

Micronutrients and macronutrients are characterised in a number of ways in the literature, since they provide energy.

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Introduction

A nutrient is a material used by an organism to survive, develop, and reproduce. Dietary nutrients are essential for all animals, plants, fungi, and protists. Nutrients may either be absorbed into cells for metabolic reasons or expelled by cells to form non-cellular structures like hair, scales, feathers, or exoskeletons. Some nutrients, such as carbohydrates, lipids, proteins, and fermentation products (ethanol or vinegar), can be metabolically reduced to smaller molecules in the process of generating energy, resulting in water and carbon dioxide as end-products. Water is essential for all living things. Energy sources, certain amino acids that are combined to produce proteins, a subset of fatty acids, vitamins, and some minerals are all essential nutrients for mammals. Plants require a wider range of nutrients to be taken through their roots [1].

Essential nutrients differ depending on the kind of organism. Humans and certain other animal species require adequate quantities of ascorbic acid (Vitamin C), although some animals and plants can generate it. Nutrients can be organic or inorganic; organic components include most carbon-based substances, while inorganic chemicals include all other chemicals. Iron, selenium, and zinc are examples of inorganic nutrients, whereas energy-producing chemicals and vitamins are examples of organic nutrients.

Nutrients are divided into macronutrients and micronutrients in a categorization system that is largely used to define animal nutritional requirements. Macronutrients (carbohydrates, lipids, proteins, and water) are consumed in relatively large amounts (grams or ounces) and are largely employed to create energy or to integrate into tissues for development and repair. Micronutrients are required in tiny quantities (milligrams or micrograms) and play a variety of biochemical and physiological roles in cellular processes such as vascular function and nerve transmission. A deficiency condition is caused by insufficient levels of necessary nutrients or disorders that interfere with absorption, posing a threat to development, survival, and reproduction. Consumer dietary nutrient intake recommendations, such as the US Dietary Reference Consumption, are based on deficient outcomes and give macronutrient and micronutrient guidelines for

both lower and upper intake limits. In Regulations in several countries demand the presentation of macronutrients and micronutrients with considerable amounts on food product labels. Nutrients in excess of what the body requires might have negative consequences. Edible plants also contain hundreds of substances known as phytochemicals that have unclear impacts on illness or health, including polyphenols, a varied class of compounds with non-nutrient status that is still little understood in 2017 [2].

Macronutrients

Macronutrients are defined in several ways

The chemical elements carbon, hydrogen, nitrogen, oxygen, phosphorus, and sulphur, abbreviated as CHNOPS, are consumed in the greatest quantities by humans. Carbohydrates, proteins, and fats are the chemical substances that people ingest in significant amounts and give bulk energy. Water must also be drunk in big quantities, although it has little nutritional benefit [3].

Micronutrients, such as vitamins and other minerals, are often referred to as trace or ultratrace minerals. Calcium, sodium, potassium, magnesium, and chloride ions, as well as phosphorus and sulphur, are listed with macronutrients because they are required in large quantities compared to micronutrients, such as vitamins and other minerals [4].

Macronutrients provide energy

Carbohydrates are sugar-based molecules that can be found in a range of shapes and sizes. The different forms of carbohydrates are monosaccharides (such as glucose and fructose), disaccharides (such as sucrose and lactose), oligosaccharides, and polysaccharides (such as starch, glycogen, and cellulose).

Proteins are chemical compounds that are made up of amino acids connected by peptide bonds. Because some amino acids (known as essential amino acids) are not produced by the body, they must be taken from diet. During digestion, proteases break down proteins into free amino acids [5].

References

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