eating habits of teenagers ....healthy or not?

- **FOREWORD**

During puberty, the dietary requirements of adolescents are particularly high, because on the one hand there is an acceleration of growth and on the other hand an increase in their physical activity. Also, at this time the teen wants to move away from their family and shape a new,individual, independent personality. At the same time, the adolescent's need to be admitted by his/her peers leads to whims in both dressing and eating habits. So teenagers miss out on meals, eat snacks, prefer fast-food restaurants, and begin to consume alcohol or smoke at younger ages. It is a commonly accepted fact that the harmful eating habits of adolescents, as well as the pressure they receive from the social and especially the family environment, render them vulnerable to eating and mental disorders such as obesity, depression, bulimia etc. Family information as well as school education can help significantly in the prevention of eating disorders, as well as the adoption of proper nutrition habits during childhood and adolescence.

CONTENTS.

Chapter 1

1.1. **What is Nutrition?**

As a definition of Nutrition, literally, it can be mentioned that it is the science that studies the nutrients in relation to their effect on the human organism, that is, it studies:

- nutrients,
- the human organism's quantitative needs in these,
- the effects of inadequacy or excessive intake of nutrients,
- the digestion and absorption of end products of nutrients and their role in the body,
- ways of storing any excess of them, and
- overall changes and effects of those changes in the various kinds of foods and how they affect the body.

Nutrition has been one of the three key areas that have evolved in the evolution of Food Chemistry. These three sectors (which followed different directions) are:

- Food Analysis,
- Food Technology and
- the Nutrition.

The further development of the Food Analysis sector now falls, on the one hand, in the subject of Analytical Chemistry and, on the other hand, it is a specialization in automated methods applied in the Food Industry. Food Technology, ie industrial processing, storage, packing, distribution and marketing of food has nowadays, with advancing

technological progress, been tremendously expanded, but is now the subject of specialized Technology Sciences.

1.2. What is a healthy diet?

Diet is the most important environmental factor for health and body shape. Health according to the World Health Organization (WHO) is defined as "complete physical, mental, and social health" and not just the absence of disease or disability. Good health is achieved with proper nutrition. By saying proper nutrition we mean a balanced healthy diet with a proper meal distribution, minimizing snacks (rich in sugar-fats) and rich breakfast.

1.3. What is Adolescence?

Adolescence (from Latin adolescere, meaning 'to grow up'), is a period of speeding physical, mental and emotional development. Teenagers are ideologists, believe in justice and honesty. They first seek friendship and then their significant other. They have sexual anxieties and questions. But they are also rebels at the same time. Adolescents go through many difficult times, seeking understanding from the family, the social environment, and from school. They feel insecure. They are often inflexible; sometimes cowards and sometimes aggressors. They have anxiety. There are many ways to deal with these different almost contradictory characteristics. Others find a way out through sport, which gives them the satisfaction of creation, justification and fulfillment. Some, however, find a way out through alcohol, smoking, drugs, and excessive or minimal food.

- ***Natural Characteristics of Adolescence -***

Adolescence in both sexes is the only post-natal period where growth rates increase excessively. The teenage age is considered to begin at the age of 13 years. However, maturation during this period varies so much that chronological age as a development reference point stops being useful. On the contrary, the normal age, ie the age at which the maximum increase occurs, is more important for assessing the dietary requirements of boys and girls separately. Changes that take place in the body during the teenage period are the result of hormones that regulate the development of sexual characteristics. The pace at which these changes occur varies greatly, especially between the two sexes. During adolescence the height increases on average by 26 centimeters for boys and 23 centimeters for girls respectively, while the weight gain range spans from 26 kilos for boys and 21 kilos for girls. Girls have seen an increase in subcutaneous fat deposition, mainly in the lower abdomen area. The area around the hips increases in size and the bones of the pelvis are stretched, preparing them for reproduction. On the contrary, the boys mainly grow muscle tissue and their skeleton gets stronger snd heavier. The latter grow at a slower pace than girls, but soon outweigh girls in weight and height.

1.4. Nutrition during teenage years

Adolescence is a time of intense changes, physical and mental, behavior and perceptions, goals and orientations, and it is therefore expected that eating habits at that age will be altered, and relevant nutrition advice might often be ignored or often rejected. The acceleration of body growth, the change in the ratio of pure body mass and fat, the intense physical activity and the beginning of menstruation in girls, characterize teenage age. These changes are related and influenced by diet. Regardless of the change in body weight, net body mass increases in boys by 35 kg and in girls by 19 kg between 10-18 years old. The increase in the weight of girls is largely attributable to the greater fat deposition (25% of the total body weight), compared to the boys' (14%). The significant increase in pure body mass in boys, coupled with higher blood volume increase, compared to girls, justify the more frequent development of iron deficiency anemia in them during teenage years. During the teenage age there are also increased needs besides iron and for the other minerals of calcium, zinc, manganese as well as proteins. The

energy required daily during this period amounts to 50kcal / kg body weight or 16kcal / cm body length for boys and 40 or 14kcal respectively for girls. The amount of calories taken must cover the needs for basic metabolism, requirements for physical activity and development. Since energy and nutrients are used primarily for basic metabolism and exercise, any unsatisfactory diet can negatively affect growth.

1.5. The nutritional and energy demands of teenagers

Adolescence is an intensely anabolic period and, of course, there is a strong need for complete and qualitative nutrition to avoid inadequate intake of energy and other macronutrients and micronutrients. By particular needs in children and adolescents we mean, in addition to the overall demanding energy consumption, adequate nutrient intake due to increased daily protein, calcium and iron needs, while paying significant attention to over-consumption of foods high in fat and simple carbohydrates. However, inadequate nutrition results in weight loss, growth rate disruption, metabolic loss, fatigue, lack of concentration, symptoms of depression, reduced resistance to infections and amenorrhea in adolescents. In addition, many nutrition-related health problems such as obesity, acne, various psychosocial problems, anorexia nervosa, bulimia, caries, etc. should not be underestimated. Family information and education, as well as school education, can greatly help confronting dietary disorders, towards achieving proper nutrition at the stage of childhood and adolescence.

Energy Requirements:

- The energy needs of teenagers vary, depending on the rate of growth, weight, height and physical activity.
- The boys' energy needs are higher than those of the girls', because they grow faster and, as observed, they have more developed muscle tissue.

1.6. The eating habits of teenagers

During the adolescence, great changes occur, both physical and psychological, as well as rapid physical, emotional and intellectual development. These changes also have an impact on the teen's eating habits. There is a strong desire for independence and differentiation

from family habits or routines. Teenagers often feel uncomfortable with the constant changes in their appearance and have a difficulty in accepting them, as they tend to compare themselves to international body standards presented worldwide. This process makes them very vulnerable and their dietary habits too often are affected. Efforts to acquire muscle fat in boys and attempts to lose body fat in girls often lead to the use of substances that are harmful to health. In a survey

conducted in 1990 in 11,500 children in America, 34% of girls and 15% of boys think they have excess fat. 77% of girls want to lose weight. The most interesting fact, is that girls who think they have a normal weight, 25% of them still want to lose weight whatsoever! On the other hand, 16% of the boys and 7% of the girls consider themselves to be very weak and 26% of boys want to add weight or extra muscle tissue. In another study it became clear that adolescents go on a diet, even when they have normal weight. Adolescents are characterised by an increased tendency towards independence, a busy schedule, an intense need for social life, and they spend a lot of time outside their homes. This creates disruptions in their daily eating program, favoring the omission of breakfast and other meals replacing them with snacks as teenagers are away from home. These quick meals might satisfy their appetite, on the other hand they are lacking in nutrients. Research has found that that 25% of the daily energy intake is made up of sweet and soft sugars which are empty calories. Teenagers are particularly prone to promotional messages. Television, magazines and of course the powerful social media are shaping opinions and

role models on physical appearance and body shape. Unfortunately, the most popular foods are those of empty calories, that is, those that include foods high in fat and simple carbohydrates. Finally, teenagers are beginning to consume alcohol at an early age. Statistics show that young people start drinking alcohol for the first time around the age of 13, so they quickly get used to alcohol, making it an important part of total calorie intake, thus affecting their dietary requirements.

1.7. Unsatisfactory diet of teenagers

Studies on young people's nutrition have found that from all age groups of children evaluated dietarily, adolescents have poor nutrition at an alarming percentage. These observations particularly refer to the intake of calcium, iron and vitamins A and D.This is more evident in girls, as most often they are subjected to strict dieting for aesthetic reasons. Inadequate food intake is also attributed to the consumption of soft drinks, coffee, tea, alcoholic beverages and the worrying exclusion of milk and fruit juices from their diet. Adolescents also have the largest discrepancies even at their meals, basically skipping breakfast and replacing lunch or dinner with fast food. Several studies have shown that teenagers on average have two to three meals of this type per week. The problem naturally becomes greater when these foods are consumed systematically by even younger children. It has been calculated that a meal made up of a hamburger, fried potatoes and a cola type drink, covers 36% of the recommended daily energy intake. 50% of these calories come from fats which are highly saturated, even when vegetable oils are used in the preparation of these foods. The high temperature developed during frying, increases the saturation of fatty acids. It is noted that this type of diet with junk food leads to a negative balance of calcium during adolescence, a time when a high calcium intake is required to meet the needs of rapid skeleton development.

- ***Characteristics of unsatisfactory nutrition of adolescents: -***
  - They do not get breakfast. This results in the consumption of various snacks during the day, such as chips, croissants, chocolates and others containing too much fat and sugar. They have messy meals. They show a special preference forjunk food, fried potatoes, pizzas, pasta and sweets and usually avoid fruits and vegetables.

- Overwrap alcoholic beverages.
- They often resort to hunger diets. They alternate with periods of overeating.

This unhealthy diet with scarce food or overcosumption of food, results in an increase in the number of obese adolescents and is the cause of various diseases in the long term, such as arteriosclerosis, hypertension, allergies, migraines, dermatoses, cholesterol, constipation, caries, fatigue, aggressive behavior. Teens spend a lot of time away due to a lot of responsibilities as well as eat away from home and wherever they wish, with their peers. They also skip meals and eat when they have time. Inevitably, they have an unstable diet because of their workload (social activities, school, work). The snacks cover ¼ of the daily energy intake of a teenager. Snacks usually do not provide the required amounts of calcium, iron, vitamin A and folic acid. This requires the intake of a wide variety of foods to meet the nutritional needs in these nutrients of adolescents.

1.8. Consumption and use of sugar, alcohol, nicotine

- Sugar and hyperactivity in teenagers -

A hyperactive child is defined as a child who is chronically disproportionate to their age in terms of mobility, with difficulty in attention and concentration, and impulsive behavior or such "explosions" that cause problems in school and at home. The syndrome is usually seen in boys aged 1 to 16 years. Its frequency varies from 1 to 5% of children of this age in different countries. Initially, the aetiology of the syndrome was attributed to the consumption of foods containing various additives, dyes or salicylic acid (aspirin) found naturally in some foods. Recent views suggest that this syndrome is due to the consumption of sugar. This hypothesis is based on two theories:

• Hyperactivity is due to a child's allergic reaction to processed sugar.

- The syndrome is due to a reactive type of hypoglycemia due to hyperinsulinemia caused by the consumption of increased amounts of rapidly absorbed carbohydrates. This theory is also reinforced by the fact that high-protein diet improves the manifestations of the syndrome.

Syndrome therapy is dietary, pharmaceutical, psychiatric or a combination of the above. Dietary therapy was previously based on excluding chemical additives and dyes from the child's diet. Although this therapeutic approach is not scientifically fully acceptable, it is good to apply for at least one month and to see if there will be any improvement. Stopping carbohydrates with a high glycemic index sometimes improves the symptoms of the syndrome and, of course, has no effect on the adolescent's health.

- ***Alcohol-smoking –***

A survey of high school and senior high school children in the United States found that the most used drugs were inhalants, alcohol,

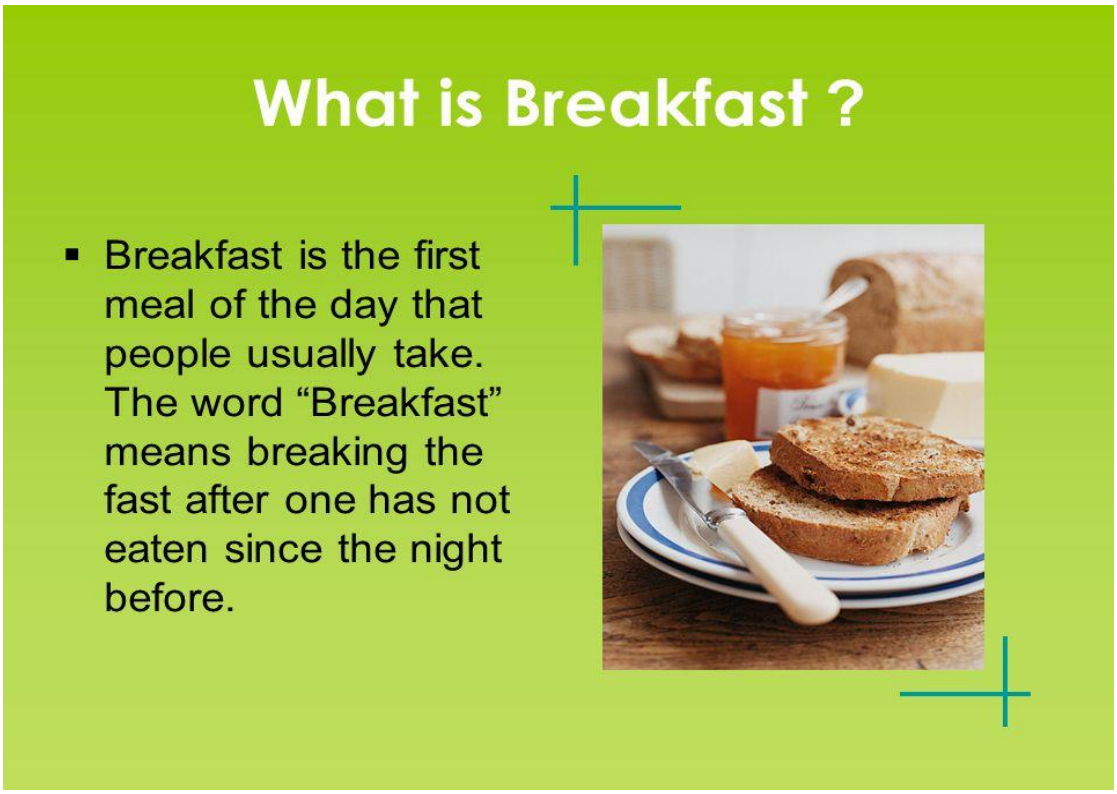
nicotine, amphetamines and then all other drugs. According to the same survey that lasted 10 years, 9 out of 10 students used alcohol, 50% of them used marijuana, one in six had used cocaine and one in 8 LSD. From 1986 to 1987, cocaine use fell to 16.9% from 15.2% and was the first time after 12 years when this percentage declined. Smoking is one of the most serious problems in this age with significant effects on health, nutrition and absorption of nutrients (smokers weigh less and easily put weight when giving up smoking, etc.). Efforts to deal with smoking should also be made with the help and co-operation of the family without overlooking the problem of passive smoking. Teenagers can get involved with alcohol and drugs in a variety of ways. Unfortunately, teenagers do not understand the

relationship between what they are doing today and the consequences that may arise in the future. At this age experimentation with alcohol and other drugs is quite common. Teenagers tend to feel that nothing can happen to them and that the problems affecting others will not happen to them. The use of alcohol and smoking starting at an early age increases the chances of using other drugs at an older age. Some teenagers will experience, experiment and stop. But others will continue to use them occasionally. Some others will develop an addiction to find other more dangerous drugs that will cause significant damage to their own body and possibly others. Adolescence is a critical period when children want to experience new things. Teenagers use alcohol and drugs for many reasons, such as curiosity or because they make them feel great, more confident, more appealing to their peers and the opposite sex or think they give them a sense of belonging to the world of grown-ups. They may also think that it reduces stress either because it makes them feel good, or because others do it and adolescents need to fit in with others. It is very difficult to predict which teenagers will just try and stop and who will continue developing addiction and serious problems. Adolescents have a high risk of developing serious alcohol problems and drug addiction.More at risk are those who have a family history of drug use or depression. Also those who have a low sense of self-esteem or feel that they do not fit into the

community and feel unimportant are high risk groups. Unfortunately, the use of illegal substances by young people is increasing, especially among younger teenagers. The average age of first-time use of marijuana is around 14 years, while alcohol is around 12. The use of alcohol and marijuana by schoolchildren has become a frequent and worrying phenomenon. Drug use by adolescents leads to a number of negative effects. The risk of later drug use in life, school failures, reduced skills, the risk of accidents, violence and crime, unprotected dangerous sexual behavior and suicide are among the problems threatening the present and future phases of the adolescent's life.

1.9. The importance of breakfast

Breakfast is considered to be the most important meal of the day and there is now scientific evidence that supports this view.



The benefits of a regular breakfast:

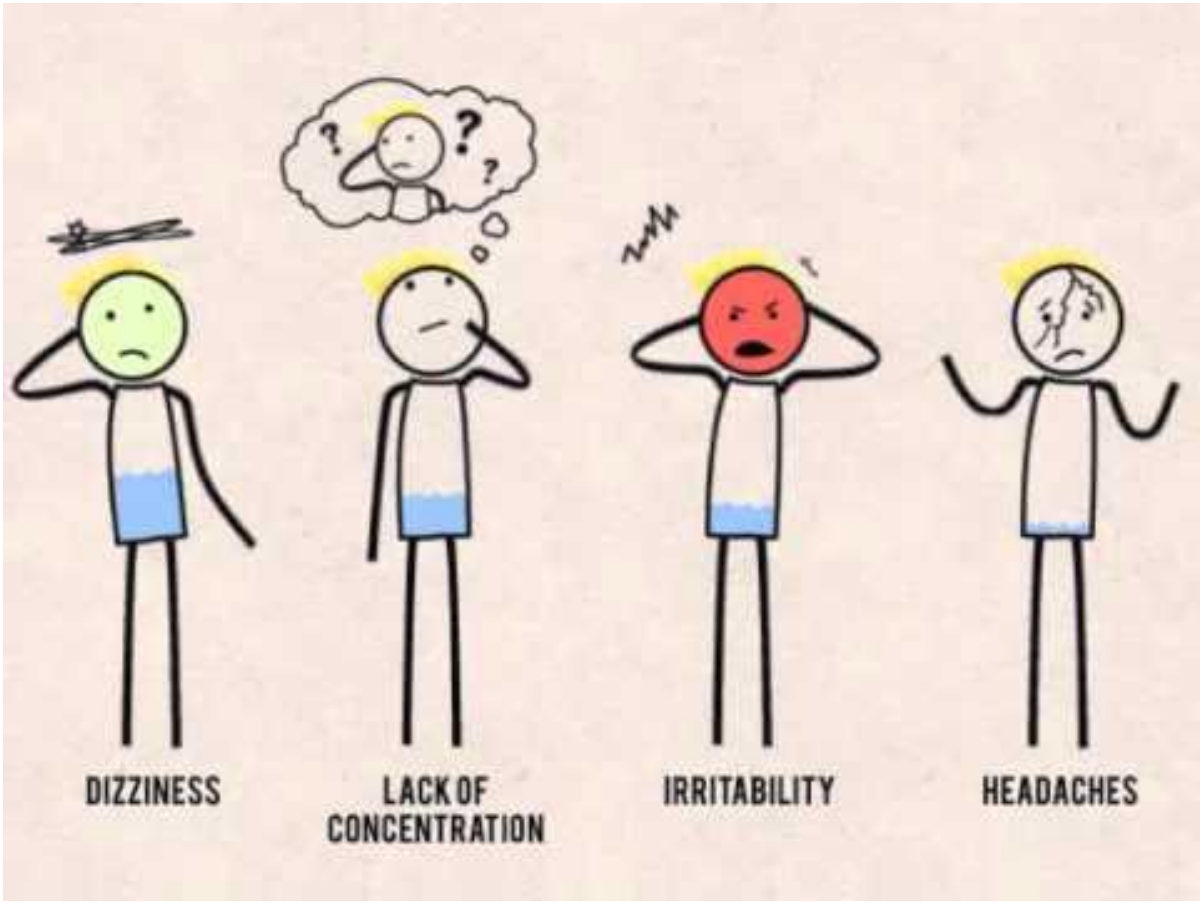
- Regular consumption of a defatted cereal, such as oatmeal or fiber-fortified breakfast, increases the chances of adolescents and adults achieving the recommended intake of 20g of dietary fiber per day.
- Compared to people who do not consume breakfast, those who eat breakfast regularly have a higher intake of microelements, the deficiency of which is not replenished in the next meals.

- Most studies on the nutritional importance of breakfast indicate that the daily amount of energy from fat is lower in people who eat breakfast
- People taking breakfast tend to have lower cholesterol levels, compared to those who start their day without breakfast.
- A well-balanced breakfast especially helps children and adolescents respond to the cognitive (understanding and memory) and learning requirements of education.
- In addition, a proper breakfast reduces the feeling of hunger throughout the day. This avoids eating ready-made meals or more snacks.
- We should not forget that in the morning the working off ability of our body is increased and the calories we take do not turn into extra weight.
- Breakfast can positively affect memory and cognitive ability, possibly with the increase in blood glucose levels.
- Children and teenagers who take a high energy breakfast (at least 20% of energy needs) show significantly increased creativity and ability to volunteer at school.

1.10. The importance of water

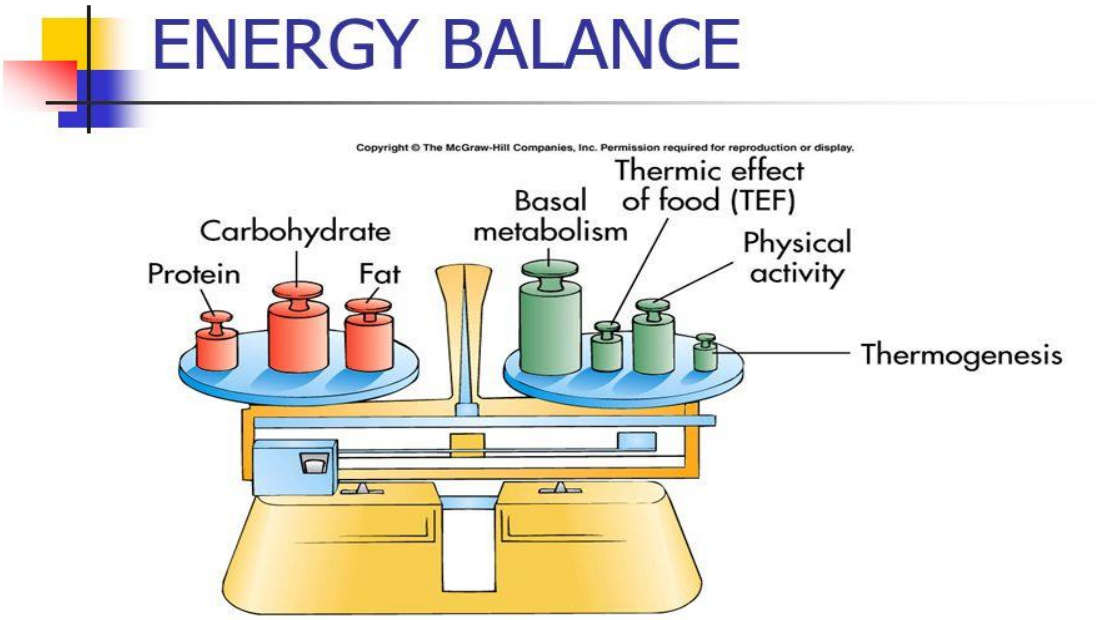
You see constantly people around you carry a bottle of water and you are stressed with them when you see them almost forcibly emptying it sip by sip. That's because they were told that this is good for the health and they have to do it. Or that it weakens or dissolves fat and the like. There are abundant “tips of advice”, “magic rules”,”wonder advice” about how water can make all one’s problems disappear.But let's look at some basics about water. At first, the importance of water for life is decisive, as humans can live without food for months, without water, however, only a few days. But why is water so important for our survival? At first, 40-60% of human weight, consists of water. Approximately 2/4 of this percentage is found intracellularly, ie in our cells; and the rest extracellularly. Under normal conditions, humans take up and dispose of about 2-2.5 liters per day. Of this disposal,1.4 liters are drinkable liquids, 0.7 liters come from our food and about 0.2 liters of water comes from the burning of these foods. The primary disposal channel is urine and, to a lesser extent, faeces and sweat. Naturally, the facts change in warmer environments where sweat plays a more important role in

water excretion as it is of primary importance to the process of thermoregulation, that is to maintain a certain range of body temperature constant, because without this process we would not live . Let us see, however, how much water we need today and what has changed from what we previously believed. Until and very recently we had the recommendation for water consumption of at least 8 glasses per day. Today this is not the case. According to the official statement of the Institute of Medicine of the National Academies of Sciences conducted in 2004, 80% of our needs are covered by drinking water, soft drinks, juices, coffee, tea, and so on. The remaining 20% comes from our food. Also, according to Harvard Medical School Health Publishing, September 2016, "There's no one-size-fits-all answer". Dr. Seifter says: "Water intake must be individualized, and you should check with your doctor to be sure you're getting the right amount". It's not just water that keeps you hydrated. *All beverages* containing water contribute toward your daily needs. And it's a myth that caffeinated beverages or those containing alcohol are dehydrating because they make you urinate. They do, but over the course of the day, the water from these beverages still leads to a net positive contribution to total fluid consumption, according to an article in the 2015 *Harvard Men's Health Watch*. We should therefore keep in mind that coffee, tea, soft drinks, juices and milk are sources of intake of the necessary fluids even if they do not contain pure water as such. But beware, for, there are many reasons why water is still the better choice. Remember, sugary drinks can lead to weight gain and inflammation, which can increase your risk for developing diseases such as diabetes. Too much caffeine can give you the jitters or keep you from sleeping. And, alcohol intake should be forbidden for adolescents. Additionally, because some of the above can be combined with large quantities of sugar, subsequently the feeling of thirst is not satisfied. Then, we are entangled in a vicious circle, consuming more and more of those sugary beverages in the hope of quenching our thirst. Overconsumption can make it difficult to control weight. At the same time, food contributes large amounts of water to the body, especially fruits and vegetables, with their water content approaching 90% of their composition. The tomato for example, which is a solid food, offers our body more water than milk that is considered a liquid food. Taking coffee, tea or soft drinks with caffeine contributes to a



positive balance of fluid for our body. Let us not become maniacs trying to reach the top of 8 or more glasses of water per day that several articles suggest.Inadequate intake of water may result in : weakness, headaches, irritability, bad breath, dizziness, muscle cramps, disruptions in mood and cognitive functioning, alertness and focus impairment, failed weight loss efforts etc.

2.1 What is Energy Balance?



The Energy Balance should be considered like a scales on which, on the one disc, we place the energy (calories) we take (Energy Intake) from the food and liquids we consume, and on the other disc we place the calories we burn (Energy Consumption). If the energy expended by the body for its operation is equal to the energy of the food consumed, the mass of the human does not change, but when the body receives more than it spends, it stores the excess calories as fat in the fatty tissue. So a positive energy balance simply means weight gain and a negative energy balance means weight loss. Energy intake needs not in depth explanation. Each food or drink has a specific number of calories, the sum of which is the total energy intake. Energy consumption is divided into three distinct parts: **Basic Metabolism** (The energy our body needs to perform its basic functions such as blood circulation, brain function, lung function, etc.). **The energy we consume because of physical activity**. (work, walking, gymnastics, etc.). **Thermogenic Feed** (The energy we

consume for digesting and absorbing food forms a small part of total energy consumption).

REQUIREMENTS FOR CALORIES (IN kcal) FOR EACH GENDER AND AGE IN THREE LEVELS OF PHYSICAL ACTIVITY

GENDER	AGE	ACTIVTY		
		SEDETARY LIFESTYLE	MODERATELY ACTIVE LIFESTYLE	ACTIVE LIFESTYLE
FEMALE	9-13	1600	1600-2000	1800-2000
FEMALE	14-18	1800	2000	2400

GENDER	AGE	ACTIVTY		
		SEDETARY LIFESTYLE	MODERATELY ACTIVE LIFESTYLE	ACTIVE LIFESTYLE
MALE	9-13	1800	1800-2000	2000-2600
MALE	14-18	2200	2400-2800	2800-3200

(HHS / USDA Dietary Guidelines for Americans: 2005)

- Sedetary life means only light physical activity associated with everyday life.
- Moderately active lifestyle includes physical activity equivalent to walking about 1.5 to 3 miles a day at 3 to 4 miles per hour, along with physical activity associated with everyday life.
- Active lifestyle includes physical activity equivalent to walking more than 3 miles per day in 3 to 4 miles per hour, along with physical activity associated with everyday life.

2.2 What is BMI?

The **BMI = Body Mass Index** is nothing more than the number that results when we divide one's weight into kilos with their height measured in meters and raised in the square. In other words, BMI (or Body Mass Index) is the quotient resulting from the fraction:

$$\text{Body Mass Index} = \frac{\text{Weight (in kg)}}{\text{Height}^2 \text{ (in m)}}$$

In general, the more the BMI increases, the more obese the human is. Increasing fat tissue increases the likelihood of serious illnesses and metabolic complications that adversely affect patients' life expectancy.

2.3 How do they relate to the adolescent metabolism?

In Biology, the term metabolism characterizes the sum total of biochemical processes that occur in cells of an animal or plant organism in which either energy is stored (anabolic process) or enrgy is released by biomolecule energy (catabolism). Therefore, metabolism involves all those biochemical processes involved in the production and release of energy, as well as in growth. Thus, from the above assumption, these procedures may be either anabolic (composition of substances) or catabolic (break down of substances). In this case, all metabolic reactions take place at various stages of time where chemical compounds are gradually formed or broken down. Each such stage of the "metabolic pathway" is catalyzed by a different enzyme, each time the structure of which, is to be encoded by a particular gene. The final product of any such process is called a metabolite. It is noted that all metabolic processes also involve a specific "carrier of energy" molecule called ATP.

- ***Generally***: -

All the energy contained in the burnt nutrients is manifested either as heat, or as work done in the environment, as an increase or as a loss. Every person has to take with their daily diet a quantity that keeps the metabolic rate at ease and the basic metabolic rate stable. The first is quantitative and nutritionally related, while the second is a clinical term for metabolism measured under defined conditions. The nutritional status of the body affects the efficiency of metabolic processes. Numerous vitamins, minerals and other co-factors, along

with water, contribute to the environment so that cell metabolism works efficiently and productively.

- ***Anabolism (energy storage) -***

The human body can store almost all of the energy contained in the foods as glycogen or triglycerides. Because the energy gain from the body is intermittent, while the energy expenditure is continuous, the body must store and then share the energy. Energy storage is not cost-effective, although it is relatively inexpensive from an overall energy perspective. Lipids are the most concentrated stock of energy stores. The available energy stored in fat far exceeds that stored in carbohydrates and proteins.

- ***Catabolism (release of energy) -***

When energy use exceeds the availability of energy from the diet, the body uses its stored energy to meet its needs. The first step in energy catabolism is the breakdown of glycogen or triglycerides into simpler compounds. This occurs in skeletal muscles, liver and adipocytes. The second stage of catabolism of carbohydrates is glycolysis, whereas triglycerides are β oxidation of fatty acids. The final, common stage is the cycle of citric acid and oxidative phosphorylation.

3.1. Nutritional and psychological disorders during adolescence

- Generally: -

Obesity, psychogenic or neurogenic bulimia and anorexia nervosa are the most important eating disorders observed in teenage years. So, because of their concerns about their silhouette, teenagers follow slimming diets leading to neurogenic anorexia. On the contrary, many children with psychological problems resort to over-eating as a way out and as a sort of redemption from the difficult family or social environment in which they find difficult to adapt. Finally, it is important to follow the necessary measures and appropriate nutritional management to protect the health of teeth (caries) at this age.

Obesity: Obesity is defined as the condition in which total body fat has increased disproportionately compared to other tissues and at least 20% more than normal. Obesity in adolescents is a complex disorder, which has general causes, causes that are associated with the child's behavior and causes originating from the child's environment. Teen obesity has increased by 50% since 1976, but studies show that in less than 20% of cases the disorder is recognized as serious enough to start treatment. The official definition of obesity is: "Obesity in adolescents is considered to be the situation when the height-to-weight ratio is in a 90% position in the development curves of the National Center of Health Statistics" . Also poor nutrition during adolescence combined with the difficult psychological conditions of this age can create various health problems such as

peptic ulcers, dyspepsia, neurosis, gastritis, acne, hypertension, cellulitis , which, in turn, can lead to:

- Psychosocial abnormalities
- Cardiovascular abnormalities.
- Delay in apropriate growth.
- Final height, less than what could be achieved.
- Psychological problems. Because unnecessary weight often prevents teenagers from playing, running, doing sports,they have low self-esteem, feel unhappy and slowly begin to withdraw themselves from social active lifestyle.

Teenage obesity puts the child at risk for serious pathological conditions, even before becoming an adult. These conditions are hyperlipidemia, increased heart rate and heart failure, early puberty, type 2 diabetes mellitus and polycystic ovary syndrome. Rare complications of obesity at this age are hypertension and the brain's pseudo-brain. Another important complication of adolescent obesity is melancholy and social isolation.

- ***Bulimia Psychogenic:***

The other Frequent disturbance during puberty is psychogenic (or neurogenic) bulimia. In bulimia psychogenic, although there is weight loss, it is not to the same extent that occurs in psychogenic anorexia. Its main characteristic is repeated episodes of overeating, with rapid consumption of large quantities of easy food of high calorie value. Episodes of bulimia are often related to stressful stimuli. During these episodes, the individual can not control themselves and does not stop eating. A bulimic person usually eats secretly and stops only when the stomach hurts, when the bulimic

sleeps, is interrupted or causes vomiting. Severe vomiting is inflicted to relieve the individual, alleviate the abdominal pain, reduce guilt, and control weight. Other ways to control weight are diet, fasting, exhaustive exercise and the use of diuretics or laxatives. The bulimic people generally know that their behavior is abnormal. So, they often feel depressed and blame themselves. Often, being too concerned with weight or repeated episodes of overeating and vomiting create social or professional problems. The aetiology of bulimia is not yet clear, but it is likely to be associated with a combination of genetic factors, familial conditions and high levels of stress. The treatment of bulimia,though not always successful, is based in reversing the mental disorders of the individual. The main consequences on a bulimic person's health are the swelling of salivary glands, erosion of teeth enamel, eye microvasculature, upper gastrointestinal irritation, hypokalaemia, hypomagnesaemia, etc. Dietary intervention in neurogenic bulimia has as its main objective the reduction of the overeating-food cycles aiming to eliminate them altogether, and the establishment of a normal diet. To achieve this, patients should be trained on the basic principles of proper food selection and meal sharing in order to achieve a healthy body weight. The diet plan should be flexible and provide normal intake of proteins, carbohydrates, fats, vitamins, and minerals and should meet daily calorie needs. Encouraging the patient to record the weight and the foods they consume daily give them the sense of safety and control of his body weight.

- ***Psychotic anorexia/ Anorexia Nervosa:***

It is displayed during teenage age, especially in teenagers. It is a serious psychosomatic self-inflicted starvation syndrome in which the individual at will decreases food intake to precarious levels. This unwavering pursuit is weight loss due to an unjustified "fear of fattening" that ultimately leads to excessive slimming. Its main

features are significant weight loss, intense fear of imminent obesity, physical image disorder, emotional deficiency, lack of self-confidence, inadequate personality integration, inability to recognize bodily sensations and amenorrhea in girls. Loss of weight is usually achieved by reducing the total amount of food, with a disproportionate reduction in carbohydrate and fat-rich foods, with vomiting, using laxatives or diuretics and exhaustive exercise. A frequent result, is also the disruption of the electrolyte balance of the body, as well as the deficiencies in zinc, copper and others. In terms of behavioral characteristics, patients suffering from "anorexia nervosa", although they exhibit many classical, physiological and laboratory symptoms of starvation, they remain very active, deny the feeling of hunger and complain that they feel fat even when they are visibly starved and sick. The causes of this disorder are not fully understood. It seems, however, that social factors (superfluous

goods, aesthetic standards) and the family (overprotective or demanding families) play a crucial role. For the treatment of anorexia nervosa, which remains difficult, particularly in the long run, the main areas of treatment include medical management, psychotherapeutic interventions and pharmaceutical therapies. The clinical effects of anorexia nervosa are hypotension, bradycardia, hypokalaemia, decreased resistance to cold, loss of fat, loss of bone mass, constipation, dry skin, even death. The main objective of the dietary intervention is:

- achieving a healthy body weight
- modification of dietary behavior

- ***Depression-Melancholy***

Depression in puberty is a very common situation. It is usually transient and is part of the changing emotional state of puberty. If depression - melancholy is the predominant mood of the adolescent, then it is considered as a clinical disorder. The reactions of normal depression are unexplained and strange. Thus, there are cases of teenagers who are constantly overwhelmed, socialise with the wrong people, become dangerously bold, reckless, they behave sexually liberated, subject themselves to food and water deprivation, or they may become members of social groups with harsh discipline. It can still be driven to more extreme situations such as drugs, crime, suicide, etc.

3.2 Psychological support

In adolescence, when the young person experiences so intense feelings,and is concerned almost obsesively with his external appearance, the distortion of the teenager's self-image from obesity or starvation has psychological effects that are difficult to estimated to their full extent. Depression is a common symptom. Not being accepted by their social environment, gradually leads to the adolescent's isolation, to an even greater restriction of physical exercise, to frequent eating especially the sweets and junk food, which remain as the only shelter and sole source of pleasure. At some point, the adolescent makes the decision to follow a healthy diet, but they set such a short time to reach this target that it cannot be achieved. This results in frustration, anxiety and annoyance

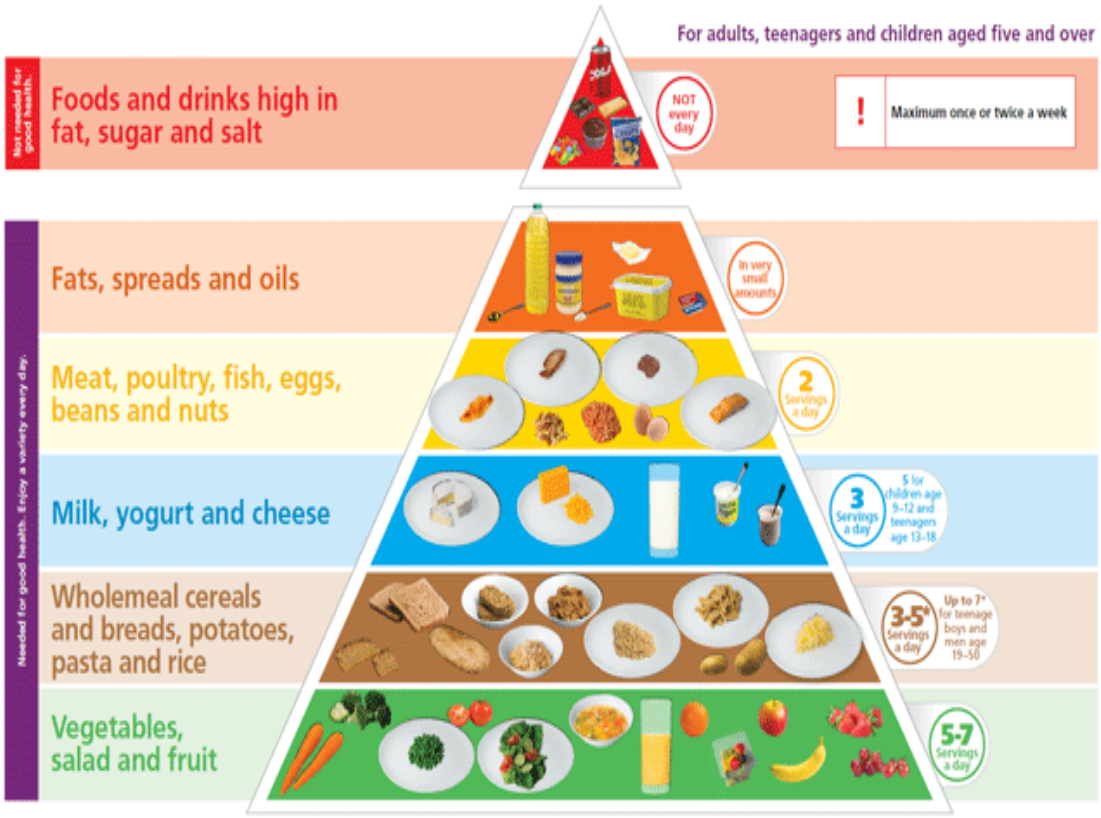
leading to a deteriorating state instead of a promising one. . The best results of dealing with adolescent obesity or starvation are when dietary treatment and psychological treatment and exercise are combined with proper guidance to the adolescents family. The goal of this psychological treatment is to alter eating behavior and increase exercise to reduce body weight.

- ***Behavioral modification and social support***

Long-term changes in dietary behavior are required to maintain weight stability. Former overweight people should learn ways to increase their energy consumption while reducing their intake of food on a permanent basis. Although there are official programs to modify behavior, most patients can learn some basic strategies from the specialist monitoring their progress. The most useful way to modify dietary behavior is programming ,recordingand receiving support and positive feedback.. Patients can be taught how to plan their meals in advance, as well as their physical and athletic activities. They are then instructed to record their behavior regarding these two activities. While recording significantly helps change behaviors, careful consideration of data by the specialist can help to realistically assess data and to search for more specific solutions to overcome problems. In all cases, emotional support and reward of targets when they are achieved is very effective. Social support is an essential component of success for lifelong weight loss. Most successful programs include support for each member from their surrounding environment, whether it be family, relatives, friends, workplace, school. This will help the individual gain confidence, acceptance, and be able to change their mentality to a positive one.

3.3 Advice for Adolescent Diet

Diet in teens should be balanced. That is, it must provide all the necessary nutrients to develop and ensure the good functioning of the body. Adopting a proper diet during teenage years is sure to benefit the health of the person in later life. Low-fat diets and a high



carbohydrate and micro-nutrient diet help both in teenage development and on the other hand protect these people's lives in this tender age from chronic dietary-related illnesses. Adolescents should be encouraged to consume foods from all food categories. This ensures satisfactory admission of nutrients to the human body. The human body needs over forty nutritional elements (vitamins, amino acids, fatty acids, trace minerals) and good sources of energy (calories from carbohydrates, proteins and lipids). There are foods poor and rich in various nutrients, but none contains them all. The greater the variety of foods, the greater the chances of satisfactory intake of one ingredients, while avoiding the risk of unwanted ingredients being accumulated in the body. Parents should not "force" adolescents to follow a particular diet; in most cases teenagers who feel pressured by the family environment react and follow the sheer opposite diet. Parents should therefore make every effort to ensure that their children have freedom of choice in their

diet and provide them with a natural environment that benefits their health as much as this can be possible in urban centres. They should also encourage them to adopt proper dietary choices. The snacks to be offered at home should consist of low-cost foods and of high nutritional value (low in sugar and fat). Some guidelines for proper nutrition during teenage years are:

- Focus on the consumption of complex carbohydrates such as bread, cereals, fruits, vegetables, potatoes, rice, macaroni, dried beans etc.
- Avoid high intake of saturated fatty acids; lean beef, chicken and fish are preferred
- Consume dairy products at your meals. During adolescence calcium deficiencies are observed. Foods rich in calcium include milk, yoghurt, cheese and more.
- Eat foods rich in iron such as red meat, chicken, fish, eggs. Dried fruits etc, should also be included, especially due to the fact that many teens are following vegetarian diets or overeating dairy products there is a lack of iron. Also drink fresh citrus juices, which are rich in vitamin C and help in the absorption of iron. Choose fresh fruit, raisins, low fat cheese crackers, lots of vegetables, yoghurt or fruit cheese in the middle meals.
- Eat a full breakfast of cereals or bread, milk, juice, etc. Thus, satisfactory calcium, riboflavin and folic acid intake is achieved. Also avoid snacks that are high in sugar and fat.
- Go for cereals, bread, wholemeal crackers. By doing so you get enough of your daily fiber.
- Prefer vegetable fats such as olive oil.
- Limit salt and sugar to your foods.
- Avoid industrialized foods rich in additives.
- Limit non-nutritious foods such as chocolates, biscuits, ice creams, etc.
- Incorporate pysical activity in your life. Ride your bicycle, go on brisk walks when you feel stressed, listen to your favourite music while walking, use the stairs instead of the elevator. Go outside and enjoy nature. Get away from the video screens and out of the couch!!!!


My Wellbeing
WELLBEING
Healthy
Emotional
Physical
Weight
Activity
EMOTIONAL
HEALTHY
WEIGHT

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