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Food Pyramid - The Principles of a Balanced Diet

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Abstract

The need to understand the relation of man to food, determines the existence of appropriate behavior as well as an attitude in accordance with the modalities that determine human development and evolution, under this structural aspect. A proper diet is the one that provides the amount of nutrients corresponding to personal needs. The food pyramid is the scheme we refer to most in order to know the proportions of foods recommended for consumption. It is a pyramid divided into "layers", each corresponding to a category of foods and the respective quantity.

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Introduction

The food pyramid is actually a graphical representation, in the form of a triangle, of nutritional standards. It indicates the quantities and types of food needed daily to maintain the health status and to prevent or reduce the risk of development of eating disorders [1].

The food pyramid is designed to make healthy eating easier [2]. Healthy eating is about getting the right amount of nutrients - proteins, fats, carbohydrates, vitamins and minerals that you need to maintain your good health [3]. Because different foods have different nutritional values, it is not possible to get all the nutrients we need from a single food [4].

According to the Healthy Food Pyramid, a variety of foods should be consumed from all food groups, as well as within each group, to obtain different nutrients and to meet our daily needs. Eating too much or too little is not good for our health [5].

Every day, we need a specific amount of nutrients to maintain optimum health. If we do not eat enough, sub-nutrition and symptoms of various deficiencies appear; obesity can be achieved when we consume an excessive amount of any kind of food [6].

Therefore, the right amount of food should be consumed to stay healthy.

Modern Variant of the Food Pyramid

In 1992, the US Department of Agriculture came with its own version, closer to the one we know today. The base of the pyramid was formed the group of cereals, bread, rice and pasta [7], was followed by the group consisting of almost equal parts of vegetables and fruits, then the groups of locks and proteins, in equal parts, and the tip, i.e. the foods used only from time to time [8], was represented by fats oils and sweets [9].

The old pyramids presented the food groups as a percentage of the daily caloric requirement and, for this reason, they had a very limited practical applicability [10]. Today the indications are expressed in portions of food, whose daily consumption will provide the essential nutrients. The current pyramid aims to obtain the majority of energy from carbohydrates, while limiting fat intake [11]. The healthy eating pyramid is based on the concept of balance between the 3 nutritional principles (proteins, sugars, fats), making a clear delimitation between foods that can be consumed in large quantities without endangering health, and foods that should be avoided or consumed in small quantities [12].

The saying "we are what we eat" has never been more true given the varied food supply, which tends to mislead the population regarding the notion of healthy eating [13]. It should be borne in mind that the food pyramid is addressed to healthy people, there are some exceptions (children, sportsmen, pregnant women) whose special needs impose another eating behaviour [14]. The food pyramid refers to the classification of foods according to the ideal proportion of each food in the daily diet [15]. There are several variants of the food pyramid. It was originally released in 1992 by the US Department of Agriculture [16]. In 1998 researchers in Brussels proposed another variant of the pyramid, so that in 2002 from Harvard to promote another version [17]. Finally, last year, in 2008, the same researchers at Harvard changed the structure of the food pyramid, in light of new nutrition information, resulting from research undertaken in recent years [18]. In the Food Pyramid, each food group is represented visually to ease the practical nutritional advice. The number of servings to be consumed daily is also displayed [19].

The variation between the minimum and the maximum in terms of the number of portions depends on the energy needs and the individual food preferences [20]. Each person must consume the minimum number of servings in each food group so that there is an adequate supply of macro- and micronutrients [21]. The food pyramid represents the balance, variety and moderation with which it is necessary to consume food. It emphasizes the consumption of cereals, vegetables and fruits as a basis for eating and maintaining health [22].

These foods are the basis of healthy diets, low in saturated fat, cholesterol, sugar and sodium. It is also remarkable that they can reduce the risk of chronic diseases (diabetes, coronary heart disease, cancer, etc.) [23]. Foods at the base of the pyramid should be accompanied by foods high in protein (milk, cheese, meat and meat products with a low-fat content),

graphically represented in the third level of the pyramid [24]. In the last period, emphasis is placed on the consumption of white meats instead of the red ones (which tend to rise at the top of the pyramid) [25]. The top of the pyramid is represented by fats and sugary products and has no attached recommendations regarding the number of servings, but only the mention of being consumed rarely and in small quantities [26]. Saturated fats are avoided and consuming a moderate amount of salt and sugary products is sufficient [27].

Alcohol, if consumed, should be limited to small quantities [28].

Interpretation of the Food Pyramid

From the point of view of the positive effect that different foods have on health, the food pyramid should be viewed from the base (beneficial foods that can be consumed in larger quantities) to the peak (foods that should be consumed with caution and in small quantities) [29]. Climbing each floor of the pyramid correlates with decreasing the amount of food, but it must be understood that no food is forbidden, but only recommended to eat it in moderation. In other words, the basic principle is balance [30]. The pyramid contains the five main categories of foods needed for a healthy diet. Also, the food pyramid emphasizes that foods high in fat, oil and sweets should be consumed in moderation. According to the recommendations, the current Food Pyramid aims to get the most energy from carbohydrates, limiting fat intake [31].

In General, the Food Pyramid Comprises the Following 5 Food Groups, Namely

Bread, cereals, rice and pasta (6-11 servings per day);

Vegetables and vegetables (3-5 servings per day);

Fruits (2-4 servings per day);

Milk and derivatives (2-3 servings per day);

Meat, fish, eggs (2-3 servings per day).

The difference between food and nutrition is given primarily by the quality of the food we eat [32]. The body is nourished when it is fed on fruits, vegetables, whole grains, and foods rich in nutrients. From these, the cells extract the nutrients necessary for proper functioning [33]. The food pyramid represents the balance, variety and moderation with which it is necessary to consume food. No food consumed separately (or group of foods) can provide all the necessary vitamins and minerals. The variety consisted in the choice of foods from all groups, but also the consumption of different foods within the same category. [34].

Table 1 presents the categories of foods, in approximate quantities for different age categories.

The food pyramid emphasizes the consumption of cereals, vegetables and fruits as a basis for eating and maintaining health.

Cereals, potatoes, bread, rice, pasta. Due to the carbohydrate content, these foods represent an important source of energy. They also bring vitamins, minerals and fiber to the body. Very important is the consumption of whole grains and less the consumption of refined ones because in the latter, during the production process, much of the nutritional value is lost [35, 36].

Fruits and vegetables. The daily consumption of raw vegetables preferably (because by boiling or other methods of preparation destroys much of the vitamins) is extremely important for maintaining the health of the body. The advantage of vegetables is that they bring vitamins (vitamin A, vitamin C, etc.), minerals, fiber and have a few calories to the body [37, 38]. In the same way, consuming fresh fruits in abundance will increase the intake of vitamins and minerals brought to the body. Like vegetables, they have a low-fat content. Very important is the way in which the fruits are consumed because by removing the bark many vitamins are lost. If consumed in the form of juice it is good that it is prepared in the house without adding sugar [39, 40].

Meat and eggs. The foods in this group are high in protein - a basic element that enters into all the cells in the body. Besides protein, meat consumption brings vitamins, iron and zinc to the body. Daily consumption of meat in moderate quantities is indicated because the fat content it provides to the body must be taken into account. It is preferred to eat fish, chicken, turkey, as opposed to pork or beef [41, 42]. Also, the preparation process is extremely important, being indicated the removal of the fat and its cooking in the barbecue or oven and not in the fried form. Regarding the

Table 1. Food pyramid for different age categories.

Children (between 2 and 5 years old)	**Children (between 6 and 11 years old)**
Cereals: 1.5 - 3 bowls	Cereals: 3 - 4 bowls
Vegetables: at least 1.5 servings	Vegetables: at least 2 servings
Fruit: at least 1 serving	Fruit: at least 2 servings
Meat, fish, eggs and alternatives: 60 - 120 g	Meat, fish, eggs and alternatives: 120 - 200 g
Milk and alternatives: 2 servings	Milk and alternatives: 2 servings
Fat / oil, salt and sugar: very little	Fat / oil, salt and sugar: little
Liquid: 4 - 5 glasses	Liquid: 6 - 8 glasses
Teenagers (between 12 and 17 years old)	**Adults**
Cereals: 4 - 6 bowls	Cereals: 3 - 8 bowls
Vegetables: at least 3 servings	Vegetables: at least 3 servings
Fruit: at least 2 servings	Fruit: at least 2 servings
Meat, fish, eggs and alternatives: 200 - 300 g	Meat, fish, eggs and alternatives: 200- 320 g
Milk and alternatives: 2 servings	Milk and alternatives: 1 - 2 servings
Fat / oil, salt and sugar: little	Fat / oil, salt and sugar: little
Liquid: 6 - 8 glasses	Liquid: 6 - 8 glasses
The elderly	
Cereals: 3 - 5 bowls	Vegetables: at least 3 servings
Fruits: at least 2 servings	Meat, fish, eggs and alternatives: 200 - 250 g
Milk and alternatives: 1 - 2 servings	Fat / oil, salt and sugar: little
Liquid: 6 - 8 glasses	

consumption of eggs, it is good that they are not consumed daily because they have a high cholesterol content and the way of preparation in fried form is well avoided [43-45].

Dairy products. These foods provide vitamins, minerals, proteins with high biological value to the body. It is an important source of calcium, which is necessary for the development and maintenance of bone and dental integrity [45, 46]. The energy value of these foods varies depending on the amount of fat they contain. The excessive consumption of cheese can have negative consequences on the body because they contain saturated fats (or bad fats as they are called in the people) [47-49].

Fats, sweets, oils. This food group represents the top of the pyramid, characterized by its high caloric intake, but without satisfying all the nutritional principles. Sweets, sweet carbonated drinks, chips, are small food pleasures that should be consumed in moderation [50, 51]. Given the fats, they can be of animal origin (butter, lard, bacon, whey) or vegetable (oil, margarine). The excessive consumption of foods in this group predisposes the body to obesity, cardiovascular disease and diabetes. Despite these major disadvantages, the intake of vitamins A and E that the fat provides to the body should not be ignored [52-54, 55].

Foods that can be consumed in larger quantities are at the base of the pyramid [56, 57]. These are fruits and vegetables, and then foods high in carbohydrates, milk and derivatives. As we climb the top of the pyramid, we see foods that we have to limit their consumption, fats, protein, wine, beer,

sweets [58, 59]. It also of course includes water consumption and physical activity [60]. Climbing each floor of the pyramid correlates with decreasing food quantity, but it must be understood that no food is forbidden. It is only recommended that it be consumed in moderation [61, 62]. Therefore, the food pyramid is based on the concept of balance between the 3 nutritional principles. Specifically, there is a clear delineation between proteins, sugars, fats, foods that can be consumed in large quantities, without endangering health [63, 64].

The food pyramid is addressed to all persons, except in cases where doctors prescribe a certain diet to the patient, or when it comes to children, sportsmen, pregnant women, people with special needs and so another food conduct is required.

Conclusions and Recommendations

The food pyramid is designed to make healthy eating easier. Healthy eating is about getting the right amount of nutrients - proteins, fats, carbohydrates, vitamins and minerals you need to maintain a healthy state of health. The human body is extremely complex, and a proper diet is one that is specific to each individual. In addition, in establishing a diet, one must take into account the health status of each. Although purely informative, carefully read, the food pyramid provides extremely useful information about the foods we should be consuming daily and especially the proportions in which they should be contained in the amount of food a day.

A healthy diet involves eating cereals (40%), vegetables and fruits (35%), moderate-meat, fish, eggs and alternatives (including dried beans), milk and alternatives, less - fat / oil, salt and sugar and consume sufficient amount of liquid (including water, tea, clear soup, etc.) daily. Thus, the food pyramid is a practical and flexible tool that has appeared in the population's aid, indicating the foods suitable for maintaining the state of health.

The practical implementation of the principles underlying the composition of the food pyramid has the ability to improve the quality of life and reduce the risk of chronic diseases such as coronary heart disease, stroke, diabetes and some forms of cancer.

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