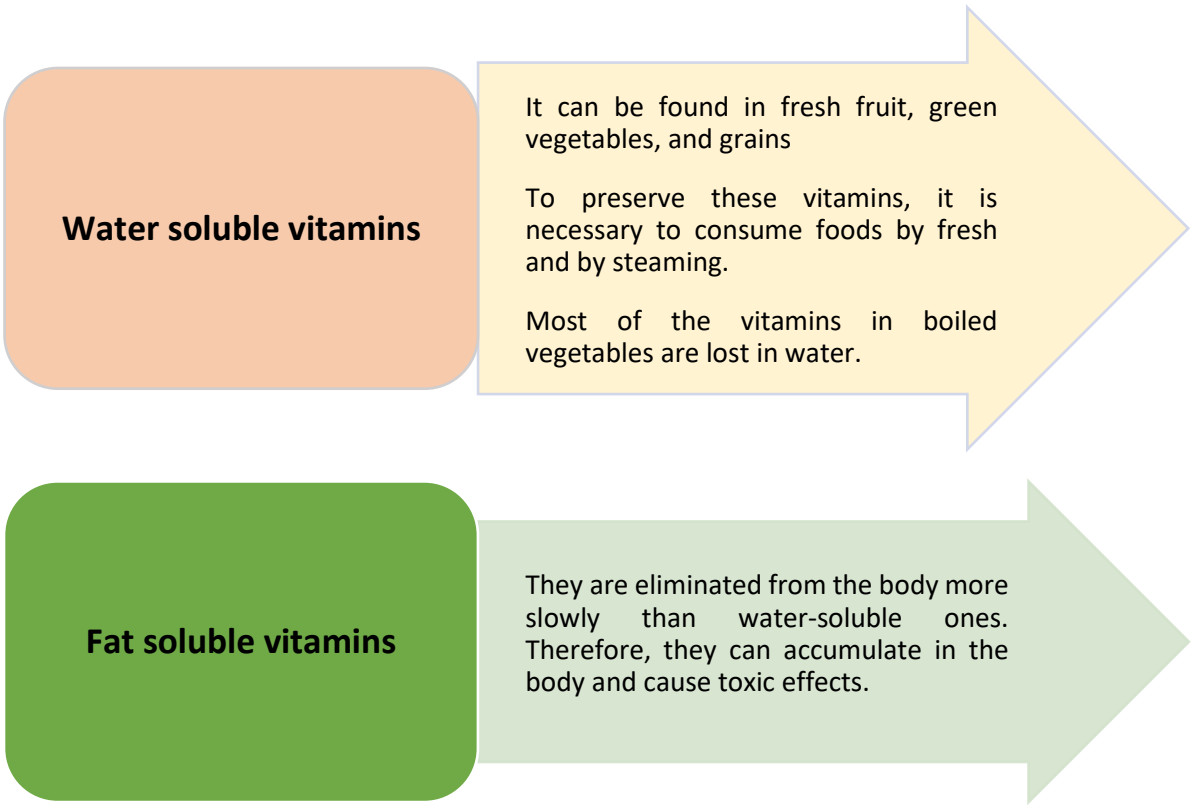



**Vitamins:** Although they are found in very small amounts in the human body, the activities of vitamins in the body are quite high. There are 2 types of vitamins [19].

1. Water-soluble vitamins: Vitamins C and B. They cannot be stored in the body and must be supplied regularly through food.

2. Fat-soluble vitamins: Vitamins A, D, E and K. These are vitamins that can be stored in our body.

**Vitamin D is a type of vitamin that our body can produce. Other types of vitamins must be obtained from food.**

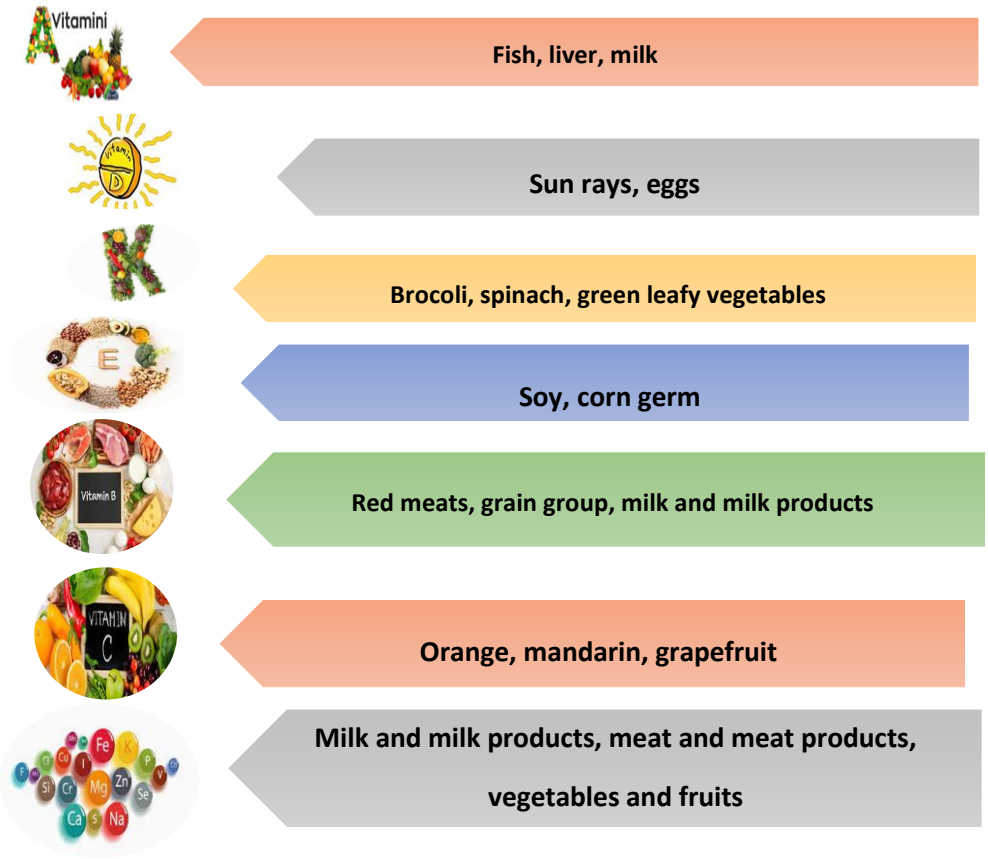



- B group vitamins affect biochemical events and energy production in the body.
- Vitamin D provides calcium and phosphorus minerals to participate in the structure of bones and teeth.
- Vitamins A, C and E, known as antioxidants, prevent cell damage in the body.

**Minerals:** An average of 6% of the adult human body is composed of minerals. Most of the minerals, especially calcium and phosphorus, are the building blocks of the skeleton and teeth.

- ✓ Iron mineral is necessary for the transport of oxygen to tissues, which is used for energy generation from nutrients in the body.
- ✓ Minerals are included in the composition of enzymes that regulate the functioning of the body and are used in the body's defense system.
- ✓ Minerals such as sodium ve potassium maintain fluid balance..

## Foods that are vitamin and mineral source




## What Happens to Our Body in Vitamin and Mineral Deficiency?

It is important to take vitamins correctly and in appropriate doses for the protection of physical and mental health. Insufficient intake of vitamins, which affect all organs and systems in the body, manifests itself with different symptoms. It is absolutely necessary to consult a specialist doctor for the supplementation of vitamins, which can usually be taken naturally [20].

**Table 1.** Sources of Some Vitamins and Symptoms of Deficiency

| Vitamins | Vitamin Sources | Symtoms of insufficiency |
|---|---|---|
| **Vitamin A** | Milk, butter, cheese, liver | Visual disturbances, dryness of the skin, breakage of nails and hair, decreased resistance to infections, fatigue |
| **Vitamin C** | Citrus fruits, strawberry, green leafy vegetables | Weakness in the immune system, increase in the amount of sugar in the blood, gingiva problems |
| **Vitamin E** | Vegetable oils, whole grains, nuts, green leafy vegetables | Anemia, feeling of tiredness in the heart and muscles, visual disturbances |
| **Vitamin K** | Dark green leafy vegetables | Weakness in the immune system, gum and nose bleeding |
| **Vitamin D** | Sun light, eggs, butter | Osteoporosis, rachitism, bone loss and fractures |
| **Vitamin B12** | All animal foods | Fatigue, depression, persistent nervous system diseases |
| **Vitamin B2** | Dairy products, lean meat, fish, green vegetables | Redness of the tongue, sores around the mouth, skin disorders |

**Table 2.** Some Mineral Resources and Symptoms of Deficiency

| Minerals | Mineral Sources | Symptoms of deficiency |
|---|---|---|
| **Calcium** | Milk and milk products, green leafy vegetables | Growth retardation in children, bone loss in adults, inability of blood to clot |
| **Phosphorous** | Animal foods (milk, eggs, meats), cereals | Growth retardation, tooth and bone structure disorder, nervous system disorders |
| **Magnesium** | Cereals, legumes, nuts, green leafy vegetables, milk | Neurological disorders, growth retardation in children |
| **Iron** | Red meat and products, chicken, dried fruits | Anemia, fatigue, immune system disorder |
| **Fluorine** | Tea, sea fish that can be eaten with bone | Tooth decay, bone structure disorders |
| **Zinc** | Whole grains, liver, meat, seafood | Growth retardation, loss of appetite, immune system disorder |
| **Iodine** | Iodized salt, seafood | Simple goiter, mental retardation, hypothyroidism, stillbirth, low birth weight |

**Vitamins and minerals form the body's defense system**

## 3.5. Water

70-80% of the human body is water and 20% is nutrient. Water is the most important factor in meeting the body's fluid needs. All body tissues contain water and the proportion of water in the body decreases with aging [21].

### What are the functions of water?

- It is responsible for the digestion, absorption and transport of nutrients to the cells.
- It is responsible for removing harmful substances from the body.
- It is responsible for the regulation of body temperature.
- It is responsible for the lubrication of the joints and the transport of electrolytes.
- It is responsible for the functioning of the blood.
- It is beneficial for skin and skin.

**It is recommended by experts to drink an average of 8-10 glasses of water a day.**

# 4. HEALTHY NUTRITION MODEL

## 4.1. What is a Healthy Eating Model?

Health has a special importance in sustaining human life, raising and protecting the quality of life. It should not be forgotten that the protection and development of health is possible by protecting and improving one's own health first and foremost.

Healthy lifestyle is defined as; protecting and improving the health of all individuals throughout life, increasing the quality of life and adopting healthy lifestyles (adoption of healthy nutrition and physical activity habits, prevention of smoking habits), existing nutritional problems (protein-energy deficiency, iron deficiency anemia, iodine deficiency) diseases, rickets, dental caries, obesity, etc.), improving the lifestyle for the prevention and treatment of diet-related chronic diseases (coronary heart diseases, hypertension, some types of cancer, diabetes, osteoporosis, etc.), improving and improving environmental conditions.

Nutrients are needed in the human body to perform daily functions. Consumed foods constitute the energy source required for physical activity and biological functions in the body. It is of great importance to fully meet the requirements for vitamins and minerals for the smooth functioning of the digestive, respiratory, excretory, circulatory, nervous, skeletal and muscular systems, the healthy production of hormones and body secretions, and the continuation of motor skills and cognitive functions in a healthy way. In addition, maintaining the order of many systems in the body, especially the digestive system, is only possible with the implementation of a healthy and balanced nutrition plan.

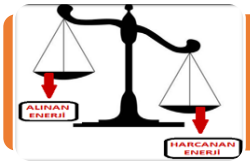
### 4.2. Definition of Healthy Eating

It is a type of nutrition that contains all macro and micro nutrients in the amounts that the person needs, at the same time fully meets the amount of energy needed by the individual, and is suitable for maintaining the ideal weight.


Nutrition, which forms the basis of health at every stage of life, is to take the nutrients that will provide each of the necessary energy and nutrients in sufficient amounts for growth, development, healthy and productive living for a long time, and to use them in the body in the most economical way without losing their nutritional values and without making them harmful to health. The purpose of nutrition is to provide the energy needed by the individual according to his/her age, gender, working and special situation, and each of the nutritional elements up to fifty varieties in sufficient quantities [22]. Nutrition, which is both a physical and behavioral science, begins before birth and affects life until death. For a healthy life, individuals must first have a sufficient and balanced diet and they need to acquire a good eating habit. Each society has its own unique eating habits, customs and traditions, opportunities, practices and nutrition culture. Nutritional habits guided by various socio-economic, cultural and educational activities are acquired in the early stages of life (16, 17). Nutrition habits include the number of meals per day, the types and amounts of foods consumed in main meals and snacks, and behavioral patterns such as purchasing food, preparing food, cooking and serving.

## HEALTHY NUTRITION MODEL

A healthy and balanced diet depends on age, gender, physical activity, living conditions, etc. varies according to many factors. But the principles of healthy eating remain the same regardless of the situation. Some suggestions of healthy eating principles are listed below [23].




Energy intake and expenditure should be balanced.

Total fat intake should not exceed 30% of total energy intake, saturated fat intake should not exceed 10%, and trans fats should not exceed 1% of total energy intake.

Refined sugar intake should be less than 10% of total energy intake, and this ratio should be reduced to 5% for additional health benefits.

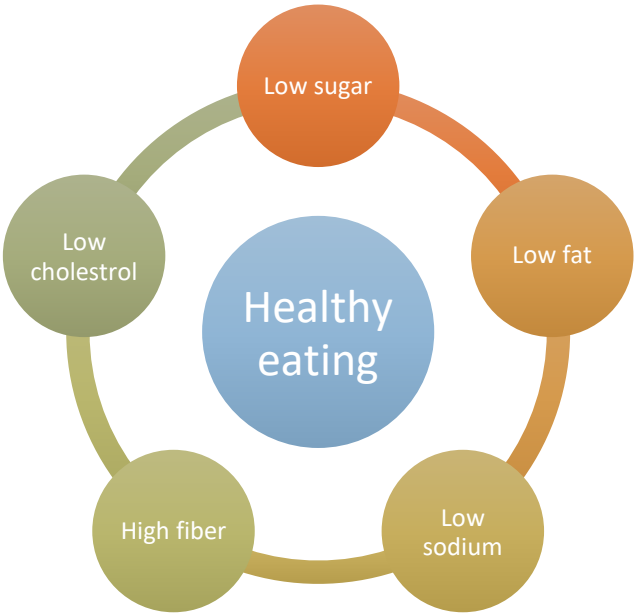

For infants and young children, it is recommended to consume only breast milk for the first 6 months, to continue breastfeeding until the age of 2 if it is sustainable, and to add complementary foods without added salt and sugar as of the 6th month.

Adults should consume at least 400 g or 5 servings of vegetables (excluding starchy roots such as potatoes) and fruit per day.

Salt intake should be kept less than 5 g per day.

Healthy eating;

- ✓ In addition to the prevention of malnutrition, it helps to provide protection against non-communicable diseases such as diabetes, stroke and cardiovascular diseases.
- ✓ It starts with breast milk intake at an early age and breast milk increases cognitive development and immunity.
- ✓ Continuing to eat a healthy diet after infancy creates long-term health benefits by reducing the risk of developing obesity and other communicable and non-infectious diseases [24].




### 4.2.1. Low Sugar

Sugar is a natural compound obtained from sugar beet and sugar cane. It is a pure carbohydrate, commonly known as sucrose.

Sugar, which is naturally present in foods and added (added sugar) during the processing of foods, constitutes the total amount of sugar consumed daily.

Sugar is added to flavor foods and beverages, to increase their durability/shelf life, and to provide their structure and consistency (1).

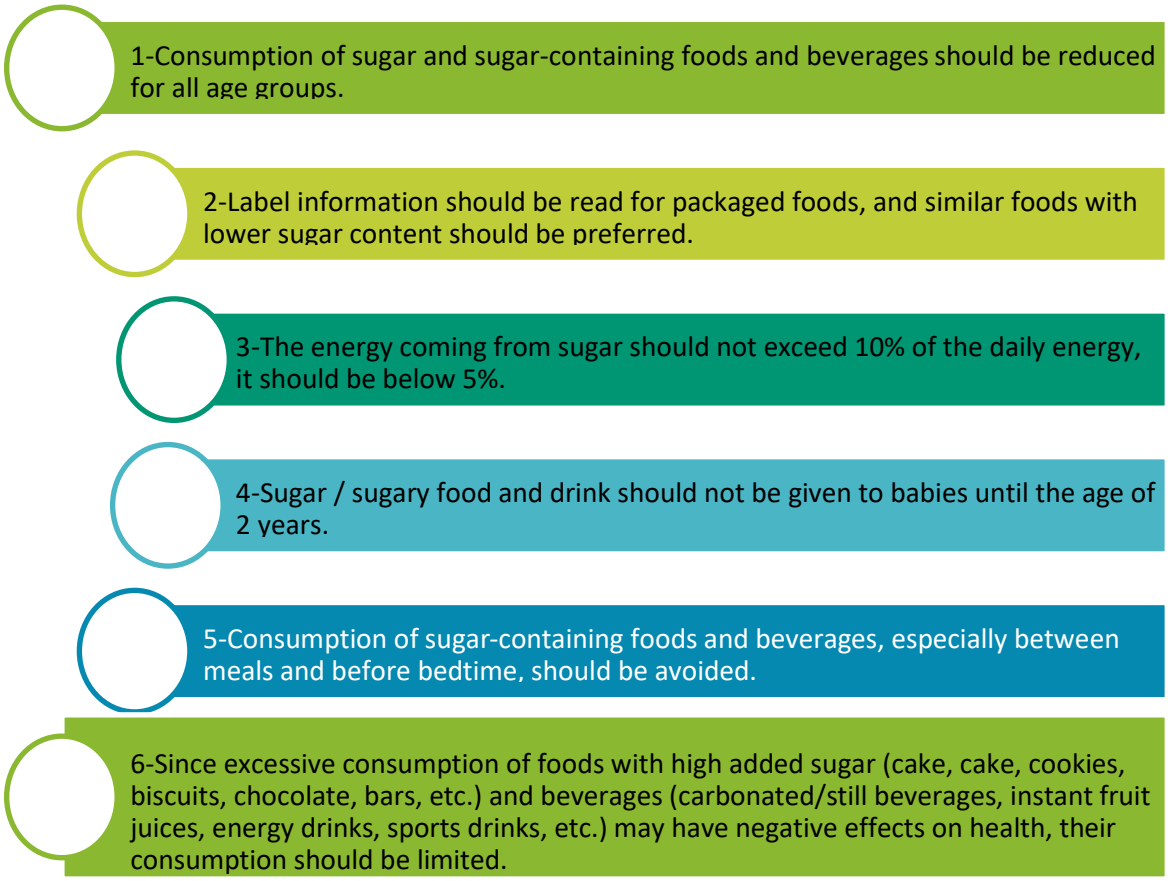

On the label of the packaged products;

"white sugar, semi-white sugar, refined sugar, sugar solution, invert sugar solution, invert sugar syrup, glucose syrup, dried glucose syrup, anhydrous dextrose, dextrose monohydrate, granulated dextrose, powdered sugar, brown sugar, lactose, maltose, fructose, fructose syrup, corn syrup, maltose syrup and raw cane sugar" indicates that the product contains sugar.

## Foods Containing Sugar

- Pastries (cakes, pastries, cookies, biscuits, cookies, other bakery products) and dairy
- Jam, marmalade, honey, molasses
- Carbonated and/or soft drinks, lemonade, sweetened fruit drinks, sports drinks, energy
- Ice cream, milky/non-dairy iced products
- Confectionery (hard candy, Turkish delight, pâtisserie), halva

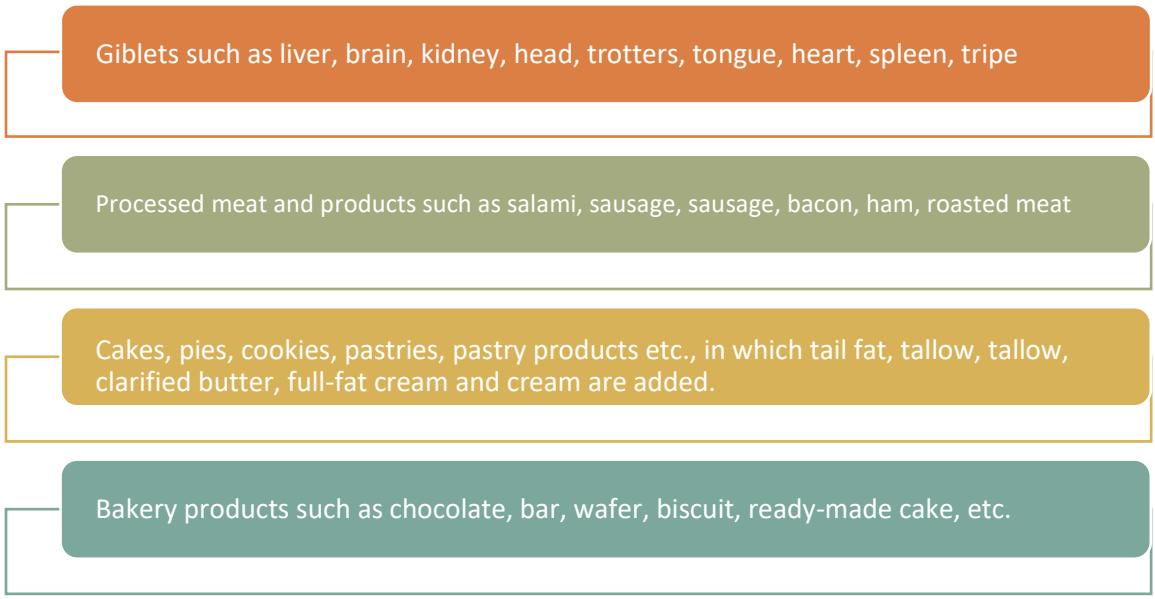
**Points to Consider While Consuming Sugar**




### 4.2.2. Low Fat (Saturated Fat and Trans Fat Consumption)

Fat, which is one of the basic food components and has an important role in human nutrition, is very important because it is not only a high energy source, but also contains fat-soluble vitamins, combines with proteins to form lipoproteins, and has health effects. Although fats provide the highest energy among food components, less than 10% (7-8%) of the energy obtained from saturated fats should come from saturated fats and less than 1% from trans fats. The daily calorie amount obtained from fats should not be more than 30-35%.

**Foods Containing Saturated Fat**




**Points to be considered**

- All kinds of oil consumption (solid and/or liquid oils) should be reduced.
- Poultry animals (chicken, turkey, duck, goose, etc.) should be consumed by separating the skin.
- All kinds of trans fat sources consumed in the daily diet should be avoided.
- Meat dishes should be cooked without adding oil.
- Visible fats of red and white meat should be removed as much as possible during meal preparation and on the plate.
- By reading the label information in the packaged foods; Similar foods with lower total fat, saturated and trans fat and cholesterol content should be preferred.
- High cholesterol content (giblets such as liver, brain, kidney, head, trotter, tongue, heart, spleen; salami, sausage, bacon, roasting, tail fat, tallow, full-fat cream, pastry etc.). pastry products) consumption should be limited.
- As a cooking method; cooking in its own fat, boiling, grilling, cooking in a low temperature oven for as short a time as possible and steam cooking should be preferred. Frying should not be applied [25].

In elderly individuals, at most 30% of the daily energy taken by diet should be provided from fat. Consumption of saturated and trans fats should be reduced in the elderly. The cholesterol

content of the diet should be kept below 300 mg daily. Increasing consumption of saturated animal fats such as butter and lard in the diet causes an increase in blood cholesterol levels. High blood cholesterol is a risk factor for cardiovascular diseases. Apart from visible fat (vegetable oils such as margarine, butter, sunflower oil, olive oil), there is also fat in the natural composition of foods. When meat, chicken, milk and cheese are consumed a lot, fat intake increases. Since the majority of this is saturated fat, vegetable oils (olive oil and sunflower, corn oil, etc.) should be preferred in meals and salads.

Because of its omega-3 fatty acid content, fish should be eaten by the elderly at least twice a week. It is known that these fatty acids have positive effects on vision, cognitive function, bone-joint diseases, and blood lipids (1).

### 4.2.3. Low Sodium

In general, excessive amounts of salt are consumed. Daily consumption is generally 2.5-3.5 times the recommended amount. Daily salt consumption should be less than 5 g. About 40% of table salt is sodium. A total of 5 g of salt contains 2000 mg of sodium.

**Suggestions**

1. Salt consumption should be reduced. Daily should not exceed 5 g (1 heaped teaspoon or 1 flat teaspoon) and iodized salt should be used.

2. Monosodium glutamate, sodium nitrate, sodium bicarbonate, sodium citrate, sodium ascorbate, etc., which are used in the food industry and are generally included in the nutritional label of packaged foods. Attention should be paid to the consumption of all sodium compounds. Because they increase the salt/sodium content of the food.

3. The amount of salt added during meal preparation, cooking and consumption should be reduced. In fact, salt should not be added during preparation and cooking, if possible, due to the presence of sodium in the composition of foods.

4. Salt should not be added to the food at the table and the salt shaker should be removed from the table.

5. Ready-made sauces (such as soy sauce, ketchup sauce, barbecue sauce, tartar sauce, salsa sauce, mustard, pasta sauce), snack products (chips, cereal-based bar, fruit-based bar, extruded products, popcorn, etc.), salted dried nuts (hazelnuts, peanuts, walnuts, almonds, roasted chickpeas, roasted pumpkin and sunflower seeds, all kinds of kernels, etc.), pickles and brine (black and green olives, pickled vegetables), canned fish, salted, smoked and/or pickled meat and fish products and flavored/unflavored, natural/unnatural mineral beverages should be consumed in small quantities because they contain high amounts of salt.

6. Traditionally prepared at home, pickles, tomato paste, tarhana, kurut, leaf brine, etc. Foods have high salt content. Therefore, it should be consumed less and the use of high amounts of salt should be avoided while preparing it.

7. Processes such as water washing and soaking can be applied to reduce the salt content of brine products.

8. Label information of purchased processed products must be read, salt-free or salt-reduced products should be preferred.

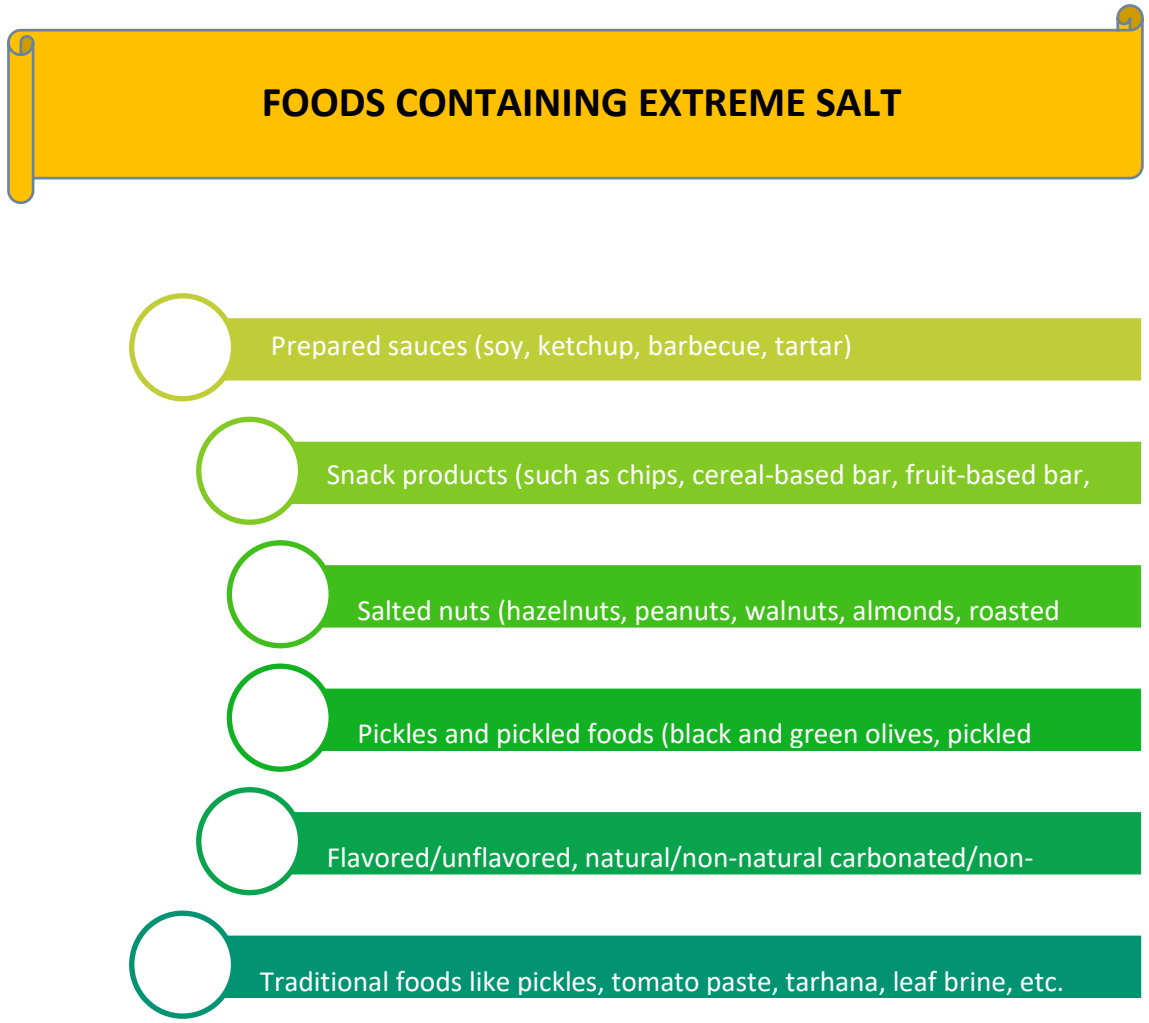
9. The contents of packaged foods should be read from the label information and those with lower amounts of salt and substitutes for salt should be preferred in similar foods.

10. In out-of-home nutrition, the amount of salt in the meals and foods should be learned, and if possible, it should be prepared with less salt or no salt.

11. Natural flavor enhancers (onion, garlic, spices, lemon, vinegar, pepper, etc.) should be used instead of salt.

12. It should be kept in mind that when one insists on reducing salt consumption for a while, the individual can get used to a diet with reduced salt.

Excessive salt (sodium) consumption can cause cardiovascular diseases, kidney diseases, hypertension, stroke, osteoporosis and some types of cancer. Daily salt consumption should not exceed 5 g. The salt consumed should be iodized [26].




### 4.2.4. High Fiber Ratio/ Dietary Fiber

Dietary fiber is the indigestible part of food. Fiber plays an effective role in the formation of a feeling of satiety and the regular functioning of the intestines. Fresh vegetables and fruits, whole grain products and legumes are the best sources of dietary fiber.

Dietary fiber, which is a natural component of foods, helps prevent cardiovascular diseases, obesity and type 2 diabetes. Foods with high fiber content should be consumed in sufficient quantities in order for blood lipids and glucose concentrations to be at normal levels and for the digestive system activities to be regulated in a healthy way. Positive effects of pulp on health

emerge especially when taken with food. Therefore, it is more beneficial to consume foods rich in fiber instead of fiber derivatives sold as food supplements or ready-made products.

In particular, whole grain or whole wheat derivatives of the foods in the grain group should be preferred in meals, as they provide more fiber, vitamins and minerals. At least half of the daily consumption of cereal products should be provided from whole grain or whole wheat products.

Anemic individuals with iron deficiency, especially school-age children and adolescents, should be careful, since excessive fiber intake in their diets prevents the absorption of iron (1).

**Due to its positive effects on health; it is recommended that fish consumption be at least 2-3 servings (about 300-500 g) per week. Steaming, grilling, and baking in the oven should be preferred as a cooking**

Older people should increase their consumption of foods high in fiber. The products with the highest fiber content are vegetables and fruits. Pulp has protective and therapeutic effects in the elderly. The “water-soluble fiber” in fruits (apple, pear, strawberry, etc.), vegetables, dried beans, oil seeds, nuts (walnuts, hazelnuts, etc.), rice, oats, barley bran lowers cholesterol and regulates blood glucose. It has therapeutic properties in the elderly with diabetes, cancer and diseases. Wheat bran, corn bran, grains in bread made from whole wheat flour, and “water-

insoluble fiber" in vegetables prevent constipation. In order to regulate intestinal activities in the elderly, the nutrients are respectively; dry legumes, cereals, are of importance. In addition, it reduces the risk of colon cancer formation and coronary heart disease [27].

The elderly should consume legumes at least 2-3 times a week to ensure adequate fiber intake. In addition, the consumption of vegetables and fruits should be increased and more than 400 grams should be consumed per day. Bread and cereal group foods made from whole wheat flour should be preferred.

### 4.2.5. Low Cholesterol

Cholesterols are wax-like fat-like substances found in foods of animal origin and in all cells.

**Blood Cholesterol:** Found in the bloodstream. While your body produces most of the cholesterol in the blood, the rest is made up of dietary cholesterol.

**Dietary cholesterol:** Plant-based foods do not contain cholesterol, even if they contain fat. Cholesterol is only found in foods of animal origin.

**What is Good Cholesterol/Bad Cholesterol?**

Cholesterol combines with lipoproteins in the liver so that it can dissolve and be transported in the blood. So it is packaged and transported. Of these lipoproteins: HDL cholesterol (good cholesterol): HDL is known as good cholesterol because it collects the cholesterol in the tissues and allows it to be thrown out. It is found only in the body, not in foods. LDL cholesterol (bad cholesterol): LDL is also known as bad cholesterol because it carries cholesterol to the tissues and causes it to accumulate on the walls of arteries and other blood vessels. LDL is found only in the body, not in foods.

High total cholesterol and LDL cholesterol in the blood and low HDL cholesterol are risk factors for the person. Patients with this risk have a higher risk of developing diseases such as heart attack, stroke, vascular occlusion, kidney failure. Cholesterol, which is in excess in the blood, gradually accumulates in the vessel wall. As a result of this accumulation, narrowing and blockage occur in that vessel. In which vein cholesterol accumulates, problems and diseases related to that vein occur.


**Why does cholesterol rise?**

There are many factors that affect the level of cholesterol in the blood. Factors such as heredity, dietary habits/foods, obesity and stress increase total cholesterol and LDL cholesterol [28].

The types of fats and fatty acids in your diet affect the blood lipid profile (cholesterol, HDL, LDL, triglyceride levels). While blood cholesterol level increases with diets containing high levels of saturated fat, HDL cholesterol, or good cholesterol, increases with the use of monounsaturated fats.

*Raising HDL Blood Cholesterol Level*: The best way is to increase physical activity. In addition, if the individual is obese, decreasing body weight positively affects HDL cholesterol level. Reducing total fat consumption (not exceeding 30% of energy) in the diet, preferring monounsaturated fats instead of saturated fats, and not smoking are important factors in increasing HDL cholesterol level.

*Reducing LDL Blood Cholesterol Level*: While reducing total dietary fat, preferring unsaturated fats instead of saturated fats, increasing the amount of dietary fiber, reducing the amount of fat and cholesterol to a medium level, reducing the body fat rate with regular physical activity are the main effective factors in decreasing the LDL cholesterol level.

***Effects on Dietary Fats and Blood Lipids***

***Monounsaturated fatty acids:*** Fats rich in monounsaturated fatty acids are in liquid form at room temperature. Canola, hazelnut oil and olive oils are rich in these fatty acids. Although the effects of monounsaturated fatty acids on LDL cholestrol and triglycerides are neutral, they have an incresing effect on HDL cholestrol.

***Polyunsaturated fatty acids:*** Two or more of the double bonds between the carbon molecules in the fatty acid have been broken. Fats rich in polyunsaturated fatty acids are in liquid or soft form at room temperature.

*Polyunsaturated fatty acid contents of corn, soybean and sunflower oils are high. Polyunsaturated fatty acids constitute a large part of the oils in seafood. A significant decrease in LDL cholesterol can be achieved by consuming polyunsaturated fats instead of saturated fatty acids in the diet.*

***There are two main groups of polyunsaturated fatty acids, Omega-3 and Omega-6 fatty acids:***

**Omega-6 fatty acids** (linoleic acid): Vegetable oils rich in omega-6; corn oil, sunflower, soybean oils.

**Omega-3 fatty acids**: They are polyunsaturated fatty acids and are especially found in oily fish such as mackerel, tuna, salmon living in cold waters. Omega-3 fatty acids are found in some plants other than oily marine fish, flaxseed and oil, canola oil, soybean oil, walnuts and hazelnuts. Omega-3 fatty acids reduce blood triglyceride levels by reducing the production of LDL cholesterol. Due to the heart-protective effect of omega-3 fatty acids, people who consume these oils have a decrease in deaths due to coronary heart disease.

It is recommended by experts to eat fish (300 g) at least 2 times a week.

*Saturated fatty acids: Red meat, chicken (with skin), butter, whole milk from animal source foods, palm and palm seed oil from plant foods and coconut oil are rich in saturated fats. Saturated fatty acids taken in the diet increase LDL cholesterol levels and increase the tendency to diabetes because they are effective in the formation of insulin resistance.*

## 4.3. Benefits of a Healthy Eating Model

Adequate and balanced intake of all vitamins, minerals, proteins, fats and carbohydrates that the body needs is one of the most important elements in the benefits of a healthy diet.

A healthy diet is consuming all the nutrients that the body needs in a balanced amount in order for a person to develop and live a healthy life for a lifetime.

Scientific research and studies show that the deficiency of at least one of the nutrients necessary to see the benefits of a healthy diet causes various diseases. If too many unnecessary nutritional supplements are given to the body, the body turns it into fat, which is very harmful for health. This is also called an "unbalanced diet". Everyone should not be fed as much as they want, and should not consume foods that they like and enjoy consuming (hamburger, chips, pizza, etc.) whenever they want.

**Nutrition**

It is one of the most basic needs for people to live a long and healthy life

It is not just to fill the stomach or suppress the feeling of hunger

**People with Sufficient and Balanced Nutrition**

- ✓ A strong and healthy appearance
- ✓ A mobile and flexible body,
- ✓ A neat skin, lively and shiny hair and eyes
- ✓ Strong, normally developed muscles
- ✓ Willingness to work,
- ✓ Body weight appropriate for height
- ✓ Normal mental development
- ✓ They have a structure that is not often sick

***People with Undernourished and Unbalanced Nutrition***

- Their movements are slow and reluctant
- Unhealthy general appearance (extremely thin or obese)
- Rough, dry, unhealthy skin structure
- Fat or weak body structure
- Frequent headaches
- They have an appetite, tired and reluctant nature.

Unhealthy diets have a greater impact on morbidity and mortality than alcohol drug and tobacco addiction

## 4.4. Examples of Healthy Eating Model

Sustainable healthy diets are nutritional patterns that improve the health and well-being of the individual in all aspects, have low environmental pressure and impact, are accessible, affordable, reliable, equitable and culturally acceptable.

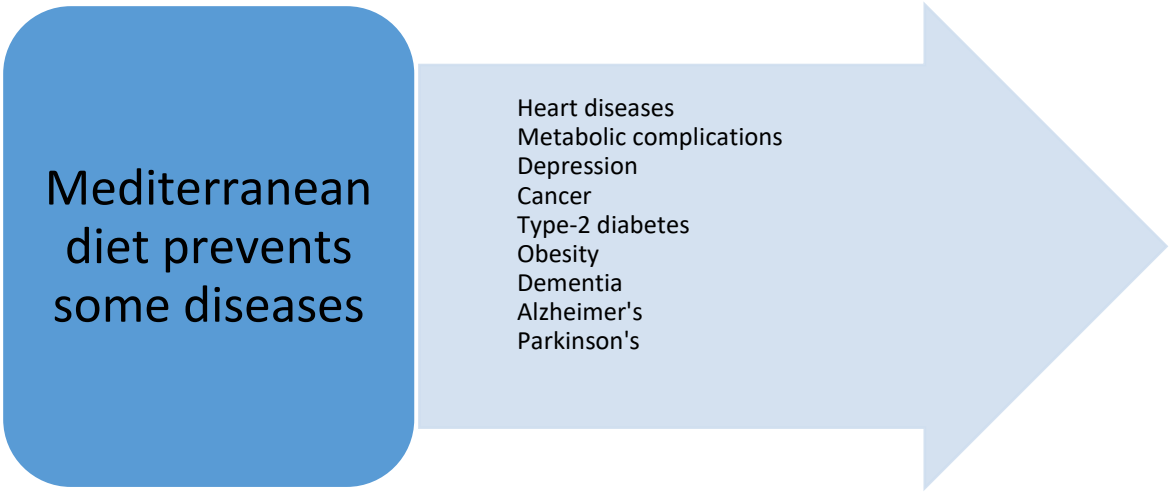
***Goals of Healthy and Sustainable Nutrition Model;***

- ✓ To improve the physical, mental and social well-being and functionality of all individuals in the whole life process of today's and future generations,
- ✓ To contribute to the prevention of all kinds of nutritional disorders (malnutrition, lack of micronutrients, overweight, obesity),
- ✓ Reducing the risk of nutrition-related non-communicable diseases (NCDs),
- ✓ To support the conservation of biodiversity and the planet.


**MEDITERRANEAN DIET** or **MEDITERRANEAN NUTRITIONAL DIET** is seen by nutritionists as the healthiest diet, and this diet consists of plant-based foods, healthy fats and anti-inflammatory foods.

Although it was discovered in the 1960s, this diet model, whose name we have heard constantly especially in the last 10 years, includes all food groups in a balanced and healthy way. It is a

nutrition model applied as a lifestyle by people who eat healthy in Mediterranean countries such as Greece, Spain and Italy [29].




The Mediterranean diet is a very healthy and sustainable diet that does not require calorie calculation.

Experts state that following the Mediterranean diet by doing regular physical activity and avoiding smoking reduces the risk of coronary heart disease by 80%, reduces the risk of stroke by 70%, and reduces the risk of type 2 diabetes by 90%.

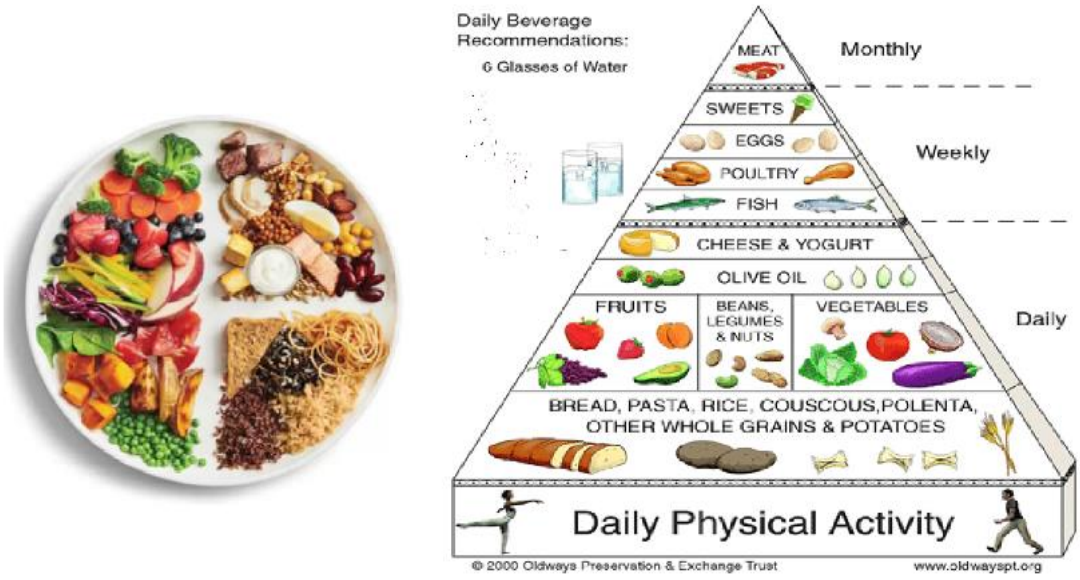
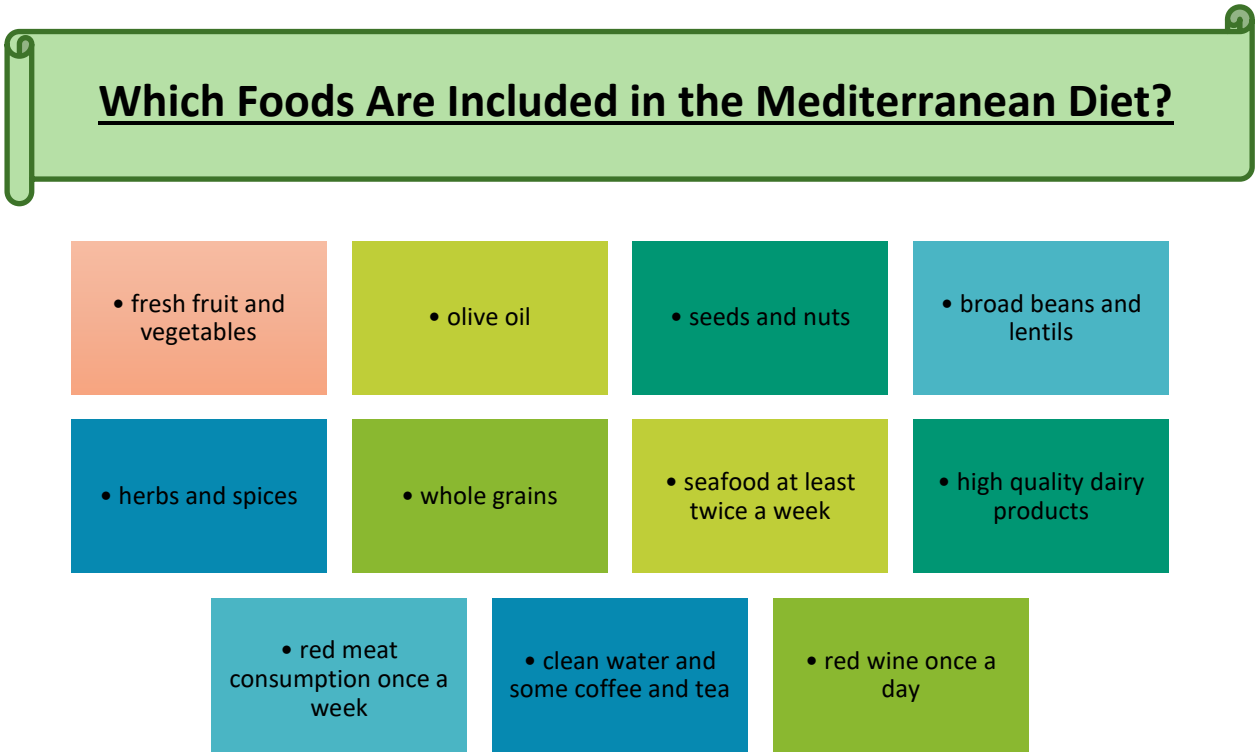



**Figure 7.** Mediterranean Model Nutrition Pyramid

In this diet model, in general; consumption of vegetables, fruits, legumes, olive oil, and nuts is recommended. For this reason, it contains high levels of antioxidants, vitamins and minerals. As a protein source, it primarily recommends fish consumption. However, consumption of lean chicken/turkey/red meat/low-fat yogurt or cheese also allows it to be consumed in certain amounts.

In many studies evaluating the relationship between the Mediterranean diet and health, this diet model; It has been concluded that it has positive effects on obesity, diabetes, cancer, cardiovascular diseases and digestive system [30].




**Benefits of the Mediterranean Diet;**


Foods and ingredients closest to their natural state, olive oil, lentils and broad beans, fruits, vegetables, unrefined breakfast cereals and small amounts of animal products form the basis of this diet. Unlike many sugary and processed foods in Western countries, the Mediterranean diet

does not contain syrups, preservatives or flavorings. Natural sweeteners such as honey are generally used for sweetening requests.

Besides plant foods, another most striking aspect of this diet is the abundant consumption of fresh fish, cheese and yogurt. Healthy fats and healthy cholesterol can be obtained from these products. Fish such as sardines and anchovies are often preferred in this diet.

Although most of the people around the Mediterranean are not vegetarians, heavy meat products and dishes are not preferred. This makes it easier to lose weight, improve cholesterol, and get omega-3 fatty acids.

## 2 Helps You Lose Weight Healthy

If you want to lose weight without getting hungry and if you want to maintain a healthy weight level throughout your life, the Mediterranean diet is the appropriate diet. This diet is both sustainable and naturally reduces fat intake, allowing the consumption of nutrient-dense foods.

In this diet, consumption of healthy fats is desirable and carbohydrates are restricted, but high-quality protein intake is also good.


## 3 Good for Heart Health

Studies show that the traditional Mediterranean diet reduces death rates due to heart diseases, and this is achieved with foods rich in Omega-3 and monounsaturated fatty acids. The fact that olive oil is rich in alpha-linoleic acid shows that the Mediterranean diet reduces the risk of cardiac death by 30% in many studies, and reduces the risk of sudden cardiac death by 45%.

In research; it has been observed that blood pressure can be lowered much more in individuals who consume olive oil with sunflower oil.

Olive oil is useful in reducing hypertension in this sense. Because it makes nitric oxide more available in the body, which allows the veins to remain flexible and clean. Because those who follow the Mediterranean diet have high levels of beneficial cholesterol, they do not encounter problems arising from low cholesterol [31].

## 4 Helps fight cancer

Many relationships have been found between the Mediterranean diet and the prevention of cancer, and this is due to the establishment of a balance between omega-6 and omega-3 fatty acids, as well as the formation of a diet with plenty of fiber, antioxidants and polyphenols.

In many studies, it is stated that olive oil can be a natural cancer treatment and reduces the risk of colon and bowel cancer. It has a protective effect against cancer cells by reducing inflammation, lowering oxidative stress and maintaining blood sugar balance [32].

## 5 Prevents and Controls Diabetes

Several clinical studies have shown that the Mediterranean diet shows anti-inflammatory properties, which is protective against several diseases associated with chronic inflammation such as metabolic syndrome and type 2 diabetes. Mediterranean diets can help people with diabetes to control their blood sugar levels.

The Mediterranean diet, which can manage blood sugar with polyunsaturated fatty acids, high-quality protein and low carbohydrates, also ensures more efficient fat burning and offers a

natural treatment against diabetes due to its richness in fresh vegetables and fruits and polyunsaturated fatty acids.

Prevention of weight gain and suppress appetite can be accomplished by this diet which is composed of 30% high quality protein, 30% healthy fat and 40% high-fiber carbohydrates. In addition, insulin levels come to normal levels and individuals become more comfortable, energetic and physically active (33).

## 6 Protects Against Cognitive Decline

Recent studies find that Mediterranean diet may also be helpful in the treatment of Parkinson's disease, reduce the risk of dementia and Alzheimer's. A dopamine deficiency may be related to certain medical conditions, including depression and Parkinson’s disease. Dopamine plays a part in controlling the movements a person makes, as well as their emotional responses. The right balance of dopamine is vital for both physical and mental wellbeing.

The Mediterranean diet, which emphasizes fruits, vegetables, whole grains, legumes, fish, and other seafood; unsaturated fats such as olive oils; and low amounts of red meat, eggs, and sweets may protect the brain through anti-inflammatory and antioxidant properties.


## 7 Helps You Live Longer

There are several studies that have associated the Mediterranean diet with a longer life. Diet with olive oil, omega-3 rich fish and antioxidant-rich fruits and vegetables can help to prevent depression, cognitive decline and Alzheimer, also lower inflammation and reduce your risk of heart disease and cancer.

## 8 Helps to reduce the effects of stress

An important part of a healthy life is to focus on reducing stress. Some foods eaten in a Mediterranean Diet can help our body more adequately respond to the stress that we do face. There are also some specific foods in the Mediterranean diet that have been linked to lower stress levels. Nuts are packed with B vitamins and potassium, two nutrients that help lower blood pressure and stress. Vegetables including bell peppers and leafy greens are packed with vitamin C and magnesium which help lower inflammation.

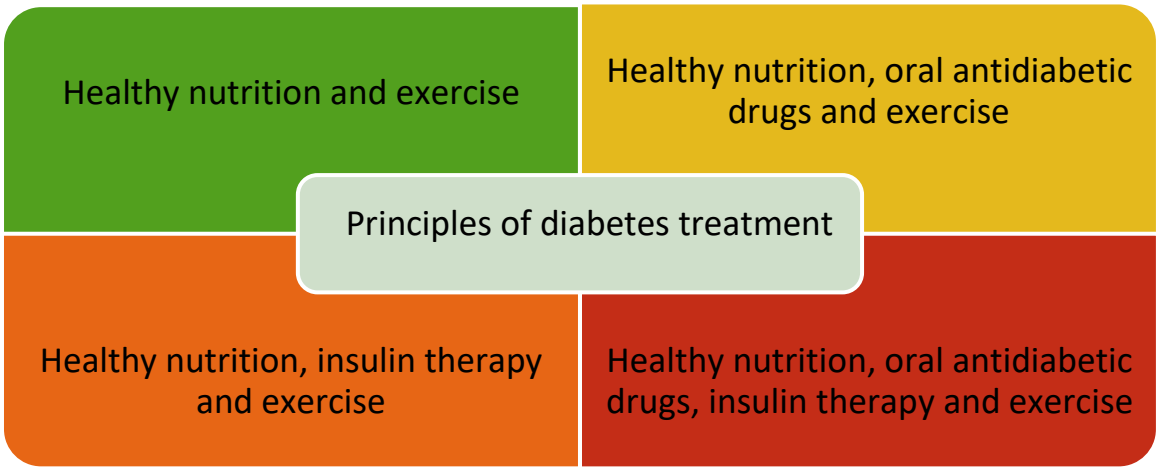
*Chronic stress reduces the quality of life and affects health negatively.*

# 5. NUTRITION IN SPECIAL CASES

## 5.1. Nutrition in Diabetes

Diabetes is a disease that occurs when the pancreas is no longer able to make enough insulin, or the body cannot make good use of the insulin it produces, causing blood sugar (glucose) levels to be abnormally high.

Helthy eating habits is a critical part of managing your diabetes for controlling your blood sugar. Adequate and balanced diet is very important for healthy nutrition in individuals with diabetes, as in individuals without diabetes. The aim of diabetes treatment is to keep your blood sugar levels in your target range as much as possible to help prevent or delay long-term, serious health problems (34).




Diets of individuals with diabetes should be prepared by a dietitian according to age, height, body weight, physical activity status, socioeconomic status and nutritional habits. Individuals with diabetes need to take recommended amounts of energy and all nutrients in order to have an adequate and balanced diet [35].

**Carbohydrates;**

• Individuals with diabetes should meet their carbohydrate needs from legumes, vegetables and whole grain cereals.

• Whole grain bread should be preferred instead of white bread, and bulgur should be preferred instead of rice.

• Legumes should be consumed 2-3 times a week.

**Proteins;**

• Diabetes does not affect the protein requirement of the body. The recommended daily protein intake for adults is 0.8 g/kg.

• In individuals with diabetes-related kidney problems, protein intake should be limited.

**Fats;**

Recommendations on saturated fat, food-source cholesterol, and trans fat for diabetics are no different than for people without diabetes. In general, trans fats should be avoided. For this;

• 1-2 portions of fish should be consumed per week

• Meat products such as processed sausage, salami, pastrami should not be consumed.

• Chicken, fish, turkey meat should be preferred instead of red meat.

• The amount of oil used in meals should be reduced, olive oil / hazelnut oil / sunflower oil should be used instead of saturated fat.

• Grilling and boiling should be preferred instead of frying as a cooking method.


Diabetes does not affect the energy and nutrient requirements of children and adolescents. It is important for children and adolescents to meet their energy and nutrient needs by consuming various foods, which vary according to their individual characteristics such as age, gender, activity level. Healthy eating habits help them to protect their health and to continue their growth (36).

## 5.2. Obesity and Nutrition

Obesity is defined as abnormal or excessive fat accumulation that presents a risk to health (37). If body weight is greater than 20% of their ideal body weight, it increases the risk of chronic diseases such as hypertension, cardiovascular disease and diabetes.

Hereditary and environmental factors such as excessive food intake, wrong eating habits, insufficient physical activity influence obesity. Obesity is the imbalance between the energy intake through daily foods and the energy expenditure. Combined treatments such as dietition advice, nutrition education, behavioral weight management programs and exercise are important for weight loss. Behavioral weight management programs are an important issue in weight maintenance. Individuals manage to control their weight with the help of proper weight management programmes (38).

| |
|---|
| ***Eat a variety of foods within each food group (milk, meat, fruit and vegetables, bread and cereals) every day.*** |
| ***Three main meals should be consumed daily. Take care not to be hungry for more than 3-4 hours.*** |
| ***Instead of foods with simple carbohydrate and saturated fat content such as biscuits, chocolate and cakes with, healthy choices such as fruit, milk, ayran and yogurt should be preferred between meals.*** |
| ***Physical activity levels should be increased. Individuals should walk as much as possible.*** |
| ***Fresh vegetables and fruits should be consumed.*** |
| ***Food should be prepared according to proper cooking methods.*** |

## 5.3. Baby Nutrition

### Baby Nutrition (0–6 Months)

Exclusive breastfeeding for 6 months has many benefits for the infant and mother. Chief among these is protection against gastrointestinal infections which is observed not only in developing but also industrialized countries. Early initiation of breastfeeding, within 1 hour of birth, protects the newborn from acquiring infections and reduces newborn mortality. The risk of mortality due to diarrhea and other infections can increase in infants who are either partially breastfed or not breastfed at all (41). The benefits of breast-feeding have significant positive effects on the health of older people. For this reason, breastfeeding is very important for a healthy life [39].

### Baby Nutrition (6-24 Months)

Breast-milk is also an important source of energy and nutrients in children aged 6–23 months. It can provide half or more of a child's energy needs between the ages of 6 and 12 months, and one third of energy needs between 12 and 24 months. Breast milk is also a critical source of energy and nutrients during illness, and reduces mortality among children who are malnourished.

Around the age of 6 months, an infant's need for energy and nutrients starts to exceed what is provided by breast milk, and complementary foods are necessary to meet those needs. An infant of this age is also developmentally ready for other foods. If complementary foods are not introduced around the age of 6 months, or if they are given inappropriately, an infant's growth may falter.

Guiding principles for appropriate complementary feeding are:

- Continue frequent, on-demand breastfeeding until 2 years
- Practise good hygiene and proper food handling
- Start at 6 months with small amounts of food and increase gradually as the child gets older
- Gradually increase food consistency and variety
- Increase the number of times that the child is fed: 2–3 meals per day for infants 6–8 months of age and 3–4 meals per day for infants 9–23 months of age [40].

## 5.4. Nutrition of Young Children (1-6 Age)

Science shows that early food preferences influence later food choices. The first choice should be the healthiest choices that set the toddlers on a path of making nutrient-dense choices in the years to come. All foods are assumed to be in nutrient-dense forms and prepared with minimal added sugars, refined starches, or sodium.

Regardless of age, children need the same nutrients as adults. Only the quantities needed are less. Like adults, they obtain energy from food; but their energy requirements are proportional to their body weights (41). The daily amount of energy needed by a child can be calculated with a simple formula: Energy Needs = 1100 calories for one year + 100 calories for each subsequent age. The recommended daily calorie intakes are given in Table. 3 (42).

**Table 3.** Recommended daily energy intake (Kcal) for children in the World Health Organization, European Union and the United States

| Ages | WHO | EU | USA |
|---|---|---|---|
| **Boy** | | | |
| 1-3 ages | 1230 | 1215 | 1300 |
| 4-6 ages | 1715 | 1690 | 1800 |
| **Girl** | | | |
| 1-3 ages | 1165 | 1140 | 1300 |
| 4-6 ages | 1545 | 1595 | 1800 |

One to six years old children require foods that are less in terms of volume, that the content of nutrients are high, for the growth and development of bone, teeth, muscle, brain and nervous system, circulatory and other organs. Foods should be consumed in three main meals a day for regular operation of the metabolism. The foods are eaten by children in the morning, in the lunch and in the main meals should be monitored and foods should be ensured to consume by children such as fruit, milk, diluted yoghurt or cheese and bread in the mid-morning, afternoon and while sleeping by looking at the amount of food consumed in the meals. Daily food plan for preschool children is given in Table 4 (43).

**Table 4.** Sample Menu for Preschoolers

| Meals | Foods | 2-3 Ages | 4-6 Ages |
|---|---|---|---|
| Breakfast | Egg | ½ egg | 1 egg |
| | Olive | 2-3 olives | 1-3 walnut |
| | Honey | 1 dessert spoon | 1 dessert spoon |
| | Linden | 1 tea glass | 1 tea glass |
| | Whole grain bread or<br>rolled oats | 1 thin slices /1/2 bowl | 2 thin slices /1 bowl |
| | Mill | 1 water glass | 1 water glass |
| | White cheese | 1 thin slices | 1 thin slices |
| Snack | Peach/apple | 1 medium size | 1 medium size |
| Lunch | Meatball with vegetables<br>Baked pasta<br>Yoghurt<br>Bread | 1-2 tablespoons and 1 meatball(30 gr)<br>1 thin slices<br>½ bowl<br>1 thin slices | 1 meatball<br>1 portion vegetable<br>4 tablespoons pasta<br>½ bowl<br>1 thin slices |
| Snack | Ayran<br>Börek/fruits/cucamber | 1 water glass<br>1 slice/1 medium size /2-3 slices | 1 water glass<br>1 portion fruits |
| Dinner | Chickpeas/Dry beans<br>Bulghur<br>Mixed salad<br>Fruit | 1-2 tablespoons<br>1-2 tablespoons<br>1-2 tablespoons<br>medium size | 1-2 tablespoons /1 meatball<br>1-2 tablespoons<br>1-2 tablespoons<br>medium size<br>½ bowl yoghurt |
| Snack | Milk | 1 water glass | 1 water glass<br>1 portion fruits |

## 5.5. Nutrition for School-Age and Adolescence (6-18 Age)

These ages include individuals ages 6 through 18, a life stage characterized by transitions and the formation of dietary patterns. Adolescents acquire ever-greater independence in their food choices as they mature, with more time spent on their own with peers and more foods and beverages frequently consumed in social settings. Other factors that influence eating behavior include social support, exposure to food marketing and promotion, and policies that determine community design. Calorie needs generally increase throughout this life stage to support growth and development. Child and adolescent females generally have lower calorie needs than do males, with variations based on size and level of physical activity. Energy and protein needs correlate more closely with the growth pattern than with the chronological age. As adolescents, at the peak of their growth velocity, require large quantities of nutrients and minerals and vitamins play a crucial role in adolescent nutrition (44).

Skipping meals, consuming foods high in added sugars, saturated fat, and sodium are common nutrition habits in these ages. Reducing intakes of added sugars, saturated fat, and sodium-components of a dietary pattern that are often consumed above recommended limits beginning at an early age-also will support youth in achieving a healthy dietary pattern. It is needed to eat from different food groups in each meal for increasing the food variety. They especially need to eat fruits and vegetables 5 times a day and foods that contain protein should be included in their diet. Milk and milk products are important calcium and protein sources in order to provide calcium and protein requirements. Sample menu plan for school-age and adolescence is given in Table 5.

**Table 5.** Sample Menu for School-Age and Adolescence

| | |
|---|---|
| Breakfast | 1 cup of milk<br>1 boiled egg<br>½ portion white cheese<br>1 dessert spoon of honey<br>3 - 4 walnuts<br>1 small bowl of sliced vegetables<br>2 thin slices of bread |
| Snack | 1 slice of carrot cake<br>2 medium mandarins |
| Lunch | 1 bowl of tomato soup<br>½ portion white bean stew with meat<br>1 portion rice pilaf with vermicelli<br>½ small bowl of Shepherd's salad<br>1 medium orange<br>2 thin slices of bread |
| Snack | 1 portion spinach with minced meat (with yoghurt)<br>1 portion spaghetti with sauce<br>½ small bowl of seasonal salad<br>2 thin slices of bread |
| Dinner | 1 bowl of Ezogelin soup<br>1 portion meatball stew (with sauce)<br>1 portion rice pilaf with vermicelli<br>½ bowl of yoghurt<br>1 small bowl of seasonal salad<br>2 thin slices of bread |
| Snack | 1 medium apple |

## 5.6. Nutrition for Adults

Establishing and maintaining healthy food and beverages choices can set a firm foundation for healthy dietary patterns that reduce the risk of diet-related chronic disease, an issue of increasing relevance to adults. Adequate and balanced nutrition and regular physical activity ensure the amelioration of mental and physical health and helps to reduce the risk of many diseases such as obesity, cardiovascular diseases, diabetes, hypertension and osteoporosis. Calorie needs decline throughout adulthood due to changes in metabolism that accompany aging. Level of physical activity, body composition, and the presence of chronic disease are additional factors that affect calorie needs. Adults who are physically active are healthier, feel better, and are less likely to develop many chronic diseases than are adults who are inactive.

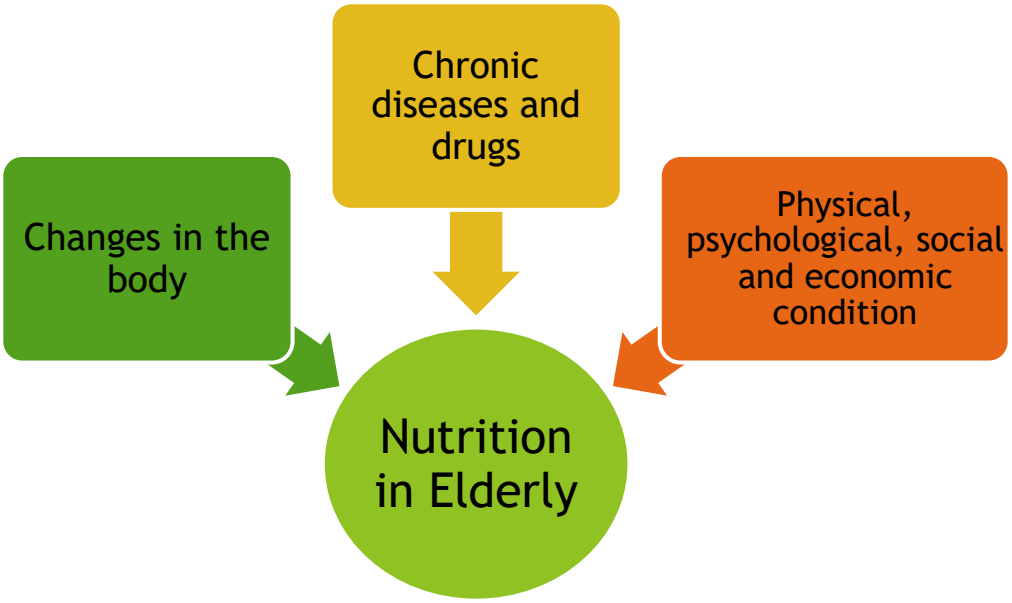
- Intake of fruits and vegetables should be increased and refined grains should be replaced with whole grains to improve dietary fiber intakes.
- Nutrient-dense foods and beverages should be consumed which provide vitamins, minerals, and other health-promoting components and have little added sugars, saturated fat, and sodium.
- Vegetables, fruits, whole grains, seafood, eggs, beans, peas, and lentils, unsalted nuts and seeds, fat-free and low-fat dairy products shoul be consumed.
- Particular attention should be given to consuming adequate amounts of foods with calcium and vitamin D during adult years to promote optimal bone health and prevent the onset of osteoporosis.
- Choose oils/fats with unsaturated fats, rather than those with saturated fats. Use mainly vegetable oils such as sunflower, rapeseed, corn and olive oil.
- Dietary intake of sodium should be reduced to improve blood pressure control and reduce risk of hypertension.
- Food intake with 3 main meals, 2 or 3 snacks daily must be provided. Breakfast should never be skipped.
- Eating foods and drinking beverages higher in added sugars must be avoided and foods and beverages across food groups that are in nutrient-dense forms should be preferred.
- Physical activity must be increased and 30 minutes (5000 steps) of walk must be taken every day. Sample menu plan for adults is given in Table 6.

**Table 6.** Sample Menu for Adults (Woman, 42 years old) (45)

| | |
|---|---|
| Breakfast | 1 boiled egg<br>1 portion white cheese<br>3-4 olives<br>1 dessert spoon of sesame seed paste with grape molasses<br>1 small bowl of sliced vegetables<br>2 thin slices of bread |
| Snack | 1 medium apple |
| Lunch | 1 bowl of broccoli soup<br>½ portion chick peas with meat<br>1 portion bulghur pilaf<br>½ bowl of yoghurt<br>1 small bowl of seasonal salad<br>1 thin slice of bread |
| Snack | 1 bowl of yoghurt<br>2 big walnuts |
| Dinner | 1 portion yayla (rice, yoghurt and mint soup)<br>1 portion baked meatballs<br>½ portion green beans in olive oil<br>1 thin slice of bread |
| Snack | ½ bowl of yoghurt<br>1 medium orange |

## 5.7. Nutrition in Elderly

Adequate and balanced nutrition is very important during old age for the protection and development of health. Adequate and balanced nutrition can be provided by the adequate consumption of the foods in the four food groups. Lower calorie needs result from less physical activity, changes in metabolism, and/or age-related loss in bone and muscle mass. Additionally, physiological changes, sensory and motor regression as well as mental status changes in elderly individuals also affect nutritional status. In this period, providing adequate and balanced nutrition with the consumption of nutrients necessary for the body is of great importance in preventing, delaying and treating the formation of chronic diseases such as high blood pressure, cardiovascular diseases, kidney disease and diabetes, the incidence of which increases with age (46, 47). Preventing additional weight gain and achieving a healthy weight by following a healthy dietary pattern and adopting an active lifestyle can support healthy aging.



To prevent the development of nutrition-related chronic diseases among older people;

- Enough protein should be consumed to prevent the loss of lean muscle mass that occurs naturally with age (seafood, meats, poultry and eggs, nuts, seeds, soy products, beans, peas, and lentils, etc).
- Elder people should be encouraged to meet the recommendations for protein foods, a common source of vitamin B12, and include foods fortified with vitamin B12, such as breakfast cereals.
- With food variety, along with the intake of the essential nutrients (carbohydrate, protein, fats, vitamins, minerals, fiber and water) should be provided.
- One must feed at least three meals a day with food variety.
- Safe food handling procedures should be applied which has particular importance for older adults due to a decline in immune system function that accompanies age and that increases the risk of foodborne illness.
- Different vegetables and fruits should be consumed at each meal in order to meet the need for vitamins and minerals. Cooking methods that minimize nutrient loss during cooking should be preferred.
- The consumption of foods, legumes, cereals, vegetables, fruits, which are high in fiber must be increased for the prevention of constipation in elderly individuals and for regulating the functioning of the intestines.
- In order to protect bone health, foods with high calcium content such as milk, yogurt and cheese should be consumed. Vitamin D is needed for calcium to be absorbed in the body.
- Daily salt consumption should be limited to prevent hypertension, cardiovascular diseases and urinary calcium excretion.
- 8-10 glasses of water should be consumed daily.
- Regular physical activity should be performed to preserve ideal body weight and to maintain cardiovascular health (48). Sample menu plan for elder people is given in Table 7.

**Table 7.** Sample Menu for Elder People (Man, 68 years old)

| | |
|---|---|
| Breakfast | ½ cup of milk<br>½ portion white cheese<br>1 dessert spoon of honey<br>3 - 4 olives<br>1 small bowl of sliced vegetables<br>2 thin slices of bread |
| Snack | 1 medium orange |
| Lunch | 1 bowl of tarhana soup<br>1 portion of Izmir meatball (casserole of meatballs, potatoes, tomatoes and peppers)<br>1 portion macaroni with green lentil<br>½ bowl of yoghurt |
| Snack | ½ bowl of yoghurt<br>⅛ cup of oatmeal<br>1 fig |
| Dinner | 1 bowl of lentil soup<br>1 portion grilled fish<br>½ small bowl of seasonal salad<br>1 thin slice of bread |
| Snack | ½ bowl of yoghurt<br>1 medium apple |

## 5.8. Nutrition During Pregnancy and Lactation

Pregnancy and lactation are special stages of life for women, and nutrition plays a vital role

before, during, and after these life stages to support the health of the mother and her child. There is an important relationship between the nutrition of the pregnant woman and the health of the baby(49). The physical and mental growth and development of the baby is possible with the mother's adequate and balanced nutrition during her pregnancy. Inadequate and unbalanced nutrition before and during pregnancy brings many health problems that lead to maternal and infant deaths (50). In order to support the growth of the baby and to protect the mother's health, the need for energy and nutrients increases, and this need must be met by consuming nutrient rich foods.

Nutrient needs for women who are lactating differ from those who are pregnant. Women who breastfeed require approximately 500 additional kcal/day beyond what is recommended for non-pregnant women (51). Since the energy required for the milk secreted by the mother during the lactation period is obtained from the energy stored as body fat during pregnancy and the energy from the food groups consumed by the mother, additional energy intake is needed during the lactation period.

Nutrient requirements and daily energy needs of women during pregnancy and lactation varies depending on different factors such as age, body weight, physical activity and chronic diseases. Daily additional energy requirements of pregnant and lactating mothers should include foods from different healthy food groups such as milk and derivatives, meat and meat products, eggs, legumes, cereals, fruits and vegetables.

## 5.9. Nutrition for Athletes

Adequate and balanced nutrition including foods from different food groups along with adequate fluid consumption is very important in sports nutrition. The daily energy requirement

varies depending on the age, gender and physical activity of the athlete. In sports nutrition, it is aimed to protect the general health of the athlete and to increase his performance. Nutrition is essential for supporting an athlete's general health and their training needs. Having a suitable diet provides a person with enough energy and nutrients to meet the demands of training and exercise. Athletes will have different nutritional needs compared with the general public. They may require more calories and macronutrients to maintain strength and energy to compete at their optimum level.

In addition to consuming sufficient amounts of calories and macronutrients, athletes may also require more vitamins, minerals, and other nutrients for peak recovery and performance. Fluid consumption is also very important for athletes. Excessive water loss from the body will adversely affect the performance of the athlete, so it is very important for a good performance to provide adequate fluid support considering the sweating rates. Athletes should pay attention to their carbohydrate intake in order to prevent too much reduction or depletion of glycogen stores (52). For this reason, diets should also include foods rich in carbohydrates such as pasta, rice, bread, potatoes. Proteins are involved in the repair and development of muscle tissue in the body, as well as in supporting growth and development. The daily requirements of protein varies according to the type of exercise, body weight and daily energy requirement of athletes. Fat consumption also contributes to the maintenance of performance by meeting the energy need during exercise and fat consumption must be 20-35% of the total daily energy intake

## 6. NUTRITION DURING CORONAVIRUS (COVID 19) PERIOD

Coronovirus disease (Covid-19), which is now accepted as a pandemic by the World Health Organization, also poses an important public health threat in our country. Quarantine causes a person to stay away from his daily routine, causing both a change in mood and a more sedentary life. The increase in the time spent at home, the news of the pandemic that is constantly listened to and watched, increased anxiety, the desire to consume food (especially carbohydrate foods) due to mood and the decrease in physical activity can cause undesirable increases in body weight. It is extremely important to have the right behaviors in nutrition in order to control weight and keep immunity strong.

### 6.1. How a proper nutrition should be?

Although there is no food that can prevent or treat the transmission of coronavirus on its own; It has been proven that a healthy and balanced diet, together with physical activity and regular sleep, strengthens the immune system (Figure 7). The immune system is a powerful defense system that protects the human body against diseases. In strengthening the immune system; A healthy and balanced diet, physical activity and regular sleep are the most important factors.

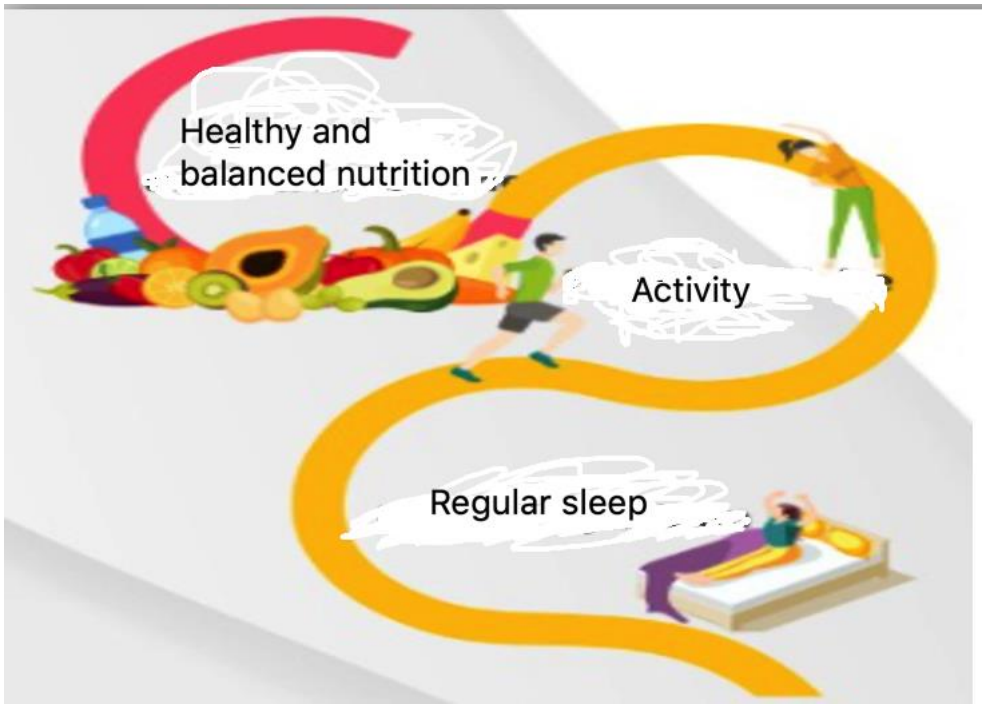



**Figure 8.** Factors affecting the immune system

Since the clearest known practice regarding Covid-19 is social isolation, where all kinds of contact are minimized, many global health organizations recommend that everyone has at least two weeks of medicine and food, including possible quarantine practices. It will be appropriate for the foods to be taken as nutritious, long shelf life and durable as possible. In order to get through this difficult period as easily as possible, it is of great importance in terms of balanced nutrition that the foods to be chosen are rich in protein, fiber, vitamins, minerals and antioxidants.

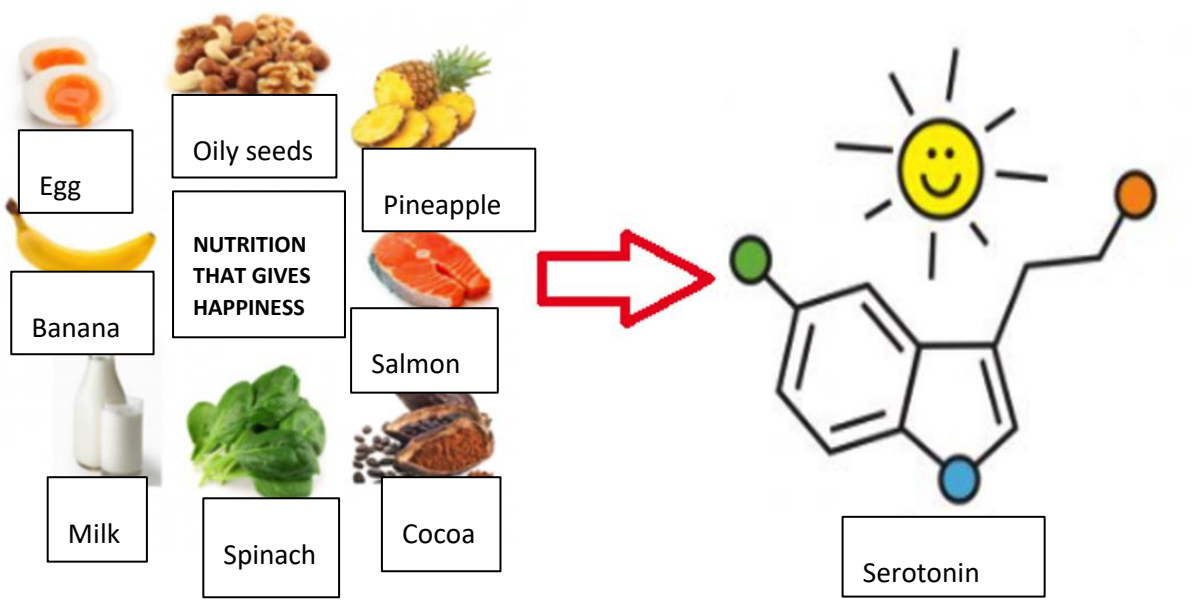
The recommendations of the Turkey-Specific Dietary Guide, prepared with the initiative of the Ministry of Health, are the most up-to-date source. It is recommended that the remaining half come from fruits, high protein foods (legumes, meat, eggs, fish, chicken, oilseeds, etc.) and dairy products (milk, yogurt, ayran, cheese, etc.) in equal three parts (Figure 8). In addition to these, it is recommended to ensure adequate water consumption and to use olive oil in daily nutrition.


**Figure 9.** "Healthy Meal Plate" Recommended in Turkey's Specific Dietary Guidelines

### 6.2. Nutrition in Quarantine

There are many studies that reveal the relationship between eating behavior and emotions. Emotional eating; it is defined as the eating behavior that is assumed to occur only in response to the mood, not because of the feeling of hunger or when the meal time has come. An increase in body weight is inevitable in people experiencing emotional hunger. The important thing in this period is to prevent malnutrition behaviors that may occur due to changing mood and to provide body weight control.

Boredom and stress due to quarantine increase the desire to eat carbohydrate foods. Consumption of carbohydrate foods, on the other hand, increases the synthesis of serotonin, which is associated with good mood and known as the happiness hormone, and the person feels relieved. However, trying to increase the serotonin level with ready-made, refined foods high in sugar both worsens the stress response by causing fluctuations (decreases or increases) in the stress hormone adrenaline (epinephrine), and also causes unwanted weight gains. Therefore, it is important to choose healthy foods containing serotonin [53].



### 6.3. Recommendations

- Since the decrease in physical activity during the quarantine period will lead to a decrease in energy expenditure, the energy to be taken in daily nutrition should be less than before the quarantine.
- Physical activity level should be increased with exercises to be done at home.
- Refined ready-made foods, dumplings and pastries should be avoided.
- Desire for sweets should be satisfied with dried fruits, fresh fruits and milky desserts on condition that the frequency is taken into consideration.
- The most effective nutritional model in coping with the negative emotional state of the quarantine; It is a Mediterranean diet model rich in fruits, vegetables and whole grain products and low in saturated fat. The fruits, vegetables and whole grain products it contains are healthy carbohydrate sources that are sources of both serotonin and tryptophan.
- Legumes and pulp consumption should be given importance.
- The consumption of antioxidant vitamins, vitamin D, omega 3, zinc, pre and probiotics, which are known to have positive effects on the immune system, should be taken care of in daily nutrition.
- To strengthen the immune system, unconscious use of supplements should be avoided.
- During the quarantine process, nutritious, long shelf-life and durable foods should be purchased as much as possible. Since vegetables and fruits are not durable, storing some of them in suitable amounts for later consumption and/or cooking is necessary to ensure the continuity of a healthy diet in cases where one cannot leave the house for a long time.
- Vegetables and fruits bought should be washed well and hygiene rules should be observed [54].

## REFERENCES


1. Anonymous (2019). Türkiye Beslenme Rehberi (TÜBER). https://hsgm.saglik.gov.tr/depo/birimler/saglikli-beslenme-hareketli-hayat-db/Turkiye_Beslenme_Rehberi_TUBER_18_04_2019.pdf

2. Aktaş, N. (2011). Besin Rehberleri: Beslenme Eğitiminde Görsel Bir Araç. Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, (25), 11-16.

3. Anonymous (2015). Türkiye'ye Özgü Besin ve Beslenme Rehberi. Hacettepe Üniversitesi, Sağlık Bilimleri Fakültesi, Beslenme ve Diyetetik Bölümü. http://tekinakpolat.com/wp-content/uploads/2017/12/turkiye-beslenme-rehberi.pdf

4. Bozhüyük, A., Özcan, S., Kurdak, H., Akpınar, E., Saatçi, E., & Bozdemir, N. (2012). Sağlıklı yaşam biçimi ve aile hekimliği. Turkish Journal of Family Medicine and Primary Care, 6(1).

5. World Health Organization (WHO) (2004). Global Strategy on Diet, Physical Activity and Health. Geneva.

6. Anonymous (2019). Türkiye Beslenme ve Sağlık Araştırması (TBSA). T.C. Sağlık Bakanlığı Halk Sağlığı Genel Müdürlüğü. https://hsgm.saglik.gov.tr/depo/birimler/saglikli-beslenme-hareketli-hayat-db/Yayinlar/kitaplar/TBSA_RAPOR_KITAP_20.08.pdf

7. Anonymous (2001). Ulusal Gıda ve Beslenme Stratejisi Çalışma Grubu Raporu. https://sbb.gov.tr/wp-content/uploads/2018/11/Ulusal_Gida_ve_Beslenme_Stratejisi_Calisma_Grubu_Raporu%E2%80%8B.pdf

8. Özer, A.E., Dede, S., Dursun, A., Avşar, Y.K. (2016). Gıda Piramitleri. Fonksiyonel Beslenme.

9. Loke, M.K., & Leung, P. (2013). Hawai'i's food consumption and supply sources: benchmark estimates and measurement issues. Agricultural and Food Economics, 1(1), 1-18.

10. Kavas, A. (2000). Sağlıklı Yaşam İçin Doğru Beslenme [Correct Nutrition For Healthy Living]. *İstanbul: Literatür Yayınları*, *37*.

11. Caner, C., Kaynak, K. & Güneşer, O. (2005). Besin Piramidleri. Akademik Gıda, 3(3), 21-25.

12. Daymaz, D. ve Güner, P. (2015). Aile Planlaması-Toplum İçin Bilgilendirme Sunumları. https://docplayer.biz.tr/19377169-Aile-planlamasi-hacettepe-universitesi-tip-fakultesi-halk-sagligi-anabilim-dali-toplum-icin-bilgilendirme-sunumlari-2015.html

13. Ünsal, A. (2019). Beslenmenin Önemi ve Temel Besin Öğeleri. Kırşehir Ahi Evran Üniversitesi Sağlık Bilimleri Dergisi, 2(3), 1-10.

14. Baysal, A. (2010). Genel Beslenme. 13. Baskı, Hatiboğlu Yayınevi, Ankara.

15. Anonymous (2019). Sağlıklı Beslenme ve Fiziksel Aktivite Öğretmen El Kitabı. *https://okulsagligi.meb.gov.tr/www/saglikli-beslenme-vefiziksel-aktivite-ogretmen-el-kitabi/icerik/10*

16. Anonymous (2019). Temel besin grupları. https://hsgm.saglik.gov.tr/tr/beslenme/temel-besin-gruplari.html

17. Aydın, G.E. (2017). Sağlıklı Bireyler İçin Temel Beslenme El Kitabı. Türk Böbrek Vakfı. https://www.tbv.com.tr/site/assets/files/4780/temel_beslenme.pdf

18. Çakmakçı, S., & Tahmas-Kahyaoğlu, D. (2012). Yağ asitlerinin sağlık ve beslenme üzerine etkilerine genel bir bakış. Akademik Gıda, 10(1), 103-113.

19. Anonymous (2017). Vitaminler. https://www.gidabilgi.com/Kategori/Detay/vitaminler-270004

20. Samur, G. (2008). Vitaminler, Mineraller ve Sağlığımız. https://sbu.saglik.gov.tr/Ekutuphane/kitaplar/B%202.pdf

21. Anonymous (2017). Yeterli Su ve Sıvı Tüketiminin Önemi. https://hsgm.saglik.gov.tr/tr/beslenmehareket-haberler/yeterli-su-ve-sivi-tuketiminin-onemi.html

22. Baysal, A. (1996). Sağlıklı beslenme ve Akdeniz diyeti. Beslenme ve Diyet Dergisi, 25(1), 21-29.

23. Kartal, A., Ergin, E., & Kanmış, H.D. (2020). Suggestions about Healthy Nutrition and Physical Fitness Exercise During COVID-19 Pandemic. *Eurasıan Journal of Health Sciences*, 149-155.

24. Yılmazbaş, P., & Gökçay, G. (2015). İlk iki yaşta sağlıklı beslenme ve sağlıklı beslenme alışkanlığının geliştirilmesi. Çocuk Dergisi, 13(4), 147-153.

25. Amira, M. B., Hanene, J. H., Madiha, D., Imen, B., Mohamed, H., & Abdelhamid, C. (2010). Effects of frying on the fatty acid composition in farmed and wild gilthead sea bream (Sparus aurata). *International Journal of Food Science & Technology*, *45*(1), 113-123.

26. Anonymous (2017). Daha Az Tuz Tüketin. https://www.saglik.gov.tr/TR,18707/daha-az-tuz-tuketin.html

27. Samur, G. ve Mercanlıgil, S.M. (2008). Diyet Posası ve Beslenme. https://sbu.saglik.gov.tr/Ekutuphane/kitaplar/B%2011.pdf

28. Sevinç, İ. A., & Ercoşkun, H. (2020). Kırmızı Et Tüketimi, Kolesterol ve Beslenme. *Gıda ve Yem Bilimi Teknolojisi Dergisi*, (24), 1-7.

29. Kendilci, E. A. (2020). Vejetaryen beslenmenin sağlık üzerine etkisi: Sistematik derleme.

30. Barbaros, B., & Kabaran, S. (2014). Akdeniz diyeti ve sağlığı koruyucu etkileri. Beslenme ve Diyet Dergisi, 42(2), 140-147.

31. Bakır, B. ve Şahin, G.A. (2020). Polifenollerden Zengin Besinler ve Hipertansiyon. Türkiye Klinikleri J Health Sci. 5(1):135-44.

32. Armutcu, F., Namuslu, M., Yüksel, R., & Kaya, M. (2013). Zeytinyağı ve sağlık: Biyoaktif bileşenleri, antioksidan özellikleri ve klinik etkileri. Konuralp Medical Journal, 5(1), 60-68.

33. Sarıoğlu H. (n.d.) Diyabet ve Beslenme, Bursa Halk Sağlığı Müdürlüğü, https://bursaobm.ogm.gov.tr/Lists/Haberler/Attachments/171/Diyabet%20ve%20Beslenme.pdf. Erişim tarihi: 18.10.2021

34. Anonymous (2016). Diyabet Hakkında Herşey. Türkiye Diyabet Vakfı. https://www.turkdiab.org/diyabet-hakkinda-hersey.asp?lang=TR&id=51.Erişim tarihi:18.10.2021

35. Yıldız, E. (2008). Diyabet ve Beslenme. T.C. Sağlık Bakanlığı. https://sbu.saglik.gov.tr/Ekutuphane/kitaplar/C%202.pdf

36. Anonymous (2019). Diyabet Tanı ve Tedavi Rehberi. Türkiye Diyabet Vakfı. https://www.turkdiab.org/admin/PICS/files/Diyabet_Tani_ve_Tedavi_Rehberi_2019.pdf

37. WHO (2021). Obesity and overweight. https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight

38. Kızılay Sağlık (2020). Şişmanlık-Sağlıklı Beslenme. https://www.kizilaysaglik.com.tr/saglık-rehberı/sismanlik-saglikli-beslenme/. Erişim tarihi:18.10.2021

39. WHO (2021). Infant and young child feeding. https://www.who.int/news-room/fact-sheets/detail/infant-and-young-child-feeding

40. Anonymous (2013). Okul Öncesi ve Okul Çağı Çocuklara Yönelik Beslenme Önerileri ve Menü Programları. T.C. Sağlık Bakanlığı. https://hsgm.saglik.gov.tr/depo/birimler/saglikli-beslenme-hareketli-hayat-db/Yayinlar/kitaplar/diger-kitaplar/okul-oncesi-ve-okul-cagi-cocuklara-yonelik-beslenme-onerileri-ve-menu-programlar.pdf

42. EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA). (2013). Scientific Opinion on nutrient requirements and dietary intakes of infants and young children in the European Union. *EFSA Journal*, *11*(10), 3408.

43. Anonymous (n.d.). Oyun çocuğu döneminde beslenme rehberi. https://www.pedgastro.org/icerik/beskenme-rehberi-1.PDF

44. Anonymous (2015). Dietary Guidelines for Americans for Americans 2020-2025. https://www.pcrm.org/good-nutrition/nutrition-programs-policies/2020-2025-dietary-guidelines

45. Anonymous (2016). Türkiye Beslenme Rehberi 2015 (Tüber). https://okulsagligi.meb.gov.tr/meb_iys_dosyalar/2017_01/27102535_TYrkiye_Beslenme_Rehberi.pdf

46. İslamoğlu, A. H., Garipağaoğlu, M., İlktaç, H. Y., & Güneş, F. E. (2019). Postmenopozal Yaşlıların Beslenme Durumunun Değerlendirilmesi. *Geriatrik Bilimler Dergisi*, *2*(1), 20-26.

47. Yardımcı, H., Ayse, Ö. Ö., & Metin, S. S. (2011). Yaşlılarda hipertansiyon durumu ve beslenme alışkanlıkları. Ankara Sağlık Bilimleri Dergisi, 1(2), 17-36.

48. Özalper, B. (2014). Gebelikte beslenme. *Muş Alparslan Üniversitesi Fen Bilimleri Dergisi*, *2*(2), 270-278.

49. Bükülmez, A. (2020). Erken Yaşamda Beslenme: Neden Önemli?. Pediatric Practice and Research, 8(2), 57-61.

50. ACOG Committee on Obstetric Practice. (2012). *Guidelines for perinatal care (Seventh Edition)*. American Academy of Pediatrics.

51. Anonymous (2017). Sporcular İçin Beslenme. https://www.gidabilgi.com/Kategori/Detay/sporcu-beslenmesi-a6e1c9/. Erişim tarihi:18.10.2021

52. Mehta, P., Stahl, M. G., Germone, M. M., Nagle, S., Guigli, R., Thomas, J., ... & Liu, E. (2021). Telehealth and nutrition support during the COVID-19 pandemic. *Kompass Nutrition & Dietetics*, *1*(3), 110-112.

53. Eskici, G. (2020). Covid-19 pandemisi: Karantina için beslenme önerileri. *Anatolian Clinic the Journal of Medical Sciences*, *25*(Special Issue on COVID 19), 124-129.

Co-funded by the
Erasmus+ Programme
of the European Union



# "INCREASING FOOD LITERACY COMPETENCIES OF ADULTS"

FOODTR

**2020-1-TR01-KA204-092828**

**2022**

Foodtr Project FOODTR2 foodtrproject

**Adres:** Adalet Mah. Hürriyet Cad. No: 128 16160
Osmangazi/Bursa

**Telefon:** 0224 246 47 20