



Republic of Turkey  
Ministry of Health  
General Directorate of Primary Health Care  
Food Safety Department Community Nutrition Division

# DIETARY GUIDELINES FOR TURKEY



November - 2006  
Ankara, TURKEY

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The Ministry of Health of Turkey  
The General Directorate of Primary Health Care



Hacettepe University  
Department of Nutrition and Dietetics

1. Edition (in Turkish) : May 2004, Ankara, Turkey, 2000 copy
2. Edition (in Turkish) : August 2004, Ankara, Turkey, 1000 copy
3. Edition (in Turkish) : September 2005, Ankara, Turkey, 500 copy
4. Edition (in Turkish) : February 2006, Ankara, Turkey, 1000 copy
5. Edition (in English) : November 2006, Ankara, Turkey, 1000 copy

ISBN: 975-590-189-2

Press: Onur Matbaacilik Ltd. Sti

Ivedik OSB Matbaacilar Sitesi 558. Sokak No: 47 Y.Mahalle/ ANKARA/ TURKEY

Phone: +90 312 394 08 90

This publismint is prepared and published by The Ministry of Health of Turkey, General Directorate of Primary Health Care, Food Safety Department, Community Nutrition Division.

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# DIETARY GUIDELINES FOR TURKEY

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## **PREFACE**

Nutrition is a necessity that places as an indispensable in all life process adequate, balanced and healthy diet of persons will enable to prevent obesity in society and vitamin-mineral insufficiencies.

In International Nutrition Conference that was organised by the participation of World Health Organisation (WHO) and Food Agriculture Organisation (FAO) in Rome in December 1992, main purpose was to eliminate hunger and to reduce and prevent all forms of malnutrition. After this conference member states began to prepare National Food and Nutrition Action Plan with the purpose of preventing society from being ill by improving nutrition status.

One of these strategies is also preparation and implementation of Nutrition Guides to improve persons and society's nutrition status. Nutrition Guides contains a series of proposals that are composed with the aim of explaining all conditions related to nutrition and giving information to society concerning adequate and balanced nutrition. These guides consider traditional nutrition habits and attract attention to changing view aspects. Guides consider the ecologic environment, socio-economic and cultural factors as well as biologic and physical environment.

After International Nutrition Conference, "National Food and Nutrition Action Plan" has been formed for our country in coordination of State Planning Organisation (SPO) in 2003. Several activities have been determined with the aim of public's awareness regarding to nutrition and to give people healthy nutrition habits. Development of Nutrition Guide for Turkey is one of the activities that is available in this action plan. I would like to thank members of Hacettepe University Department of Nutrition and Dietetics, staff of General Directorate Primary Health Care Services, Food Safety and Laboratory Department, Community Nutrition Section who have participated to the preparation of this guide with the aim of public's adequate, balanced and healthy nutrition. I wish this guide would be useful to our people.

**Professor Recep AKDAĞ, MD**  
Minister of Health of the Republic of Turkey



## **PRESENTATION**

Adequate and Balanced Nutrition is the basic requirement for people helping them to achieve their growth and development potentials, to prevent from the diseases and to lead a high quality life. Since age, gender, genetic, activity and physiological characteristics of the person affect the quality and the quantity of the food to be ingested, all nutritional plans should be individualized accordingly. However, some general nutrition and dietetic principals specifically designed for the given society should be determined and applied for healthy population growth.

This guideline has been developed with the aim of providing the people the essential food and nutrient amounts to be considered as their basic requirements for their daily consumption and the principals instructed depending on the dietary pattern and food habits of the people living in Turkey. Nutritional practises specific for the groups and the diseases (such as elderly, laborers, athletes, pregnant and lactating women, diabetes, cardiac disease, cancers. etc) must be prepared under the observation and control of scientifically approved and certified experts. It should be emphasised that nutrition is specific to person and each person must design his/her nutrition programme under the collaborative work and control of the doctors and the dietitians.

Decision to prepare guideline specific for Turkey has been approved in a meeting that is organized with the participation of representatives from Ministry of Health, Ministry of National Education, related departments from universities and international institutions such as FAO,WHO,UNICEF. Guideline has been prepared by Professors of the Department of Nutrition and Dietetics at Hacettepe University and General Directorate of Primary Health Care Services and then submitted to related institutions (Hacettepe University Food Engineering, Middle East Technical University Food Engineering, Ankara University Food Department, Başkent University Nutrition and Dietetic Department, TUBITAK, Turkish Physicians Union, National Paediatric Association of Turkey) for reviewing.

We would like to congratulate and thank to those who participated in preparing and publishing this guideline particularly to Cengiz Kesici, Head of Food Safety Department of General Directorate Primary Health Care Services At Ministry of Health. We wish this guideline contribute to people's consciousness in regard to nutrition.

**Professor Türkan Kutluay MERDOL, PhD**  
Hacettepe University  
Head of the School of Health Technology  
Head of the Department of Nutrition and Dietetics







## ADEQUATE AND BALANCED NUTRITION



Nutrition is not to surpassing hunger emotion or eating and drinking whatever you want. Nutrition is taking consciously essential nutrients that body's main requirement adequately and in balance for preventing health and improving quality of life.

**Nutrition is taking required elements in body and using for person's growth, development, healthy and productive long life.**

It is determined by scientific researches that person should take adequate amount of almost 50 nutrients for healthy growth and development and healthy and productive longer life. When one of these nutrients are not taken or inadequately taken it has been proved scientifically that growth and development are impaired and health deteriorated.

Taking adequately and using appropriately energy and all nutrients required for body's growth, renewal and working is explained with statement "ADEQUATE AND BALANCED NUTRITION".

**Adequate and balanced nutrition is basis for prevention of diseases and health**

**When nutrients are not taken in the level of body need, "INADEQUATE NUTRITION" case arises since adequate energy and renewal of tissues are not composed.**

**If person eat too much, he takes nutrients much more than needed. Since some nutrients that are taken too much, accumulates as fat, it is dangerous for health. This case is defined as "UNBALANCED NUTRITION". Although people eat adequate food but not prefer appropriate choice, health may also deteriorate. This case is defined also as "UNBALANCED NUTRITION".**





## CONSEQUENCES of INADEQUATE and UNBALANCED NUTRITION



Since inadequate and unbalanced nutrition causes impairment in body's growth, development and maintaining its processes, we could say "adequate and balanced nutrition is basis of health". Body of a man who nourishes inadequately and unbalanced, is not resistant to infections. Thus these people easily have disease.

In addition, in case of inadequate in take of any of a certain nutrient, body function is diminished and diseases are arisen. Unbalanced nutrition decreases persons' working, planning and creation abilities. Economic development require strong and productive workers. Healthy person is productive person. The foundation of health is established by adequate and balanced nutrition.

**Due to inadequate and unbalanced nutrition, those who do not develop mentally and bodily, tired, reluctant and unhealthy individuals are not a power but burdens for society.**

**View of persons who nourish adequately and balanced could be defined as follows;**



- A strong appearance,
- Active and careful looks,
- Tidy, smooth, moist and pink skin,
- Glossy and bright hairs,
- Strong, normal muscles,
- Smooth, well grown arms and legs
- Personality that does not complain often headache, is willing working,
- Body weight is well proportional to height and age,
- Personality whose mental, physiological and social development is normal.

**View of persons who nourish inadequately and unbalanced could be defined as follows;**



- An inclined body whose movements are slow and reluctant,
- A swollen belly,
- Several hurts and roughness on skin,
- Complaints of headache,
- Personality that is, tired and reluctant, lack of appetite.



Mental slowness, imbalance in attitudes and activities are signs of inadequate nutrition. Besides, body weight is not well proportional to height and age ie, obesity is the general signs of unbalanced nutrition and is accepted as a disease.

It is not true to decide whether people in society have adequate and balanced nutrition by only looking at the appearance. Nutritional status of populations are determined by using scientific methods. Several food and nutrition examination surveys show that considerable part of our society nourishes inadequately and unbalanced.

**Infant and children, youths, women in childbearing age, pregnant and lactating women, elderly and workers** are the most effected groups by inadequate nutrition. Obesity and diseases related to obesity are among important public health problems among adults. When reasons of unbalanced nutrition are investigated, lack of knowledge related to nutrition comes first. Acquiring awareness of healthy nutrition with nutrition education is important in preventing unbalanced nutrition.





## FOOD AND NUTRIENTS



Plant and animal tissues that could be eaten and providing nutrients are defined as “FOOD”. Foods are composed of carbohydrates, protein, fat, vitamins and minerals which are defined as nutrients.

Human the most advanced alive, survives by eating other living organisms in nature. Primitive human ate whatever he found, in the course of time, making choose among them, produce what he choose, saving his foods and cooking them for appropriate case. Then human analysed composition of foods and determined some characteristics of them. After learning their characteristic, some of them was packed as tablet, some of them was made pure and the others.

Human wants to enjoy eating and drinking action, in the other hand human should obtain the required elements for his/her life. This is probable by choosing foods with knowing their functions, contents, techniques of cooking, preserving and keeping.

A specific food for example bread could not provide all the 50 essential nutrients in desired levels. Some foods are rich for some nutrients, some of them are not. In this case, for “healthy nutrition”, consumers should be aware of the food that is consumed at which amount and preparing for consumption by which methods. Foods are separated to small parts in digestive system, after being eaten and are transported to all tissues of body. They produce energy by burning with oxygen that is taken by respiration. At the same time, new tissues are created and old ones are renewed by combining small parts.





## FUNCTIONS OF NUTRIENTS IN THE BODY



Almost 50 nutrients that are essential for human body, could be gathered in 6 groups as their chemical structure and functions in body. These are proteins, fats, carbohydrates, minerals, vitamins and water.

**Proteins:** Average of 16% of adult body is composed of protein. This is not a type of storage, is a type of living cells which have specific functions. Proteins are split into amino acids and are transported to liver by blood. Then compounding here they compose body tissue proteins. Protein also is used as energy source in the body. Proteins compose main structure of cells. Body tissues and organs are made by compounding specific cells. Protein is the main nutrient that regulates body function for growth and development. In the course of time, many cells die and new ones are synthesised. Main structure of immune systems, enzymes and some of the hormones used in regulation of body functions are proteins.

**Fats:** Average of 18 % of adult body is composed of fat. Generally, there is much more fat in women body than men body. When person eats more than he/she needed, proportion of body fat increases. When he eats less it decreases. So body fat is main energy store of human body. When energy is not taken adequately, body uses this store. Fat is the most energy giving element. Some of vitamins are taken to body with fat. Since fat leaves stomach slowly it gives satisfaction. Fat layer under the skin regulates body for temperature. Some of the fatty acids are needed for the synthesis of some hormones that are needed for body regulation.

**Carbohydrates:** Less than 1 % of adult body is composed by carbohydrates. Carbohydrates' main function is to provide energy. Carbohydrates provide 50% of daily energy requirement. Carbohydrates are stored as glycogen in little amounts and in case of necessity it is broken down to glucose. Glycogen is available in liver mostly. Glycogen is required for keeping specific level of blood glucose that is an energy source for body tissues especially for brain.



**Minerals:** Average of 6 % of adult body is composed of minerals. Minerals such as calcium and phosphorus are building structures of skeleton and teeth. Others (sodium, potassium) enable body water balance. Some minerals (like iron) are required to carry oxygen which is obligatory for energy production. Some of them (zinc, selenium) are used for defence system adequacy.

Approximately 6% of adult body is composed of minerals.

**Vitamins:** Although vitamins are rather less in human body, their functions create increased need. A part of them (B vitamins), help to regulate biochemical events related to carbohydrates, fat and protein. Vitamin D helps minerals such as calcium, phosphorus to accumulate in bones and teeth. Some vitamins (A, E, C) help to maintain body's normal activity by preventing body cells destruction.



Most biochemical events in body are regulated with the help of vitamins.



**Water:** It is required to digest foods, to transport them into tissues, to excrete harmful metabolites from body and to regulate body temperature. Availability of water in body is vital for life. (See page:



60 % of adult body is composed of water.  
Water proportion is much more in infants than adults.

Basis of live depends on food ingestion, digestion, absorption to blood, transporting to cells, transforming to energy, synthesis of new and worn out cells. These processes are called “METABOLISM”. The process of being broken down of fat, carbohydrates and proteins for producing energy is defined as “CATABOLISM”. Cell synthesized process with the help of vitamins and minerals is defined as “ANABOLISM”. When all nutrients are taken together, body continues its healthy and strong function, normal growth and development .

*Reference intake level of daily energy and nutrients for Turkey has been given in Table 1, Annex-1.(The values given in the bottom of the table are average values. The description given in the bottom of the table should be read carefully). Contribution of macronutrients to daily energy have been showed in Annex-1, Table 2.*





## FOOD GROUPS



Each food shows difference in terms of nutrient compositions. However some foods substitute each other since they resemble each other. Scientists have classified the foods and the amounts required to be consumed from each group. Food and Nutrition Council of United States of America stated that foods should be classified under four groups in 1958. This classification facilitates making daily food plan. Council has passed “Food Pyramid” usage in 1985 with the view of contributing consumer consciousness in nutrition. Countries make changes in pyramid according to their food habits and food availability. Clover with four leaves has been used for Turkey in expression of groups with shape since it is appropriate using four food groups in planning daily food intake.

Clover symbolizes happiness. In addition, leaves are showed as heart shape. This case states heart health and love. Bottom half of circle is surrounded with a statement as “Adequate and Balanced Nutrition” and above in the half of circle there are olive branches. Olive branches symbolise the peace, as well as olive oil that is a component of Mediterranean Diet. In upper, down, right and left leaves of clover there are pictures of food groups. In upper leaf, milk and milk products have been shown. Since Turkish people consume these products little, it is chosen as upper leaf to state the importance of these products. In second group (right leaf of clover) meat, eggs, legumes take part. In third group (bottom leaf of clover) vegetables and fruits take part. The fourth group is (left leaf of clover) the bread and cereals.

Amount of food that are required to consume daily is determined with the basis of “Four Food Groups”. In Annex-2, Table 3 it is showed that average amounts required to be consumed for different age groups.







## MILK GROUP (MILK, YOGURT, CHEESE)



Milk and its substitute products are yogurt, cheese and milk powder that are made of milk. These foods are rich sources of many nutrients such as protein, calcium, phosphorus, vitamin B<sub>2</sub> (riboflavin) and B<sub>12</sub>. All age groups specially women, children, adolescents and elderly should consume these products daily.

**Milk group is the major food source of calcium for healthy bone development.**

Calcium plays an important role in functioning of cell and healthy development of bones and teeth.

Amount proposed for consuming age, changes according to age, gender and physiological condition (growing and developing period, pregnancy, lactation, elderly).

Vegetables with dark green leaves, whole grain products, legumes, grape molasses as well as milk and milk products, provide specific amount of calcium. However, calcium provided from these foods are less used in the body than milk.

**It is proposed that adults should consume at least 500 grams of milk or yogurt.**

Milk and milk products are also rich sources of fat. They contain saturated fat and cholesterol and vitamin A. Those who are recommended to have cholesterol lowering diet should prefer milk, yogurt and cheese with low fat.

Salt content of cheese is high. In order to decrease the salt of diet, one should consume low salt containing cheese.





## RECOMMENDATIONS

- It is necessary that adults should consume 2 servings, children, adolescents, pregnant and lactating women should consume 3-4 servings of milk and milk products. A middle size glass (200 cc) milk or yogurt with two matchboxes size cheese is considered as one serving.
- Prefer milk with no fat or low fat, yogurt and cheese with low salt.
- Cheese and similar foods made from raw milk and unpasteurised milk cause Brucellosis disease. So do not consume milk whose source is unknown.
- Prefer pasteurised or UHT (ultra-high temperature) milks. Do not buy street milk that is sold on streets by unknown people.
- Less boiling time of the milk does not kill all microbes. Boiling the milk too much causes vitamin losses. It may be useful to boil milk at least for 5 minutes after boiling point.
- Straining of yogurt water or water that arises during keeping cause vitamin B<sub>2</sub> (riboflavin) loss. Riboflavin is a vitamin that has important functions in the body. So yogurts' green water should not be discharged, should be evaluated. It must be used in cooking soups, pie, biscuits and in fermentation of bread.
- During the preparation of milk desserts, sugar must be added just before cooking is completed. If sugar is added during the cooking, protein loss will arise.
- “Tarhana” is our traditional food that is made of yogurt, flour or grain. It has an important role in our diet. Drying should be done in a place with air movement and in shadow areas by covering a cloth on it. Otherwise important vitamin losses are arisen.
- **Plastic milk or yogurt pots should not be used with the aim of preserving food.**
- **Eating yogurt and drinking salty ayran for treatment of diarrhoea save life.**



## MEAT GROUP (MEAT, POULTRY, FISH, EGGS AND LEGUMES)



This group consists of meat, chicken, fish, eggs, haricot bean, chickpea, lentils and other leguminous seeds. Nuts such as walnut, hazelnut, peanut are in this group. Since nuts contain more fat than other foods in this group it should be paid attention to consuming amounts.

**This group is rich source of:**

**Protein**

**Iron, zinc, phosphorus, magnesium**

**B vitamins**

**Legumes and nuts do not contain vitamin B<sub>12</sub> but rich source of dietary fibre**

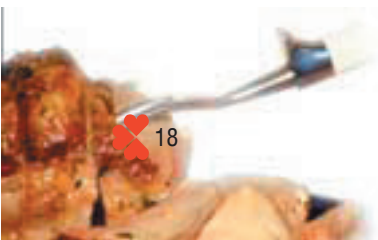
### Importance:

- It enables growth and development
- They provide renewal of cell, restoration of tissue and nutrients in vision function.
- Most important nutrients in blood production are provided by this group of foods.
- Nutrients that are essential in functioning of nervous system, digestion system and health of skin place mostly in this group.
- Foods in this group play a role in obtaining resistance to diseases.

### Meats

**Meats are rich sources of good quality protein, iron, vitamin B<sub>12</sub> and zinc. However it must be refrained consumption of fatty meat.**

Meats have important place in our diet. Cattle meats are red meat and poultry and fish meats are defined as white meat. It is the most important source of protein since it contains good quality protein. The proportion of protein and fat in meat vary depending on meats being fatty and non-fatty. In fatty meats saturated fat and cholesterol are higher. Particularly in fishes n-3 fatty acids are rather high and an important source. Meats are rich in terms of vitamin B<sub>12</sub>, iron and zinc. Iron in body has an important role in prevention of iron deficiency which is an important health problem of women and children.





Animals may carry several disease factors. The most important diseases that pass from animals to human are anthrax, roam, tuberculosis, salmonellas, hydrophobia etc. For conformity to health meat must be free of such disease factors. Consumption of meats under control is important.

Meat products such as sausage, salami, dried meat, well cooked meat are made by using home technology and industrial process. Particularly in producing process salami and sausages chemicals such as nitrite-nitrate are added. When we are consuming that kind of products we should include fruits and vegetables in our diets.

### RECOMMENDATIONS

- Meats are sources of good quality protein. Particularly, it must take place in the diets of infants and childhood, who have increased need to proteins.
- Meat itself should be eaten because it contains protein, not only its juice.
- Those who have diseases such as coronary heart disease, diabetes, hipertension should prefer white meat (chicken and turkey) without skin and fish meat instead of red fatty meat.
- Fish must be eaten twice a week for healthy nutrition because it contains omega-3 (n-3) fatty acids.
- While consuming meat products such as salami, sausage foods that are rich in vitamin C and E should be eaten together. Meats must be consumed in limited amounts because of their saturated fat content.
- Meats that are controlled of veterinarian must be eaten. Uncontrolled meats must be consumed after cooking rather well.
- In cooking methods such as boiling, grilling must be preferred, frying must be refrained.
- When meats are being grilled, range between meat and fire must be adjusted as not to permit carbonization. Otherwise cancer causing substances are composed.
- Meats must be bought from reliable places, must be kept in cold or in freezer.

**Eggs:**

**Egg is a food whose protein quality is highest.**



Egg is a food whose protein quality is highest. The researches showed that egg proteins are transformed to body proteins by 100 %. So egg proteins are evaluated as reference protein. Egg fat's 33 % saturated, 16 % is polyunsaturated, the rest is monounsaturated fatty acids. Fat is intensified in egg yolk. Although egg yolk contains cholesterol since its saturated fatty acids are low, its cholesterol enhancing effect is lower than fatty meat and fatty milk products. Egg yolk is rich in terms of iron, vitamin A and B vitamins.

On the shell of egg there are small holes called pores. In fresh and unwashed eggs these holes are covered with a thin mucin layer. If egg is washed, this layer will be removed and holes will be open. Opening of holes causes water loss. Each two events accelerate the deterioration of egg quality. The eggs that swim on salty water are stale, that sink on bottom are fresh.

**RECOMMENDATIONS**

- Since its protein quality is high, an egg must be consumed daily by children.
- As regards to diseases such as kidney and liver failure, egg is an important protein source because of its protein quality is highest.
- Egg white and egg yolk must be cooked rather well since microorganisms can pass easily to egg from the shells.
- Uncooked egg should not be eaten.
- Cardiac patients could eat egg once or twice a week.
- Those who do not eat meat can eat egg. An egg is equal to egg sized meat in terms of nutrients content.
- If egg is eaten with vegetables and grains, its negative effect to blood cholesterol does not arise.
- When buying egg, the eggs that have not cracked and broken surface should be chosen and should be preserved in refrigerator without washing.



### Leguminous seeds:

**To increase daily dietary fibre intake, meal prepared from leguminous seed should be consumed at least twice a week.**

**Leguminous seeds that are consumed as food are;** chickpea, lentil, bean, pea, kidney-bean and soybean. Their essential compounds are carbohydrates and protein. In the outside of seeds there is fibre, in the inside there is starch. Leguminous seeds' fat content is low and mostly composed of unsaturated fatty acids.

Protein content of leguminous seeds is high. Particularly in cases that meat, egg is not found or cholesterol limited diets are proposed, by increasing of leguminous seeds, need of protein may be met. However, leguminous seeds' protein quality is rather low.

Reason of this is limiting sulphur containing amino acids, high fibre content and difficulty of digestion of them. If leguminous seeds are mixed with grains and are cooked rather well, their protein quality could be increased. They are rich as to zinc, calcium, magnesium and iron. Leguminous seeds are rich as to vitamin B group, except B<sub>12</sub>.

**Leguminous seeds should be cooked rather well for facilitating digestion.**

#### Phases of cooking:

**1-Soaking:** They are soaked 8-24 hours in water in room temperature. Substances that make gas pass to soaking water. Soaking water may be discarded. Since shells of red and yellow lentils are separated soaking must not be done.

**2-Removing outer pellicles:** For those who have failure of digestion system and for baby food it could be useful. Except these cases it is not needed to remove outer pellicles.

**3-Cooking:** Good cooking is important as regards to facilitating digestion. Cooking water should not be discarded.

### RECOMMENDATIONS

- Because its dietary fibre content is high and its fat content is low, they must be placed in diets of cardiac patients.
- To increase protein quality they must be consumed with cereal grains.
- With soaking and good cooking gas making effects could be decreased. Cooking water definitely must not be discarded.
- They must be consumed with foods that are rich of vitamin C, for beneficence of minerals, especially iron.

**Nuts:** Hazelnut, sesame, walnut etc. are used in our foods as relishing and appetizers. These foods are rich of vitamins of B group, minerals, fat and protein. Although their fat content is high because they are vegetal, they do not contain cholesterol. Hazelnut is rich of mono unsaturated fatty acids; walnut is rich of omega 3 fatty acids as well as mono unsaturated fatty acids. These foods decrease risk of heart disease and cancer. It is useful to place these foods in diets of children and heavy workers also.

If these foods are not preserved in appropriate conditions, they will deteriorate and to get mouldy. To prevent moulding, they must not be kept on soil and must be harvested in appropriate time. At home they must not be kept in moist places.



### RECOMMENDATIONS

- They are rich of vitamins of group B, minerals, unsaturated fat and protein.
- It is useful to place these foods in diets of children, heavy workers, cholesterol lowering and antihypertensive diets.
- At home the shelled and unshelled nuts must not be kept altogether. They must not be kept in moist places.



**DAILY 2 SERVINGS FROM THE GROUP OF MEAT-EGG-LEGUMINOUS SEEDS SHOULD BE CONSUMED.**

### SERVING SIZES:

Meat, chicken, fish, etc : 50-60 g. (as 2 grilled meatball)  
 Leguminous seeds : 90 g. (a tea glass)  
 Nuts : 30 g.  
 Egg : 3-4 eggs must be eaten in a week. 2 eggs are equal to 2-3 meat balls.





## VEGETABLE AND FRUIT GROUP



Parts of plants that are edible are gathered under a group of vegetable and fruit. Important part of their composition is water. So they contribute not much to daily energy, fat and protein intake. However, they are rich source of minerals and vitamins. They are specially rich source of folic acid, vitamin A, carotenoids, flavonoids vitamin E, C, B<sub>2</sub>, calcium, potassium, iron, magnesium, dietary fibre and other antioxidants. Vegetables and fruits are contributory foods to get out the harmful substances from body.

Functions of vegetables and fruits:

- They help growth and development.
- They enable cell renewal and tissue restoration.
- They contain main elements for health of eye and skin.
- They preserve health of teeth.
- They are rich as elements in charge of blood formation.
- They are active on the antioxidant defence system of body.
- They provide satiety feeling.
- They decrease risk of obesity, chronic diseases (cardiovascular disease, hypertension, some kinds of cancers).
- They help functioning of intestines regularly.







### **For healthy nutrition;**

Eat vegetables in various colour and types. Since different vegetables contain different nutrients and antioxidants, vegetables intake in daily life should be diversified. Dark yellow vegetables (carrot, pumpkin), vegetables with dark green leaves (spinach, lettuce, purslane, broccoli), farinaceous vegetables (potato, pea) and other vegetables (tomato, onion, green beans) should be consumed balanced.

Since different fruits contain different nutrients, fruits consumed in daily life should be diversified. Generally citrus fruits group and strawberry contain vitamin C, while cherry, black grape, black mulberry are rich from other antioxidants, fruits such as banana, apple are rich from potassium.

All vegetable and fruits should be consumed in their season in terms of content of nutritive value and being economical.

### **Principals of Cooking:**

- Prefer eating vegetables and fruits raw. Do not peel shells that could be eaten. If needed, peel as possible as thin. Many mineral and vitamin are available in this part.
- Fresh vegetables should be cleared of refuse part, washed with water then cut into pieces and cooked with adequate water.
- While washing the vegetables, it is necessary not to keep in water long time. During keeping some vitamins are soluble in water and their nutritive value may be decreased.
- Before cooking vegetables it is necessary to cut them into appropriate pieces.
- Before vegetables are cut, hot mixture in that they will be cooked should be prepared. For this purpose, first oil, onion, tomato sauce and if needed water are put into the mixture. Then vegetables are cut into pieces and added to mixture and cooked.
- Water content of vegetables with green leaves is very high. So it could be cooked without adding water. Vitamin loss will be very high if water is added to vegetable dishes.
- It is necessary that vegetables are cooked in a short period as possible for keeping their vitality. Vitamin C and some of B vitamins could be lost easily with heat.
- The tap of the stewpan must be kept closed during cooking of vegetables and fruits. Thus steam will not be lost and cooking period will shorten.
- The boiling water of vegetables should not be discarded. If it is discarded vitamin loss will occur.



- Cooking water of vegetables could be added to soups, meals and sauces.
- During cooking vegetables, baking soda should not be added. This will cause vitamin loss although it gives more green colour to vegetables.
- Instead of drinking juice of vegetables and fruits all parts of vegetables and fruits with their shells should be eaten to increase dietary fibre intake.
- In sprouted potatoes, the amount of solanine substance that has poisonous effect, increase in the parts near shell. So potato must be preserved from sprouting. Over sprouted potatoes must not be consumed.

### RECOMMENDATIONS

- Vegetable or fruit must be consumed at least 5 servings daily.
- At least two servings of vegetable and fruit must be vegetables with green leaves or citrus, fruits like oranges or tomato.





## BREAD AND OTHER CEREAL GROUP



Since whole grains are rich from vitamins B exception of vitamin B<sub>12</sub>, they keep important place in daily nutrition.

Cereals are main foods of Turkish people. Wheat, rice, corn, rye and oats and their products, such as flour, bulgur, macaroni are included in this group. Since cereal and cereal products contain vitamins, minerals, carbohydrates and other nutrients they are important foods for health. Cereals also contain protein. Although these proteins' quality is low, when they are eaten with meat, milk, egg and legumes their protein quality could be increased. Cereals also contain some fat. Germs of cereal are rich from vitamin E. There is no vitamin C in cereals. Cereals are rich from B complex vitamins, except B<sub>12</sub>. These vitamins are mostly found in the shell and germ.

### Cereal Products:

**Flour:** Consumption of cereal is done by eating foods made from flour. When flour is called wheat flour is meant. The other flours are known with the name of cereal that they are made of. During grinding the cereal grains if bran and germ are separated, vitamin, mineral content decrease.

**Bulgur:** It is made of wheat. It is used very much in our country. Bulgur does not lose their nutritive value during processing. It is a good cereal product.

**Starch:** Wheat starch is the most used starch. In addition, there are also rice, corn and potato starch. Starch is pure carbohydrate source, they do not contain vitamins, minerals and protein.

**Macaroni - Vermicelli:** Vitamins and mineral content of those that are made of white flour are much lower than those made from whole wheat flour.

**Bread:** It is most consumed cereal product. In our country three type of bread are consumed. They are yufka (a paper thin layers of dough), bazlama (thicker than yufka) and regular fermented bread. Yufka and bazlama are cooked on a hot thin iron plate. Nutritive value of fermented bread is higher than others. Since absorption of some of the minerals such as iron and zinc, it should be refrained consuming unfermented bread.

**Cake-Biscuit etc.:** Generally, since egg, milk, sugar and fat are added to flour, during preparations energy content of these foods increases.



## Benefits of eating whole cereal products

The foods made from cereals of which the bran and germ are not separated, are rich in minerals, vitamins and dietary fibres. Consumption of foods containing high fibre content provide proper intestinal motility. The type and content of the fibre is also significant in nutrition. In addition, values of whole cereal products are relatively low. During shopping, please prefer whole cereal products. Please take precaution of fat and salt content of these products that are ready to consume like cakes, cookies etc. to be of low value.



### RECOMMENDATIONS

- Consume whole cereal products.
- The amount of consumption varies according to individual's condition of physical activity and weight.
- To individuals being overweight and having sedantary life-style, 3 thin slices of bread (75 g) in daily basis is appropriate; whereas, individuals of adequate weight, performing heavy work can consume 3-5 folds of this amount.
- Whole cereal products can be daily consumed as 6 medium slices (1 slice = 50g) (like 6 slices of bread or 3 medium slices of bread and a cup of soup made from cereal or 4 table spoons cooked rice, a ladle of soup, 4 spoon rice that has been cooked and ready to be eaten). For those, who need more energy or performing heavy works can consume more in this group of foods.
- Eat whole cereal products in appropriate amount everyday even every meal.
- In order to increase the content of protein and vitamin, consume with other foods like milk and its products and leguminous seeds.





## VARIETY OF FOODS IN DAILY DIET



Foods, on the basis of nutritional elements and non-nutritional chemicals are distinctive. None of the food includes distinctive nutritional elements that are necessary for healthy and balanced nutrition. While some of the foods are rich with respect to some nutritional elements, some of them include very little quantity of them.

To consume several foods can cause lack of some nutritional elements. The more variety foods available in our tables, the more we can obtain a balanced nutrition.

**For adequate, balanced, healthy and boosting morale nutrition, instead of consuming much in one or two kinds of food, we should eat a nutritious diet based on a variety of foods.**

Foods are distinctive not only with respect to basic nutritional elements but also beneficial and harmful chemicals, which are not nutritional elements. While, some of the foods naturally have some beneficial chemicals, some of them can include harmful chemicals. While some of the foods contain high level of harmful elements such as residue of agricultural drugs, hormones; some of the foods contain few of those substances. If generally foods containing harmful substances cover our daily diet, the amount of harmful elements, which enter into our body increase, whereby our health is affected adversely. To illustrate, the amount of hormones and residue of agricultural drugs are higher in some of the vegetables, which are cultivated in winter, than seasonal ones. Consequently, seasonal vegetable and fruits should be preferred.

The ingredients of foods are also different with respect to variety of beneficial chemicals. To illustrate, one sort of vegetable or fruit includes a distinctive sort of antioxidant elements, which makes our bodies defence system strong, as opposed to other vegetables and fruits. In that manner, when a pure antioxidant element is given to a person, there exists no protective effect on the health of the person. Nevertheless, through eating diverse kind of vegetables and fruits, we can get several kinds of antioxidant elements, which are beneficial for protecting health of human beings.

Foods are needed for our physiological needs but also affect our spiritual situation. When we come to dinner table, firstly we evaluate the foods on the basis of their appearances. Instead of a dinner table composed of one or two coloured foods, we should prefer a dinner table that is composed of diverse coloured foods that increase desire for food and facilitates digestion. Different coloured dinner tables are a good indicator for the food variety.





## RECOMMENDATIONS

- \* For adequate, balanced, healthy and boosting morale nutrition, instead of consuming much in one or two kinds of food, eat variety of foods in small quantities.
- \* Food variety may be obtained preparing one type of food by using different herbs and cooking differently.
- \* One of the features of Turkish cuisine is food variety. This cuisine culture, through some appropriate changes, should be maintained.





## THE IMPORTANCE OF MEAL PATTERN



The frequency of the meals, the quantity of energy per meal and the quantity of nutritional elements and their reciprocal proportion play a crucial role in the process of acquiring physiological balance of body and protecting of the organs. This situation is particularly significant in terms of preparing individuals against pressures of the daily lives, removing exhaustion, providing healthy thinking and protecting against illnesses.

**For an adequate and balanced nutrition, at least three meals daily are recommended.**

### The Number of Meals and The Importance of Its Content

The digestion of foods ingested and the usage of that in the body vary according to the time period, which elapses between meals and the components of foods. On the basis of mixture, quantity and frequency of eating of foods, several changes that stem from enzymatic and hormonal elements, happen in our bodies. Our bodies arrange their lives according to these conditions and whereby strive to survive. However, the situations like unbalanced nutrition, famine and overnutrition cause changes within the systems of organisms, as a result they create detrimental effects on health.

These changes can more clearly be seen if organisms stay in the state of hunger. It is pointed out that in the nutrition that takes place within long intervals, organisms contain less protein and water and much nitrogen is also thrown out by urine. For the protein synthesis of the organism, the usage of protein is restricted in a certain period of time. When much protein is taken to body, through urine, the amount of nitrogen increases because organism develops a mechanism in order to throw out the nitrogen that is not used in the body. When the food is consumed in the short intervals, a positive nitrogen balance is established and the level of proteins increases in the body. As opposed to this situation, in case of long interval eating, deposition of fat within the body increases and this situation increases the level of blood fats (lipid and cholesterol) that raises the risk of diabetes and heart diseases.

In the balanced and adequate nutrition, the number of meals is as important as the content of the meals. It is known that if the distribution of nutritional elements is balanced, the metabolism works regularly that much. When our diet is merely composed of cereals, the organism losses its liveliness. This situation is related to synthesis of protein. Organism needs amino acids in an adequate level and concurrent way in order to make synthesis of proteins, which play profound role in the development of body. When inadequate amino acid is taken in a meal, it cannot be compensated by the subsequent meal. Whilst the level of nitrogen remains balanced among the people, who take protein in three meals a day.





When the level of carbohydrates is very low in a diet, it is observed that carbohydrate metabolism does not perform its function properly and this situation causes to rise free plasma fatty acids. When the level of carbohydrates is reduced in a diet, significant part of proteins are converted to glucose. Consequently, in the content of meals, the amount of energy that comes from carbohydrates, protein and fat should respectively be 55-60 %, 10-15 % and 25- 30 %. In the usage of proteins, fat and carbohydrate, many minerals and vitamins undertake function. These nutritional elements should be distributed in a balanced way in the meals.

**At least three meals daily are recommended by considering the life conditions and the time period that elapses between two meals should be 4-5 hours.**

Proper and adequate energy production of body is related to the level of blood sugar. When the level of blood sugar is approximately 70-100 mg in 100 ml, the energy is regularly produced. When the cell uses the sugar, it is observed that the level of sugar in the blood and the quantity of energy production decreases. This situation shows itself with exhaustion, decreasing of attention, losing of power, feeling of hunger and sometimes headaches. If the level of blood sugar is lower than normal level, individuals become more inadaptable and bearish. As opposed to this situation, if the level of blood sugar remains above the hunger level through ingesting food, then the energy is easily produced that provides more cherish behaviours, healthy thinking, energy and adaptability. Nonetheless, the excess amount of ingesting foods particularly high glycemic index carbohydrate containing foods causes to increase sugar level which creates sleepiness and reduces productivity. This situation is particularly dangerous for a person with diabetes.

The time period that elapses between the breakfast and supper meal is approximately 11-12 hours. If the benefits of taking regular meals are considered, it is obvious that to leave the body without food in a long time is harmful.







## THE IMPORTANCE AND THE PATTERN OF BREAKFAST



### The Importance of Breakfast

While sleeping, our body continues to work. The time period that elapses between the breakfast and supper meal is approximately 12 hours. Body uses the whole nutrients within this time period. If breakfast is skipped, adequate energy is not formed in our brains. This situation causes headache, tiredness and reduction of attention and perception.

The school success of children decreases, when the breakfast is not eaten, the body uses its own storage so that resistance of the body reduces. Tiredness, exhaustion can appear with the feeling of hunger, providing foods can remove exhaustion and tiredness.

**The most important meal is breakfast. For starting a new day with willingness and to continue it with an appropriate way, the content and quantity of breakfast bears great importance.**

To attain regular working of body, the blood sugar should be at a certain level. The low level of sugar is dangerous as much as high one. Since taking proper amount of foods in a regular interval controls the sugar level, the body works in a suitable way.

**Starting a new day without making breakfast reduces the productivity.**

The individuals, who consume adequate amount of protein in the breakfast, have high level of work productivity and high speed of reactions. The work productivity, the speed of perception and grasping reduces among the individuals, who do not have breakfast. When an exercise occurs by individuals that do not have breakfast, there exist complaints concerning vomiting, dizziness and nausea. It is stated that taking low levels of protein in the breakfast, particularly after the second and third hours, reduces the level of blood sugar and causes the feeling of hunger. After taking adequate protein in the breakfast, the level of sugar remains in an ideal level so that individuals do not experience the feeling of hunger.

**In order to protect the regular level of blood sugar, in the breakfast, one should consume foods that contain protein.**





## The Pattern of Adequate and Balanced Breakfast

A balanced breakfast should meet 1/4 or at least 1/5 of the total daily energy need. The daily energy need indicates differentiation among distinctive age groups. If the energy need of a certain individual is 2000- 3000 kilocalories, the necessary quantity of energy that should be taken in the breakfast is about 400-600 kilocalories.

Since the quantity of protein that is consumed in the breakfast is effective for regulating the blood sugar so that it is effective for eliminating tiredness and hunger, at least 1/5 of the daily total protein need should be met and it should not be below that level. In the breakfasts, to consume fruit and vegetables bring a balance in terms of nutritional elements and due to their fibre content, they also reduce the absorption rate that acquires to lengthen satiety feeling. It also helps not to decrease the level of blood sugar. The fruits and vegetables that is consumed in the breakfast help to create a balance in the menu with respect to the vitamin C so that they are profound foods that increase the absorption of iron. It is known that fruits and vegetables consumed in breakfast is effective for lowering the level of cholesterol in the blood. If all these issues are considered, to consume a glass of milk or to eat fruit or vegetables such as an orange, tomato, cucumber is a momentous step for dynamic and healthy day. In the breakfast of children, always a glass of milk should be available. The children, who do not drink milk, should consume adequate amount of cheese and yogurt. Fruit or fruit juice should be available in the all breakfasts. Instead of fruit, vegetables like green pepper, tomato and carrot can be eaten.

**The importance of fruit and vegetable eaten in the breakfast should not be forgotten.**

The foods that can be given to children in the breakfasts are cheese, olive, egg, hazelnut or peanut butter, jam, bread, cereal products and so on. Appropriate breakfast examples for children are given below.

A glass of milk  
White cheese as much as a matchbox  
5-6 olives  
1-2 slices of bread  
A small tomato or an orange

A glass of milk  
One egg  
A slice of bread with jam  
One tangerine



A glass of milk  
Two slices of bread with peanut  
and hazelnut butter  
1-2 tangerine or an orange

A glass of milk  
3-4 cookies or 1-2 flakies  
A tea glass of orange juice

Whole cereal product mixed  
with a glass of milk  
A tea glass of fruit juice

A glass of milk  
Tahin-pekmez  
(sesame butter with  
concentrated grape juice)  
1/4 cup of walnut  
One orange, 1-2 slices of  
bread





## MANAGEMENT OF BODY WEIGHT



For the management of body weight, a life style, which is based on adequate and balanced nutrition and regular physical activity, should be preferred. Being overweight or obese increase the risk of several health problems such as diabetes, high blood pressure, several cancer types, high blood cholesterol, arthritis, respiratory failure, paralysis, heart and vessel diseases. Being underweight is also a unwanted situation that reduces productivity and resistance of body.

**To maintain the balance between height and on the basis of it appropriate weight is the key for long and healthy life.**

### Weight Evaluation

Menstruation irregularities, reduction of the fertility and the increase of the risk of osteoporosis can be seen in underweight persons. When there is a sudden and unwanted weight loss, it is necessary to go to a doctor. For adults and children, distinctive methods are used in order to determine the appropriate body weight in accordance with height. Body Mass Index (BMI) is used as a practical method. If an individual's value of the BMI is in healthy levels, it does not always mean that the individual has a healthy body weight. To illustrate, while the quantity of fat in some individuals is high, the quantity of muscle tissue can be low. Any level that is higher than the healthy level of BMI is not recommended since it increases the risks of health. However, in some circumstances even though the value of BMI is higher than healthy value, for some individuals, this value can also be regarded as healthy due to their high level of muscle tissue. Through the Figure 1, you can evaluate your weight. To maintain the BMI in a healthy level reduces the risk of illnesses.



### How is the body weight evaluated?

#### 1) Evaluation in accordance with Body Mass Index

- Measure your weight and height in regularly.
- According to given equation, calculate your body mass index. In order to calculate it, divide your body weight (kg) to the height (square meter).

#### The BMI: $\text{Weight (kg}^2\text{)} / \text{Height (m}^2\text{)}$

- Evaluate your BMI value on the basis of Figure 1. High or very low value of the BMI indicates high level of health risk.



## 2) Evaluation according to waist circumference

• Measure your waist circumference. Measure your hip circumferences from highest circumference while standing up. If the waist circumference is high, the risks of health rise. The waist circumference should not exceed 94 cm for men and 80 cm for women. When the waist circumference exceeds 102 cm in men and 88 cm for women, the risks of health increase. The increasing of fat within upper part of the body (apple type) is an unwanted situation that increases the risks of chronic diseases. The deposition of fat within the lower parts of body (pear type) decreases the risks of diseases. (Figure 2)

## 3) Evaluation according to waist/hip circumference

- Measure waist circumference.
- While standing up, when it is looked at from one side, measure the highest hip circumference.
- Take attention the proportion of waist/hip circumference that should be below  $< 1.0$  for men and  $< 0.8$  for women .

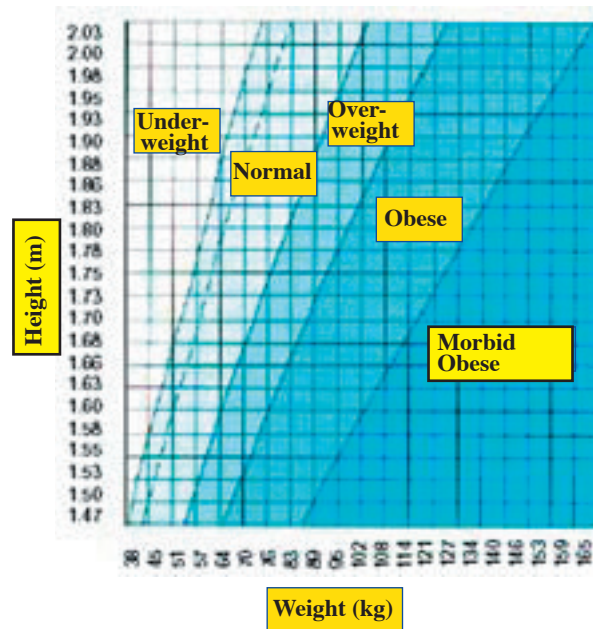


Figure 1: Evaluation of Body Weight

### Practical Evaluation of Body Mass Index

Find your weight from the vertical axis of the Figure 1. Through indicating upwards, reach your height that places left. In the intersecting point according to the BMI value, you can find which group your weight belongs to.

**Underweight:** BMI  $< 18.5$ . More food should be consumed for adequate and balanced nutrition. People who are too underweight should go to the doctor.

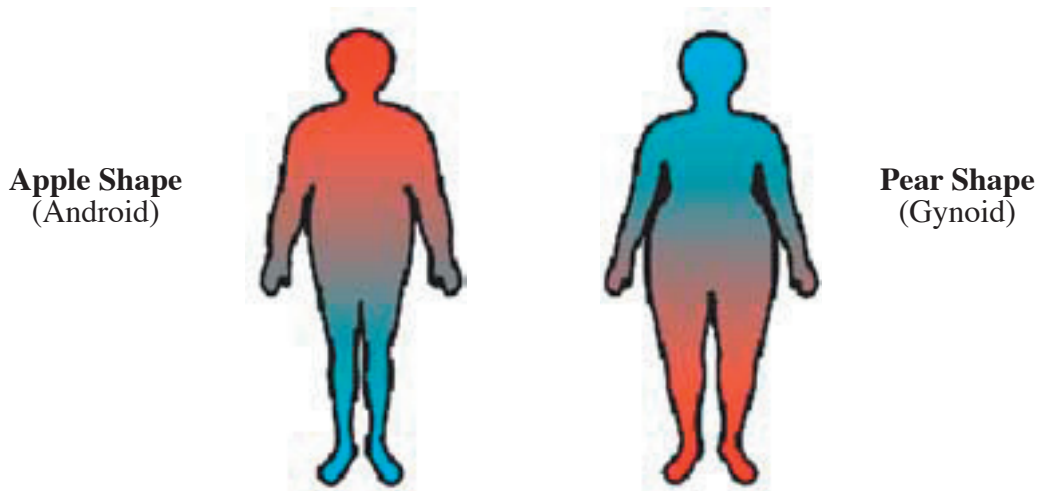
**Healthy Weight (Normal):** The values of the BMI should be within the range of  $\geq 18.5$  and  $< 25.0$ . It is the indicator of the healthy and adequate nutrition. It should be taken precaution in some values that are below that limit.



**Overweight:** The values of the BMI should be within the range of  $\geq 25$  and  $< 30$ . Reduction of the body weight to the normal values bears importance.

**Obese:** The BMI should be within the range of  $\geq 30$  and  $< 40$ . Obesity is a significant risk factor for encountering chronic disease in the early stages and increasing the degree of diseases. Therefore, people, who take place in this group, should lose weight. They should go to a doctor and dietitian. Weight lost rapidly, is regained rapidly as well. Weight should be lost slowly for reaching permanent weight loss. In order to reach it, a weight loss program composed of diet, exercise and behaviour treatment as a trio should be applied.

**Morbid obese:** The BMI  $> 40$  or above this value. It negatively affects state of health in a serious way. Weight loss should be made under the control of a doctor and dietitian.



**Figure 2:** Apple and Pear Shape Obesity

### Other Risk Factors for Chronic Diseases

- Presence of familial heart disease story,
- Being over 45 years old for men and being in the postmenopausal period for women,
- Smoking,
- Sedentary life style,
- High level of blood pressure
- Dyslipidemia (level of LDL bad cholesterol is high, level of HDL good cholesterol is low, level of triglycerid is high).
- Presence of diabetes

### Control of Weight

Through decreasing daily energy intake and increasing physical activity, it is possible to control body weight. Consumption of fresh fruit and vegetable, cereal (particularly whole cereal products), low-fat milk, fish, fat free meat, chicken, leguminous seeds are a healthy choices. Foods containing low of fat and sugar, high fibre should be preferred.

Foods should be consumed in proper portions and avoided excessive consumption of foods. During the daytime, people should be active. Everyday, adults should make exercise at least 30 minutes (jogging, walk etc) in a moderate level. After the weight loss, in order to protect proper weight, moderate level of exercise should be sustained.



Individual's pattern of eating is also important. Quantity of energy taken daily is increased through snack and eating outside. In the snacks, it is a rational choice to consume fresh fruit and vegetables, whole cereal products or low-fat yogurt. It should not be supposed that foods of which the quantity of fat reduced do not always contain low level of energy. Sometimes, foods containing low level of fat can provide much energy due to their high level of sugar content. During eating outside, to reduce the quantity of portions provide benefit. Instead of fried foods, grilled fatless meat, chicken and fish should be preferred.

**Being physically active in all ages increases the quantity of muscle of body and raises the resistance of bones. Regular physical activity and proper nutrition is the basic condition for the acquisition of weight control.**

### **Weight Control Starts in Childhood**

In order to grow up and develop, children should consume balanced and adequate nutrition. Taking much energy and doing little physical activity cause fatness. Children should gain habit of healthy nutrition. For children, to consume vegetable, fruit, low fat milk, foods prepared from milk, fatless meat, chicken, fish, hazelnut and pistachio nut (with considering the energy need) should be encouraged. Consumption of foods containing high level of fat and sugar content should be limited.

The time spent for watching television, video and computer plays should be restricted and doing more physical activity should be encouraged. Within this period, they should be guided to gain habit of healthy nutrition.

**Since children are under the period of development, if they are fat, to lose weight is not recommended, Instead, the amount of physical activity should be increased so that to put on weight should be prevented.**

### **Eating Behaviour Disorder**

Eating behaviour disorder such as consumption of excessive and frequent food and vomiting or eating very little food, cause health risks so people with such disorders should go to the doctor, immediately.

### **Avoid Excessive and Rapid Weight Loss**

If you are over-weight or obese, losing weight improves your health, develops functions of body and increases the quality of life. Nevertheless, rapid weight loss is more dangerous than fatness that creates risks for health. In a week, to lose half or one kilogram of weight should be the target. Slow weight loss is more permanent. Weight lost rapidly, are regained rapidly as well.

**Avoid rapid weight loss.**





## RECOMMENDATIONS

- Your aim should be a weight appropriate for height. If you have a healthy weight, avoid putting on weight.
- If you are overweight, firstly you should prevent putting on more weight and after that in order to protect your health; you should aim at losing weight.
- Gain habit of healthy nutrition through consuming vegetables added little fat, fatless white meat, leguminous seeds, milk-yogurt with reduced fat, fruit, whole cereal products.
- The size of serving should be within the limits recommended for healthy nutrition.
- Be active. Do regular physical activity.
- Create a balance between the energy intake and the energy expenditure.
- Be a model for children through the habit of healthy nutrition and regular physical activity.
- In a day, eat three meals regularly and do not skip any meal and in the meals, please take precaution of not to eat the foods that have high level of energy like fatty appetizers, sweets, pastries.
- Drink much water and sugar free herbal teas.
- In the protection of body weight, do not forget the importance of your behaviours.
- When it is necessary, provide treatment support from experts to change behaviours.



## PHYSICAL ACTIVITY AND HEALTH



Nutrition is an important factor that affects physical and mental performance. If a balanced and adequate nutrition is combined with the regular physical exercise, many health risks can be reduced.

**As much as nutrition, regular exercise bears importance for health.**

The quantity of energy need and expenditure indicate variation in accordance with the sort, frequency, duration and intensity of exercise, which are performed by individuals. Taking energy inadequate or more than needed, causes changes in body weight. Therefore, body weight should be monitored in regular intervals. For the ones, who do exercise, the healthy weight should be perpetual and the weight should not adversely affect performance. The weight should not also create any infirmity and chronic disease. In order to lose or put on weight, the target should be 0.5-1 kg for a week. Realistic and appropriate body weight and its duration should be determined. Losing or putting on weight should be under the control of dietitians through proper methods. (see Body Weight Management)

During exercise, carbohydrates are the basic energy source. Thus, people, who do exercise, should increase the consumption of carbohydrates. These people should meet 55-65% of energy need from carbohydrates. In the consumption of carbohydrates, complex, high fiber content products that are also rich with respect to vitamins and minerals (such as fruits, vegetables, whole wheat bread, rice, macaroni, bulgur precooked wheat products, other cereal products, leguminous seeds) should be preferred.

As opposed to the general conviction, for the people, who do exercise, it is not required to consume much protein and to limit the quantity of fat too much. On the basis of need, taking protein does not provide an increase in the amount of muscle mass. It is recommended that 12-15 % of total energy should come from protein. In the diet, if the quantity of energy that comes from fat is below the 15%, it may cause some health problems.

Through exercise, there is a fluid loss (dehydration) in the body that reduces performance. Consequently, before, after and during the exercise adequate fluid should be consumed for healthy and optimal performance. (see page 51)

Suggestions concerning fluid consumption;

- For fluid consumption do not wait being thirsty,
- Before, after and during the exercise, increase fluid intake,
- Particularly in hot days, increase fluid intake.







Before the exercise, being satiate or hungry adversely affects performance. The meal eaten before exercise should consist of foods and beverages that have been proven to have no uneasy effect on stomach, when digested 2-4 hours prior to the meal. To consume accustomed foods and to take adequate liquid, moderate level of protein, high level of carbohydrates, low level of fat and fibre content foods are the basic principle for these meals.

Water should be drunk to meet the need of fluid lost during the exercise (for each 15-20 minutes a glass of water). Moreover, beverages containing 6-8 % carbohydrate and electrolyte can be consumed under the expert control in the exhaustive exercises that last more than 60 minutes.

In order to replace the carbohydrate depots used, just after the exercise, foods that are rich with respect to carbohydrates and beverages should be consumed. In addition, to meet the liquid loss, much liquid should be taken.

People doing exercise can take the whole minerals and vitamins through adequate and balanced diet. In order to meet vitamin and mineral needs, in every meal, variety kinds of foods should be consumed. Consequently, for individuals, who do exercise, it is not required to take additional vitamin and mineral supplements. In that sense, people avoid using these pills or products arbitrarily. These pills or products should be used under the control of experts.

### RECOMMENDATIONS

- A diet containing adequate energy should be consumed to protect appropriate combination of weight and body composition.
- A diet containing all food groups should be consumed.
- Increase food variety.
- Increase the consumption of foods containing carbohydrates.
- Decrease the consumption of saturated fat (butter, margarine, animal fat).
- Avoid taking much salt and sugar.
- Increase consumption of whole wheat cereals and leguminous seeds.
- Five or more servings of fruit and vegetable should be consumed daily.
- Instead of short lasting diets, a long lasting diet including healthy nutrition rules should be applied.
- Daily 3 basic meals with 2-3 snacks (through 2-3 hours intervals) should be consumed.
- Do not skip any meal and do not be hungry for a long time.
- Before, after and during the exercise, increase the fluid intake.





## SUGAR CONSUMPTION AND HEALTH



Sugar is pure carbohydrate and a source of high energy food. Complex carbohydrates (starch) and fiber are other kinds of carbohydrates. During the digestion, all kinds of carbohydrates except some fiber elements turn into sugar in the human body. Sugar and starch naturally exist in other foods. Different kinds of bread, other cereals, leguminous seeds, nuts, dried fruits, milk, fruit and vegetable are some basic examples.

**Reduce the consumption of sugar beverages and sweets and choose foods containing less sugar.**

### Sugar Containing Foods

Sugar and syrup can be added to foods during the preparation process. This addition is not a kind of sugar that naturally contains in the foods. For a body, it is chemically difficult to define the difference between natural sugar and the sugar that is added to foods from outside. To add sugar to foods from outside increases the energy content. In our country, pastries, milk deserts, jam and marmalade are favourite foods so that they are frequently consumed. In addition, soft drinks, fruit juices that are ready to consume, candies, ice cream, cake and cookies are produced through adding refined sugar. These foods are frequently and particularly consumed by children and young people.

Consuming much sugar and sugar added foods are the basic reason for taking excessive energy and causes to increase the body weight (fatness). This situation also reduces to consume foods that are rich with respect to nutritive value. Henceforth, to reduce consumption of these foods bear great importance. Sometimes the phrase of “sugar free” and “diet” can be seen on the labels of some foods. Instead of sugar, artificial sweetener such as saccharin, aspartame, xylitol, sucralose are used for sweetening the foods. Some of these foods also contain energy. Thus, if they are consumed much, they can cause risks for health.

### Example of Sugar Containing Foods

- Pastries, milk desserts, desserts prepared by using fat, sugar and flour.
- Jam, marmalade, honey, pekmez ( concentrated grape juice) etc.
- Soft drinks,
- Lemonade and sugar added fruit juices,
- Ice-cream,
- Cake and cookies,
- Candies, (Turkish delight, sugar candy etc.)
- Chocolate.





Artificial sweeteners instead of sugar do not cause tooth decays. They also do not provide energy and are used in low energy diets for the diabetes. Sorbitol as an artificial sweetener contains energy. Consequently, it should be paid attention to the sort of the artificial sweeteners used in the label of the food. In some product labels, it is stated that the sugar content of the products is little. Nevertheless, if the fat content of these products is high, the energy content of these products can also be high as well. It is not probable for an individual to lose weight or protect his/her health without increasing the physical activity and decreasing the energy intake merely through consuming these products.

### Kinds of Sugars that Take a Place on the Labels of the Foods

- Brown sugar
- Corn syrup
- Dextrose
- Fructose
- Fruit juice concentrate
- Glucose
- Fructose corn syrup
- Honey
- Invert sugar
- Lactose
- Malt syrup
- Maltose
- Table sugar
- Sucrose
- Sugarcane candy



Milk with cocoa and chocolate, sweetener cereal products such as some corn flakes, sweetener conserved fruits contain not only energy but also vitamin and mineral. The sugar content on label of these products is stated. These products should merely be consumed by the individuals, who need additional energy.





## Sugar Consumption and Health Problems

**Sugar and tooth decays:** To consume frequently foods and drinks containing sugar causes tooth decays. Bacteria, sugar and lack of fluoride increases the risk of tooth decay. Bacteria through using starch and sugar cause to acids that lead to cavities. Consumption frequency of sugar added and starchy foods and the period of time in which these foods remain on the teeth increase the risks for cavities. The higher frequency of consumption of foods and beverages containing sugar and starch and the longer they remain on teeth, the higher the risk for cavity problems are encountered. Consuming sugar added foods during meal and brushing teeth will decrease the risk. Regular teeth cleaning and brushing teeth through toothpastes containing fluoride (taking adequate fluoride) prevent the formation of cavity.

### Suggestions for Healthy Teeth and Gum

- Do not consume the foods and beverages containing sugar and starch during the intervals of the meals. If they are consumed, just after the consumption, you should brush your teeth.
- Brush your teeth at least twice a day, use dental floss everyday. Use toothpaste containing fluoride.
- Learn the quantity of fluoride in the drinking water. There should be 0.7- 1.2 milligram fluoride per litres of the drinking water. In case of fluoride insufficiency, additional fluoride support should be made to children by dentists.

**Sugar and weight control:** Foods, of which the sugar content is high and other nutrients are low, increase the amount of energy taken by the diet. Inadequate physical activity with the consumption of sugar added foods causes to increase the body weight. This situation is a risk factor for mainly heart and vascular diseases and also diabetes, hypertension and cancer.

### RECOMMENDATIONS

- \* Restrict the beverages and foods containing much sugar.
- \* Most of the energy need should predominantly be met by cereals (whole cereal products), fresh fruits and vegetables and products that are fatless or containing little fat such as milk of which the amount of fat reduced, lean meat or the products that can be used instead of fatty meat.
- \* Instead of sugar added soft drinks please prefer skim milk, ayran (watered yogurt) and kefir.
- \* Instead of drinking beverages containing sugar, water should be preferred.
- \* Drink sugar free tea and herbal teas.
- \* Do not forget brushing your teeth just after the consumption of sugar containing food.





## SALT CONSUMPTION AND HEALTH

Sodium that exists in most of the foods is called as natural food salt. A significant part of the table salt is sodium. Salt (sodium chloride) is used in the process of food preparation due to its tasty character. Salt is also used to protect foods from some situations such as moldiness or becoming infested with insects.

**Without tasting foods, additional salt should not be added and salty food should not be consumed.**

When the sodium is evaluated with respect to health, it plays a role for obtaining the balance of fluid within the organism and regulating blood pressure. However, it should be considered that there is a relationship between the high blood pressure (hypertension) and high salt intake. Consumption of much salt increases the excretion of the calcium through urine. This situation causes to calcium loss from the bones. As it is known, an increase in the calcium loss from bones raises the risk fractures and osteoporosis. Consequently, without tasting foods, salt should not be added and salty foods should not be consumed.



### **In Order to be Protected from Hypertension and for Maintaining Proper Blood Pressure;**

- \* Add very little salt to the foods,
- \* Consume salty foods scarcely and little,
- \* Maintain your body weight in balance. As the weight increases, blood pressure raises as well,
- \* Increase the physical activities; increasing physical activity creates a balance in the body weight, decreases blood pressure and reduces the risk for chronic diseases,
- \* Increase the consumption of fruits and vegetables. Vegetables and fruits are the food containing low level of salt and energy. These foods are also rich in potassium which helps to regulate blood pressure.
- \* If you consume alcoholic beverages, reduce the quantity of the consumption, high intake of alcoholic beverages increases blood pressure.





### Is the Reduction of Salt Safe?

- \* Natural sodium that is found in the foods meets daily needs of individuals.
- \* Table salt is fortified by iodine. Very little quantity of iodized salt (1/4 tea spoon) is adequate for meeting daily need of individuals. Since iodized salt is very susceptible to lose its iodine content, iodized salt should be kept in closed and dark coloured containers.
- \* One of the healthy life rule is to consume salt in a way that should meet the daily needs of sodium. Daily need of sodium is 2400 mg. This quantity can be met by approximately 5 g of salt.
- \* The label of foods that are ready to consume should be read carefully and the foods containing little salt should be preferred.
- \* Salty spices and vegetable aromas of which salt is added for increasing taste of the product should be used less.
- \* If foods are eaten outside, foods containing little salt should be preferred.
- \* In case of diarrhea, since fluid and salt are lost, a quantity of salt with water should be taken.
- \* During the physical working, either in the hot days or performing hard exercise, in order to be protected from sodium loss that exists through sweating, the quantity of salt taken should gradually be increased.

### Ways to Reduce Consumption of Salt

- \* Always prefer to consume fresh salt free food products and products in which no salt is added.
- \* Read certainly the label of products that are ready to consume. Prefer the salt free products or the products of which the quantity of salt is reduced.
- \* Do not use salt on the table. Instead of salt, aroma providers such as spices, parsley, mint, thyme, dill, fennel, basil should be preferred.
- \* The salt content of some foods such as pickle, ketchup, mustard, olive, soy sauce etc. is very high so alternatively these products should be consumed rarely and very little.
- \* If foods are eaten outside, it should be asked that foods should be prepared in a salt free way.
- \* Increase the consumption of vegetable and fruits.
- \* Drink much water. Water generally contains little sodium. The sodium content of bottle waters and mineral waters should be controlled from the labels of these products.





## DIETARY FAT AND FATTY ACIDS



Recently, the Mediterranean Diet is recommended for healthy nutrition. The Mediterranean Diet is predominantly composed of vegetables, fruits, leguminous seeds, whole cereal products, and complex carbohydrates. In addition, that olive oil and fish are the basic foods in this type of diet.

**The type of fat is as important as the quantity of daily fat consumption.**

The basic visible fat source is olive oil in the traditional Mediterranean Diet. The contribution of total fat content to the total diet energy vary from 25% to 35%. It is known that 7-8% of it is met by saturated fat. The remaining part is met by vegetable oils (particularly olive oil). It is practically recommended that 1/3 of the total fat to be consumed in a day should be consisted of saturated fat such as butter. 1/3 of it should be composed of mono unsaturated oils such as olive oil and the remaining component should be consisted of polyunsaturated fat such as corn oil or sunflower oil. Since margarines, which are hydrogenated oils, contain trans fatty acids harmful to the health, the quantity of such fat consumption should be low. When the fat is used for frying, in addition to trans fatty acids, other harmful substances increase. Consequently, in the daily nutrition, frying should not be used as a cooking method.

The frequency of encountering diseases such as diabetes, obesity, cancer, cardiovascular diseases and other chronic inflammatory diseases like rheumatoid arthritis are lower in the societies consuming the Mediterranean Diet than other developed Western countries. It can be confirmed that there is a strong relationship between olive oil, which is the significant component of the traditional Mediterranean Diet and chronic degenerative diseases and possible biological mechanisms that play role in the causes of these diseases (when the other components of the diet is fixed). On the basis of the information, regarding healthy nutrition recommendations that can be developed for Turkey, it is possible to reach some principals for the fat and fatty acid patterns of the diet. These possible recommendations are summarized below.

**If the level of cholesterol rises with age and/or environmental, genetic and other factors, it will be appropriate to restrict the amount of cholesterol intake to daily 250-300 mg.**





## Dietary Fat and Acceptable Intake Levels of Fatty Acids

Fat Composition of the Diet	Its Contribution to the Energy (%)
Total fat content of the diet	25-35*
Saturated fatty acids	< 8.0
Trans fatty acids	1.0**
Mono unsaturated fatty acids	12-17
Poly unsaturated fatty acids	≤ 10
Linoleic acid (omega-6)	2-3
Linolenic acid (omega-3)	1-2
Eicosapentaenoic acid – EPA (omega -3)***	≤0.04
Docosahexaenoic acid- DHA (omega - 3) ***	≤0.04
Omega- 6 : Omega – 3 ratio	5:1 – 10:1

\* *Physical activity factor:  $\leq 1.5 \times \text{BMH}$*

\*\* *Accompanied by no need to trans-fatty acids in the diet, re-use of the frying oils, highly heat-treated oils or the cooking techniques in which the high heat-treatment takes place are increasing the levels of the trans-fatty acids. This value must be accepted as the possible highest value.*

\*\*\* *For getting desired values in taking EPA+DHA ; it is recommended to eat at least two or three servings of fish in a week. If it is not possible, fish-oil supplement must be taken (as a tablet or drop).*

When the control steps of the cholesterol metabolism is remembered, the quantity of the cholesterol cyclus in the human body is known as 1.0 – 1.2 gram (with endogenous and exogenous sources).







## THE IMPORTANCE OF BREAST FEEDING



The importance of the mother milk for the newborn baby is derived from its content and characteristics. Exclusive breastfeeding for the first six months, reduces the risk of chronic diseases during later life.

**Solely mother milk, which is the best food for all new-born babies who were born on time and stored enough nutrients, provides adequate nutrition to the baby for growth and development up in the first six months period.**

### Characteristics of Mothers Milk

- It's always sterile and advisable for the baby.
- Its nutrients composition meets all needs of the baby.
- It contains preventive substances.
- It contains active enzymes which help digestion
- It contains immunity elements (IgA, IgG and IgM) which prevent infection.
- It contains hormones and growth factors.
- It reduces the frequency of respiratory tract and gastrointestinal infections.
- It takes part in development of gums and teeth.
- It reduces the risk of some chronic diseases in later life such as, type 1 diabetes, celiac disease, obesity, coronary heart disease, hypertension
- It protects against allergy.
- Breast feeding helps the baby in his psychological, physical and intellectual development and also makes him a prospective adult who is successful in his social affairs.

**Breastfeeding starts close relationship between the mother and the baby by strengthening their emotional affection. It protects the health of the mother and reduces the risk of breast and ovary cancer and osteoporosis.**

**Colostrum:** It's the milk that is secreted in the first three or five days after the birth and is very important to meet the needs for the newborn baby in the first days because of its composition characteristics. It contains some substances that strengthens the immune system and prevents from the diseases (such as Secretory Immunoglobulin A-SIgA, lactoferrin, macrophage, T and B lymphocytes).

Mother milk is rich in respect of vitamin A,D,B<sub>12</sub> and contains the epidermal growing factors which matures intestines and growing factors which prevents allergy and intolerance. Colostrum takes the type of transition milk in five or ten days, generally, after the third week mother milk carries the characteristics of mature milk.



Milk sugar is lactose. Lactose is synthesised by the glucose and galactose molecules in the breast tissue. The lactose content of the mother milk is approximately 7%. The proteins of the mother milk are divided into two parts as whey and casein. The ratio of whey and casein is 60/40. Whey proteins are lactoferrin, lactalbumin, lactoglobulin, lysozyme, serum albumins and immunoglobulins (IgA,IgG,IgM). The protein content of the mother milk is 0.8 – 1.2 %.

Approximately half of the energy of the mother milk comes from fats. Being rich in respect of polyunsaturated essential fatty acids especially in colostrum, the mother milk is important for formation of myelination, retinal functions and cell multiplication so it helps the development of brain and visual function.

Potassium, sodium, calcium exist as free ions and other minerals exist as complex compounds in the mother milk. Although its iron content is less ( 0.2 – 0.8 mg in 100 ml ), its bioavailability is high. Zinc in the mother milk generally depends on the whey proteins and its absorption is high.

Sucking of the baby stimulates the milk production and provides secretion of more milk. Breast feeding must be started in the first half or one hour after birth. In the first month, frequency of the breastfeeding must be adjusted to the baby's appetite; no time-table must be exercised. Breastfeeding should continue up to two years and complementary feeding should begin after 6 months

### RECOMMENDATIONS

- Breast feeding must be begun in the first half or one hour as soon as possible mother regains her consciousness after the birth.
- Before breast feeding nothing must be given to the baby.
- In the first six months, only mother milk must be given to the baby and then other complementary foods should be started in adequate type and quantity.
- In order to increase milk production, baby and the mother must be in the same room and the breast feeding must be begun as soon as possible.
- In order to increase milk production, the warmth that gives self-reliance must be shown to the mother and the related problems must be solved.
- Mother must be nourished well-balanced and adequately.
- Infants must be surely monitored in the respect of growing during the period that they are fed with mother milk.





## ALCOHOL CONSUMPTION AND HEALTH



**Too much alcohol prevent action of the digestion enzymes, makes damages on the brain and liver.**

The chronic consumption of alcohol in excessive amounts may cause:

- Cardiovascular diseases,
- Hypertension,
- Liver cirrhosis,
- Pancreas inflammation,
- Diabetes Mellitus,
- Damage in brain,
- Birth defects,
- Some types of cancers (eg; liver cancer),
- Motor vehicle accidents,
- Social and psychological problems (eg; violence and suicide attempts) ,



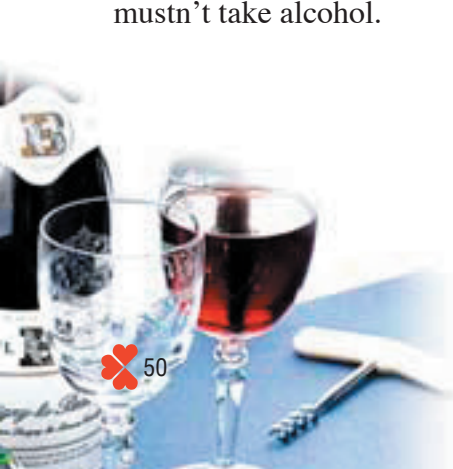
Moderate alcohol consumption is suggested by some clinicians because of the thought that it may help to reduce the risk of coronary heart diseases in the men above 45 and women above 55 by raising the good cholesterol named HDL in the blood and reducing the risk of coagulation. But the persons who have a family story of bad experience with the alcohol or have a high level of blood triglyceride must keep away.

**The persons who don't consume alcohol mustn't be encouraged to use alcohol in order to avoid coronary heart diseases.**

Moderate alcohol consumption for women is equal or less than 15 g, for men equal or less than 30 g. Examples to the drinks containing 15 g alcohol ; 375 mL beer (one little bottle, 160 kcal), 135 mL wine (two glasses, 115 kcal), 45 mL gin (105 kcal), 40 mL vodka (105 kcal), 35 mL whisky (95 kcal) and 30 mL raki (one double, 100 kcal).

If a person will consume alcoholic beverages, he must drink them with the meal to slow down the absorption of alcohol. But it mustn't be forgotten that excess use of alcohol makes damages to the digestion by creating enzyme destruction.

Besides, children and adolescents, pregnant and lactating women, drivers, the persons who work with machines or participate into the activities demanding attention, skill or coordination mustn't use the medicines which create negative interaction with the alcohol. Also the persons who use insulin mustn't take alcohol.





## FLUID CONSUMPTION

Mostly water and visible/invisible water in the beverages and foods is defined as “fluid” and the daily fluid need for an individual is met by the water or beverages he drank or water of the foods that he ate.

**Water or other beverages are important in the maintaining of body water balance. It must be provided from the clean water resources for the life.**

### Functions of the water/fluid in the body :

- Digestion of foods we ate and absorption of the nutrients and also their transportation to the cells,
- Creation of necessary biochemical reactions in the cells for life and health,
- Functioning of cells, tissues, organs and systems,
- Transportation and discharge of harmful substances formed during metabolism,
- Providing the regulation of body temperature,
- Providing the lubrication of the joints.

All components of human body except bone, skin, connective tissue and fat is in a solution in the fluid of body. The smallest vital units of the body are cells. All the biochemical reactions required for life in the cells are formed in this solution.

Implementation of the cells’ vital activities and so body functions are possible with the maintenance of fluid balance of the body. The prevention of this balance is called “hydration”. Fluid balance of the body is ensured by drinking water and beverages and eating water containing foods, such as fruits and vegetables, which is lost by respiration, urination, perspiration and excretion.

### How and in what amount is the water discharged from the body?

In order to secure the body-temperature balance and discharge the harmful substances formed with the consumption of foods:

There is a total daily loss of water about 2.5 liters;

- From the kidneys.....approximately 1500 mL/day
- From the skin..... approximately 500 mL/day
- From the intestines.....approximately 300 mL/day
- With the respiration.....approximately 300 mL/day



Doing heavy physical activities, hot weathers, consuming more protein or salty foods cause the loss of fluid by the way of perspiration and urination and during the disease that increase body heat cause the loss of liquid by the way of respiration and in the diarrhea loss of liquid is performed by the way of intestines. In these situations, there is an increase in the water/liquid need of the body. There is a vital importance in the balancing of water in the body. In order to secure this balance, this water must be substituted. Thirst focus of the brain is stimulated and feeling of thirst develops for compensating the water loss. Thirst is stimulated when the plasma density is increased by 1% because of water loss. Feeling of thirst may not be developed in the diarrhea because the minerals such as sodium and potassium which take role in the water balance, are lost with the water.



### How the water need is met?

The person supplies his water need by:

- Drinking water..... 1200-1500 mL/day
- Food and beverages.....1000 mL/day
- Water created by metabolism.....,260 mL/day

### RECOMMENDATIONS

- Water and beverages are important in securing body-water balance.
- We must drink water which is a vital element for life, from healthy and clean sources.
- Man can live for days without eating food, but living for days without water is impossible.
- Especially in the diarrhea, salt and sugar containing liquid is a life-saver. The statement of, flowing water doesn't get dirty, is wrong. For the reason that the microorganisms which kill people, are invisible, lucid vision of the water doesn't show that it's safe. Suspicious water must be drunk after being boiled and cooled. Boiled water must be ventilated by transferring it from container to container several times.
- Drinkable tap water must be used after flowing it a few minutes.





## FOOD SAFETY



Food chain starts with production in the field, garden and stable and ends in the table with processing, storing, selling, preparing, cooking and service steps. In order to prevent health from food pollution, first necessary step is to establish the effective food safety-system- from the field to the table- of the production-consumption chain.

### **Providing Food Safety in the Production Stage (Agriculture and Livestock Production):**

Performing appropriate agricultural techniques in the production must be provided. For this:

- a. Producers must be educated about appropriate agricultural techniques, counselling systems must be established, effective and widespread inspections must be done.
- b. It must be secured to obey the legal regulations about agricultural chemicals, fertilizer and hormone usage.
- c. In stock farming; animal shelters, animal feeds, veterinary medicines, hormone usage and milking and butchering places must be appropriate to the legal regulations.

Produced meat, milk, egg and plant foods mustn't entertain a risk in the respect of microbiological criteria (bacteria, virus, mold and parasite) and chemical criteria (agricultural chemical, heavy metal, radioactivity).

Producer must be made conscious about the subject that producing safe foods is a social responsibility.

### **Providing Food Safety in the Processing Stage ( In the Food Industry):**

The processes of keeping the microbiological and chemical risks' of the food below the tolerable levels and providing quality criteria and carrying on them are called food processing. Meeting all expectancies of consumers is one of the leading targets in the food industry. In addition to the consumer's expectancy about nutritious, easy to use and convenient to purchasing power foods, his firstly expectancy is safe food. Implementing appropriate processing techniques and HACCP (Hazard Analysis and Critical Control Point) principles are main elements in meeting consumers' safe and high quality food expectancy. For that reason:

- a) Appropriate processing technique,
- b) Safe and high quality raw-material,
- c) Appropriate equipment and machine,
- d) Usage of legal additives (in allowed quantity and in appropriate food)
- e) Usage of legal packing elements (produced for food, labelled)
- f) Personal hygiene of the staff that works in the food industry (periodic health controls, cleanliness of hand, face, body, working clothes) and the hygiene of the working places, equipments and machines must be provided,
- g) Effective and widespread inspections must be done in food industry.

Like producers, the workers in the food industry must also be made conscious about seeing the safe food processing as a social responsibility.



### Recommendations on Providing Food Safety in the Marketing Stage:

Recommendations to consumers' about safe food buying ;

- a. Don't buy the foods sold openly,
- b. While buying foods in package, be careful that it is not torn or decayed,
- c. Read the label information. Information below take place in the label;
  - Date and number of the production authorization issued by Ministry of Agriculture and Rural Affairs,
  - Production or expiration date,
  - Ingredients,
  - Quantity and price,
  - Nutrition information (quantities energy, fat, cholesterol, protein, carbohydrate, various statements related to health claims)
- d. Buy the fast-spoiling foods like meat, chicken, fish at the end of the shopping. Prevent the contact of these foods with other foods which can be consumed without cooking. Place them into the fridge as soon as possible ( max. in two hours, in the hot weathers max. in one hour).
- e. Also buy the frozen foods at the end of the shopping. Be careful that it is not thawed. Place it into the deep-freeze as soon as possible.
- f. Don't buy the open milks which are uncontrolled and of which resource is unknown. Prefer the pasteurized and sterilized milk.
- g. Don't buy unfermented cheese made of unpasteurized milk.
- h. Don't buy broken, cracked, dirty eggs. Place the eggs into the refrigerator without washing.

### Recommendations on Providing Food Safety in the Preservation/ Storing Stages:

- a. Store the grains, leguminous seeds, sugar etc. in the dark, dry (humidity rate 50-60%) and cool (max.20 °C) place.
- b. Freeze meat, chicken and fish which you won't consume, in package and flat form for one meal. Thaw it in the fridge. If you thaw the foods in the room temperature, don't keep it waiting more than two hours. Do not freeze the thawed meat, chicken and fish again.
- c. Don't keep the left over meat dishes more than 1-2 days and non-meat dishes more than 3-4 days in the refrigerator. Heat how much you will eat. Cook and eat fresh vegetable dishes in daily basis.
- d. Don't keep the minced meat, small pieced meat and fish more than 1-2 days and big pieced meat, salami and sausage more than 3-4 days in the refrigerator.
- e. Don't keep the pasteurized milk more than 1-2 days in the refrigerator.
- f. Don't keep the eggs more than 2 weeks in the refrigerator.
- g. Avoid the contact of raw meat, chicken and fish with the foods which can be eaten without cooking and ready-to-eat foods in the refrigerator.

### Recommendations on Providing Food Safety in the Preparing, Cooking and Service Stages:

- a. Keep your hands clean while you are preparing, cooking and servicing food. Before you touch the food or the tools you will use, wash your hands for 20 seconds with soap under a flowing and preferably bearable warm water.
- b. Provide the cleanliness of the places, where the foods are prepared and cooked and of the tools which are used.



- c. Avoid the contact of the container in which the raw meat, chicken and fish are put and of the chopping board and of their plastics with the foods which are ready or can be eaten without cooking.
- d. If it is possible, keeps the meat chopping board or plastic (polyamide or polyethylene) separate from the vegetable chopping board or plastic. If it is not possible, wash the board with warm water and soap after chopping meat, chicken and fish. Don't use the timeworn or scratched boards.
- e. Wash thoroughly the fruits and vegetables under flowing water. If it is possible, use washing brush. Do not use detergent or soap while washing vegetable or fruit.
- f. Wash your hands after touching raw meat, chicken or fish.
- g. Wash the eggs you took from the refrigerator, before using. Wash your hands after touching the eggs.
- h. The animal foods which are not cooked in the appropriate duration and temperature are potentially dangerous. The inner temperature of the meat must reach at least 75 °C. In order to control the appropriate temperature, you can use meat thermometer.
- i. Do not eat the meals which were prepared with raw eggs.
- j. While re-heating the left over meals, it must reach at least 75 °C. In the other words (practically), it can be defined as "smoky".
- k. In the service, keep the hot dishes waiting in hot place (60 °C and above) and cool dishes waiting in cool place (10 °C and below). Do not keep them waiting more than 2 hours between 10 °C- 60 °C (room temperature) and in the hot weathers more than 1 hour.
- l. Throw away the foods that you think they are decayed, without tasting.
- m. Throw away the moldy foods. Throw away all of them not just the moldy part.
- n. Filtrate, boil or appropriately chlorinate the water that you suspect that it is not clean.
- o. If you find a food serving place's table cloth, service plate, glass, fork etc. dirty, it is highly possible that its kitchen is also dirty. Do not eat in the places which you don't trust their hygiene and cleanliness.







## ATTENTION

- Certainly read the label on the food package.
- Avoid the contact of raw foods with the cooked or ready-to-eat foods while buying, cooking and storing.
- Keep your hands and the places where the food is prepared, cooked, stored, serviced clean.
- Cook your foods in the appropriate temperatures.
- Place the left over dishes and highly perishable foods to the fridge without waiting.
- Keep the hot dishes hot and cool dishes in cold. Do not keep them waiting in the room temperature.
- Throw away the foods which are suspicious for you.
- Pregnant and lactating women, infants and little children and elderly people are more susceptible. Particularly these groups of people must obey these rules.

Food producers, food industrialists, distributors, sellers and state and consumers are responsible from ensuring food safety.



## ANNEXES



Annex-1/ Table 1: Recommended Safe Level of Intake of Energy and Nutrients for Turkey (1)

Age (year)	Weight (kg)	Height (cm)	BMR (2) (kcal)	PAL (3)	Energy (4) (kcal)	Kcal/kg	Protein (g/kg)	Protein (S) (g/day)	Dietary fiber (g)	A vit (mcg) (d)	D vit (mcg) (d)	E vit. (mg) (e)	K vit. (mcg)
0-6 months	6	57			545		1.5	9.0	-	400	10	4	2
7-12 months	9	71			710		1.6-2.0	14.9-18.0	-	500	10	5	2.5
1-3	12.5	87			1250		1.2-1.5	15-18.8	19	300	10	6	30
4-6	18.2	108			1650		1.1-1.4	20-25.5	25	400	10	7	55
7-9	25.8	128			1870		1.0-1.5	26-38.7	25	500	10	7	60
<b>Men</b>													
10-13	46	157	1438	1.7	2445	53	1.0-1.3	39-59.8	29	600	10	11	60
14-18	65	176	1788	1.6	2860	44	0.9-1.1	54-71.5	29	900	10	15	75
19-30	72	177	1780	1.6	2850(a)	40	0.8-1.0	58-72.0	29	900	10	15	120
31-50	75	177	1749	1.5	2623	35	0.8-1.0	60-75.0	29	900	10	15	120
51-65	75	173	1500	1.5	2250	30	0.8-1.0	60-75.0	29	900	10	15	120
65+	75	173	1500	1.4	2100	28	0.8-1.0	60-75.0	29	900	10	15	120
<b>Women</b>													
10-13	35	157	1310	1.7	2200	48	1.0-1.3	39-45.5	26	600	10	11	60
14-18	55	163	1417	1.6	2260	41	0.8-1.2	43-66.0	26	700	10	15	75
19-30	59	164	1363	1.6	2180(a)	37	0.8-1.0	47-59.0	25	700	10	15	90
31-50	63	163	1377	1.5	2065	33	0.8-1.0	50-63.0	25	700	10	15	90
51-65	65	160	1278	1.5	1917	29	0.8-1.0	52-65.0	21	700	10	15	90
65+	65	159	1278	1.4	1790	27	0.8-1.0	52-65.0	21	700	10	15	90
<b>Pregnancy</b>					(b)								
<18							1.1-1.4	+20-25	28	750	10	15	75
19-30							1.1-1.4	+20-25	28	770	10	15	90
31+							1.1-1.4	+20-25	28	770	10	15	90
<b>Lactation</b>					(c)								
<18							1.1-1.4	+25	29	1200	10	19	75
19-30							1.1-1.4	+25	29	1300	10	19	90
31+							1.1-1.4	+25	29	1300	10	19	90



Age (Year)	Calcium (mg)	Phosphorus (mg)	Iron (mg)	Zinc (mg)	Iodine (mg)	Fluorine (mg)	Magnesium (mg)	Manganese (mg)	Chromium (mcg)	Copper (mcg)	Molybdenum (mcg)	Selenium (mcg)	n-3 fatty Acid	n-6 fatty Acid
0-6 months	210	100	0.27	2	110	0.03	30	0.003	0.2	200	2	15	0.5	4.4
7-12 months	600	270	11	3	130	0.5	75	0.6	5.5	220	3	20	0.5	4.6
1-3	800	460	7	3	90	0.7	80	1.2	11	340	17	20	0.7	7
4-6	800	500	10	5	90	1	130	1.5	15	440	22	30	0.9	10
7-9	800	500	10	5	90	1	130	1.5	15	440	22	30	0.9	10
<b>Men</b>														
10-13	1300	1250	10	11	120	2	240	1.9	25	700	34	40	1.2	12
14-18	1300	1250	10	11	150	3	410	2.2	35	890	43	55	1.6	16
19-30	1000	700	10	11	150	4	400	2.3	33	900	45	55	1.6	17
31-50	1000	700	10	11	150	4	420	2.3	35	900	45	55	1.6	17
51-65	1200	700	10	11	150	4	420	2.3	30	900	45	55	1.6	14
65+	1200	700	10	11	150	4	420	2.3	30	900	45	55	1.6	14
<b>Women</b>														
10-13	1300	1250	10	10	120	2	240	1.6	21	700	34	40	1.0	10
14-18	1300	1250	18	10	150	3	360	1.6	24	890	43	55	1.1	11
19-30	1000	700	18	10	150	3	310	1.8	25	900	45	55	1.1	12
31-50	1000	700	18	10	150	3	320	1.8	25	900	45	55	1.1	12
51-65	1200	700	10	10	150	3	320	1.8	20	900	45	55	1.1	11
65+	1200	700	10	10	150	3	320	1.8	20	900	45	55	1.1	11
<b>Pregnancy</b>														
<18	1300	1250	27	15	220	3	400	2	29	1000	50	60	1.4	13
19-30	1300	700	27	15	220	3	350	2	30	1000	50	60	1.4	13
31+	1300	700	27	15	220	3	360	2	30	1000	50	60	1.4	13
<b>lactation</b>														
<18	1300	1250	18	15	290	3	360	2.6	44	1300	50	70	1.3	13
19-30	1300	700	18	15	290	3	310	2.6	45	1300	50	70	1.3	13
31+	1000	700	18	15	290	3	320	2.6	45	1300	50	70	1.3	13





Age(Year)	Vitamin C (mg)	Thiamine (mg)	Riboflavin (mg)	Niacin(g) (mg)	Vitamin B <sub>6</sub> (mg)	Folate (mcg)	Vitamin B <sub>12</sub> (mcg)	Pantothenic Acid (mg)	Biotin (mcg)	Choline (mg)
<b>0-6 months</b>	40	0.2	0.3	2	0.1	65	0.4	1.7	5	125
<b>7-12 months</b>	50	0.3	0.3	4	0.3	80	0.5	1.8	6	150
1-3	60	0.5	0.4	6	0.5	150	0.9	2	8	200
4-6	60	0.6	0.5	8	0.6	200	1.2	3	12	250
7-9	60	0.6	0.6	8	0.6	200	1.2	3	12	250
<b>Men</b>										
10-13	75	0.9	0.9	12	1.0	300	1.8	4	20	375
14-18	75	1.2	1.3	16	1.3	400	2.4	5	25	550
19-30	90	1.2	1.3	16	1.3	400	2.4	5	30	550
31-50	90	1.2	1.3	16	1.3	400	2.4	5	30	550
51-65	90	1.2	1.3	16	1.7	400	2.4	5	30	550
65+	90	1.9	1.3	16	1.7	400	2.4	5	30	550
<b>Women</b>										
10-13	75	0.9	0.9	12	1.0	400	1.8	4	20	375
14-18	75	1.0	1.0	14	1.2	400	2.4	5	25	400
19-30	90	1.1	1.1	14	1.3	400	2.4	5	30	425
31-50	90	1.1	1.1	14	1.3	400	2.4	5	30	425
51-65	90	1.1	1.1	14	1.3	400	2.4	5	30	425
65+	90	1.1	1.1	14	1.5	400	2.4	5	30	425
<b>Pregnancy</b>										
<18	90	1.4	1.4	18	1.9	600	2.6	6	30	450
19-30	90	1.4	1.4	18	1.9	600	2.6	6	30	450
31+	90	1.4	1.4	18	1.9	600	2.6	6	30	450
<b>Lactation</b>										
<18	115	1.4	1.6	17	2.0	500	2.8	7	35	550
19-30	120	1.4	1.6	17	2.0	500	2.8	7	35	550
31+	120	1.4	1.6	17	2.0	500	2.8	7	35	550



## Explanations of the Tables:

(1) Recommended values for energy and nutrient were established by using the sources below, taking into consideration our country's nutritional problems and facilities.

The reports that can be found in [www.nap.edu](http://www.nap.edu) page

- Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride. 2001
- Dietary Reference Intakes for Thiamine, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin, and Choline. 2001
- Dietary Reference Intakes for Energy, Carbohydrates, Fibre, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids (Macronutrients). 2002.
- Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc. 2001.
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(2) **BMR** : Basal Metabolic Rate. It's the quantity of energy spent in the absolute resting position.

Energy of the slimming diets are under these values so it is dangerous for the health of the person. In recent years, RMR (Resting Metabolic Rate) is used instead of BMR.

There is no significant difference among them. But it has importance for scientific researches.

(3) **PAL ( Physical Activity Level)**: Physical Activity Level. It changes according to the activities in which the persons spend energy. Quotients given in this column are the values for the medium level activities. Spending of the energy changes according to the amount and type of activities performed in every age groups.

(4) **Energy**:

(a) It must be reduced 10 kcal/day for men and 7 kcal/day for women above 19 years old per year.

(b) Supplementaries recommended in pregnancy

< pregnant at 18

1. Trimester 0-250 kcal/day

2. Trimester 300 kcal/day

3. Trimester 300 kcal/day

pregnants between 19-50

1. Trimester 0-250 kcal/day

2. Trimester 300 kcal/day

3. Trimester 300 kcal/day

(c) Recommended supplementaries in lactation are 500 kcal/day.



## Vitamins

(d) It is Retinol activity equivalent. One Retinol Activity Equivalent: 1 mcg retinol, 12 mcg Beta-carotene, 24 mcg alpha-carotene or 24 mcg beta-criptocsantine.

(e) Colecalciferol. 1 mcg colecalciferol=40 IU vitamin D. IU=0.025 mcg

(f) Alpha-tocopherol.

(g) It is Niacin equivalent= niacin+ 1/60 tryptophan. Niacin at 0-6 months babies.

(5) These values were calculated by using ideal weight values given in the first column with age groups. Protein need changes according to the type of protein in the diet, animal or plant origin. If the diet includes dominantly animal proteins, the first values ; if the diet includes dominantly plant protein, the second values should be used. If the baby doesn't breast-fed, 2.2 g/kg/day is recommended between 0-3 months.

(6) Feeding baby between 0-6 months is a very special situation. Energy and nutrients are calculated considering the weight increasing of the baby. Since solely breast feeding is principal in this period, the way of feeding in different situations is determined specially for baby by taking views of experts.

Table 2: Contribution ratios of the macronutrients to the daily energy for healthy nutrition.

Percentage of the Energy %					
	Protein	Carbohydrate	Fat	n-6	n-3
<b>Children</b>					
1-3 ages	5-20	50-60	30-40		
4-18 ages	10-20	50-60	25-35		
<b>Adult</b>	10-15	55-60	25-30	5-10	0.6-1.2





Annex-2/ Table 3: Approximate Quantities of Daily Foods that Meet Energy and Nutrients (g/day)

Age (Year)	CHILDREN						BOY-GIRL		ADULT MALE		ADULT FEMALE	
	0-1	1-3	4-6	7-9	10-18	10-18	19-65	65+	19-50	51-65	65+	
<b>Food Groups</b>												
<b>1. Group</b>												
<b>Milk Group</b>												
Total	800	600	500	500	600	600	450	600	450	600	600	
Milk, Yogurt	700	500	350	350	450	450	300	450	450	450	450	
Cottage cheese	20	20	30	30	30	30	30	30	30	30	30	
<b>2. Group</b>												
<b>Meat, egg, legume</b>												
Total	80	110	120	130	165	155	140	130	150	130	130	
Meat, chicken, fish	15	30	40	50	100	100	100	100	100	100	100	
Egg	50	50	50	50	25	25	10	10	25	10	10	
Leguminous seeds	15	30	30	30	40	30	30	20	25	20	20	
<b>3. Group</b>												
<b>Fresh Vegetable and Fruit</b>												
Total	150	250	300	450	500	500	600	600	600	600	600	
Green and Yellow	50	100	100	100	150	150	200	200	200	200	200	
Others	100	150	200	350	350	350	400	400	400	400	400	
<b>4. Group</b>												
<b>Cereals</b>												
Bread	20	50	100	200	350	300	300	200	250	150	125	
Rice, bulgur, spaghetti, flour	20	40	50	60	100	60	80	60	75	50	40	
Fat, oil and sweets												
Total fat	10	15	20	30	60	50	40	30	40	20	20	
Fat	5	7	10	15	30	25	20	15	20	10	10	
Oil	5	8	10	15	30	25	20	15	20	10	10	
Oily Seeds, nuts	0	10	10	10	10	10	5	0	10	5	0	
Sweets Total	40	50	50	50	70	60	50	50	50	50	40	
Sugar	30	30	30	30	40	30	30	30	30	30	20	
Honey, jam, molasses etc.	10	20	20	20	30	30	20	20	20	20	20	







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