

Food science nutrition

[Nutrition](#)



**ASSIGN
BUSTER**

Nutrition The main function of food is to provide us the energy we need. The energy comes in the form of calories (kilocalories) Nutrition Calories come from four sources — carbohydrates, lipids (fats), proteins, and ethanol. The body does not differentiate calories based on their source. A calorie is a calorie is a calorie. In order to maintain proper nutrition it is important that our calories come from a balance of foods and not a single source. Points to Remember about Nutrition

- ◆ The information in the nutrition or product label is regulated by the FDA under the Nutrition Labeling and Education Act
- ◆ The conditions that affect nutritional value also affect sensory quality
- ◆ The higher the temperature and shorter the duration of heat process, the less vitamins are lost in the process
- ◆ Food processing and preservation can increase shelf life of food often at the expense of nutrition
- ◆ Consumers are eating more processed foods and less whole foods
- ◆ Nutrition requirements are similar between people
- ◆ Good nutrition involves adequate consumption of required nutrients in the context of moderate energy (calorie) intake
- ◆ Nutrients in Foods

In some areas of the world the most significant nutritional problem is consuming too few calories. In the United States and Western Europe the most significant nutritional problem is consuming too many calories.

Proteins ◆ Composed of Amino Acids Our bodies are constantly turning over proteins, breaking down old ones and building new ones Our bodies can synthesize (make) some but not all amino acids The amino acids that our bodies don't synthesize are called essential amino acids — These must come from dietary sources Proteins are broken down in the small intestine and the amino acids are absorbed into the bloodstream Proteins are essential components of muscle tissue

Lipids (Fats) ◆ In the diet lipids are referred to as fats

<https://assignbuster.com/food-science-nutrition/>

Fats and Oils are Lipids Fats provide 2x the energy (calories) per gram as carbohydrates and proteins Contribute to over-consumption of calories especially in sedentary individuals To cut calories in foods fats are often replaced with synthetic compounds that mimic fats The body requires lipids (fats) to make up parts of cells When we consume too much fat the body stores it for later Lipid soluble vitamins require fats for our body to be able to use them. Consuming too little fats will cause vitamin deficiency Plant sterols may help lower LDL (bad cholesterol) Fats contribute to the flavor and enjoyment of food

Carbohydrates Should be the primary source of calories Carbohydrates include sugars, starches, and nondigestible cell wall materials Because they are digested quickly they do not provide the long term feeling of fullness Starches are broken down into simple sugars like glucose Glucose is circulated in the bloodstream and is essential to proper brain function Excess glucose in the bloodstream is converted to glycogen and stored in muscles. Additional glucose that cannot be stored is converted to fat

Carbohydrates Nondigestible cell wall materials are known as dietary fiber. Dietary fiber is not absorbed into the body yet plays a key role Dietary fiber keeps material moving through the bowels Dietary fiber aids in removing toxins from the body Dietary fiber aids in preventing diseases such as colon cancer

Vitamins and Minerals

Vitamins are cofactors to enzymes. Without these cofactors enzymes cannot catalyze reactions and our metabolism is affected Minerals are also cofactors to enzymes and play an important role in metabolism such as calcium in the bones Electrolytes are ionic forms of minerals

Alcohol The fourth source of calories Some guidelines suggest

<https://assignbuster.com/food-science-nutrition/>

one alcoholic beverage per day (a glass of wine or 12 oz beer) Originally thought that antioxidants in wine provided the only health benefit. Recent research suggests that ethanol may itself have health benefits Ethanol is a weak toxin and should not be consumed in large quantities Ethanol is "empty" calories with no additional nutrients

Nutrient Composition of Foods

Grains

Most prominent source of carbohydrates Contains mostly starches and fibers Milling removes much of the fiber which is why whole grains and wheat are recommended

Vegetative plant tissues that do not contain the reproductive parts of the plant Contain water soluble vitamins and fiber High moisture content making you full faster

Vegetables

Nutrient Composition of Foods

Fruits

Defined as a ripened ovary Contribute vitamins, minerals, and fiber Tend to have less starch and more sugars than vegetables Includes milk, cheese, and yogurt High in calcium, protein, potassium, and Vitamin D Low fat formulations are recommended

Milk

Nutrient Composition of Foods

Meat and Beans

Dry beans, eggs, fish, poultry, nuts, and red meats Primary nutrient is protein Many are rich in B vitamins, iron, magnesium, vitamin E, and zinc Iron in this group may not be as bioavailable as other sources

Nutrient Composition of Foods

Oils

Oil seeds such as peanuts, soybeans, and sunflowers are high in lipids Sources of essential fatty acids Essential for lipid (fat) soluble vitamins Many vitamins and minerals are lost during processing Some products may be fortified with vitamins and minerals to compensate for lost nutrients Natural vitamins in foods are generally no better than added vitamins Any preparation that requires

heating can lose vitamin and mineral content. Processed, formulated, chilled, and prepared foods