

Nutrition Concepts

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The human body is formed by numerous chemical compounds, composed of diverse compositions of 4 basic elements: carbon, hydrogen, oxygen, and nitrogen. These elements are grouped together, forming 3 principle chemicals of the organism: carbohydrates or sugars, lipids or fats and proteins. We also find other mineral elements, vitamins, oligoelements and water. We must not forget that water composes the major element of our organism (approximately 65% of the total body weight) so its intake is indispensable.

Classification of the nutrients

The different nutrients contained in food are:

Carbohydrates or sugars, lipids or fats, proteins, vitamins, minerals and water. The first two basically bring energy. The basic function of proteins is to provide material to repair damaged tissues, but in the cases of insufficient ingestion of sugars and/or fats, they are used for combustible energy. Vitamins and minerals are considered regulating substances, even though some minerals such as calcium, phosphorus and magnesium also have a building function as these form part of the structure of bones. Finally, water, although it does not bring energy, also acts in the formation of tissues and it is the medium in which all the organism's chemical reactions take place, as such its consumption is fundamental. According to the quantity which should be consumed, nutrients are classified in macronutrients which must be consumed in higher quantities (carbohydrates, lipids and proteins) and micronutrients which are consumed in lower

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quantities (vitamins and minerals). Of all the nutrients that the organism needs, some must be consumed, as the organism cannot be created (essential nutrients), while others can be made by the organism using other precursors (non-essential nutrients).

Macronutrients

- 1) Carbohydrates are composed of Carbon, Hydrogen and Oxygen. They are the most important energy source of our diet. They should represent between 55-60% of the total of the daily caloric intake. 1 gram of carbohydrates contains 4 kcal.
- 2) Lipids or fats are organic compounds with a certain heterogenicity, basically formed by Carbon, Hydrogen and Oxygen and have as a common characteristic insolubility in water and soluble in alcohol. They should represent between 30-35% of the total of the daily caloric total caloric intake. 1 gram of fats or lipids contains 9 kcal.
- 3) Proteins: These are composed of multiple combinations of 20 different amino acids. In its composition we find Carbon, Hydrogen, Oxygen and Nitrogen, the last being the differential element and which are not found in either carbohydrates or in fats. These should represent between 12-15% of the total daily energy intake. 1 gram of proteins contains 4 kcal.

Amino acids are classified as essential and non-essential. Only 9 amino acids are considered essential because the human body cannot synthesize or create these and must be provided by the diet.

Essential amino acids: Isoleucine, leucine, lysine, phenylalanine, methionine, threonine, tryptophan, arginine and valine.

Non-essential amino acids: Alanine, asparagine, aspartic acid, cystine, glutamine, glutamic acid, glycine, histidine, proline, serine and tyrosine.

Micronutrients

Vitamins and minerals do not contain energy, these are needed in smaller quantities and are essential nutrients because the organism cannot create them. Vitamins are classified according to their solubility in water or in fat, as water-soluble and fat-soluble vitamins. This classification is useful in order to determine the form of absorption, transportation, excretion and storage in the organism. Water-soluble vitamins: B group (B₁, B₂, B₃, B₅, B₆, B₈, B₉, B₁₂) and vitamin C. Fat-soluble vitamins: Vitamins A, D, E, K.