

Six Major Nutrients

To function, the human body must have nutrients. The nutrients known to be essential for human beings are proteins, carbohydrates, fats and oils, minerals, vitamins and water.

Proteins

Proteins are made of amino acids, small units necessary for growth and tissue repair. Protein is the body's most plentiful substance except for water and, possibly, fat. Animal foods such as meat, fish, poultry, milk and eggs are rich in protein. Good plant sources of protein are beans, peas, nuts, bread and cereals. Combining plant sources, such as peanut butter with whole-grain bread or rice with beans, provides excellent protein. So does combining plant and animal sources such as cereal and milk or macaroni and cheese.

Carbohydrates

Starches and sugars are carbohydrates, the main source of the body's energy. Carbohydrates account for about half of the calorie intake for most Americans and up to four fifths of the calories in diets of African and Asian peoples. Carbohydrate-rich foods are also the main sources of protein for most of the world. Rice, wheat, corn and potatoes are common rich sources of carbohydrates.

Sugars are not essential foods. They provide energy (calories) but no nutrients. For that reason sugar is called an "empty calorie" food. Occasional sweets are not harmful to a healthy, active person, but excessive sugar can lead to tooth decay when eaten between meals, especially in sticky snack foods that cling to the teeth.

Fats and Oils

Fats and oils (liquid fats) are a concentrated source of energy. Fats in the diet are necessary for good health. They make certain vitamins available for use in the body, they cushion vital organs, they make up part of all body cells and they help to maintain body temperature. Fats also delay pangs of hunger because a food mixture containing fat remains longer in the stomach.

Nutritionists distinguish between different types of dietary fats, or fats in food. Saturated fats usually are solid in form and of animal origin. In many typical diets, meat fat is the main source. It is known that saturated fats can raise the level of cholesterol in the blood. Cholesterol is a natural waxy substance made by the body. It helps to form digestive juices and does other important work. It is present in the body no matter what is eaten. When the body cells cannot absorb any more cholesterol, any excess begins to accumulate in the walls of the blood vessels and gradually narrows them. This condition may lead to a heart attack or stroke.

Minerals

Minerals are neither animal nor vegetable; they are inorganic. Almost all foods contribute to a varied intake of essential minerals. Most minerals are easy to obtain in quantities required by the body. A major exception is iron for children under age four, adolescent girls and women in the



childbearing years. These groups need more iron than a normal diet may provide. Iron helps to build red blood cells. It also helps the blood carry oxygen from the lungs to each body cell. Rich sources of iron are meat, especially liver, egg yolks and dark green vegetables.

Everyone at every age needs calcium. This mineral builds bones and teeth, and it is necessary for blood clotting. The best sources are milk and hard cheese. Others are leafy greens, nuts and small fishes--such as sardines--with bones that can be eaten.

Phosphorus works with calcium to make strong bones and teeth. A diet that furnishes enough protein and calcium also provides enough phosphorus. Other important minerals are sodium, potassium, iodine, magnesium, zinc and copper.

Vitamins

All living things need vitamins for growth and health. The body either cannot manufacture them at all or cannot normally manufacture them in sufficient amounts, and so must absorb them from food. Each vitamin has specific roles to play. Many reactions in the body require several vitamins, and the lack or excess of any one can interfere with the function of another.

Fat-soluble vitamins

Four vitamins--A, D, E and K--are known as the fat-soluble vitamins. They are digested and absorbed with the help of fats that are in the diet.

- **Vitamin A is needed for strong bones, good vision and healthy skin. It is found both in dark green and yellow fruits and vegetables.**
- **Vitamin D is essential for children because it helps calcium and phosphorus to form straight, strong bones and teeth. With direct sunlight on the skin, the body can manufacture its own vitamin D. Infants and young children often need a vitamin D supplement. Vitamin D is added routinely to most milk during processing.**
- **Vitamin E helps to protect Vitamin A and red blood cells. It is found in a wide variety of foods, and almost everyone gets enough.**
- **Vitamin K is one vitamin that is made within the human body--by bacteria that live in the intestinal tract. Small amounts are found as well in the green leaves of spinach, kale, cabbage and cauliflower and also in pork liver.**

Fat-soluble vitamins can be stored in the body for long periods. They are stored mostly in the fatty tissue and in the liver.

Water-soluble vitamins

- **The vitamin B group of several vitamins helps to maintain healthy skin and a well-functioning nervous system. B vitamins also help to convert carbohydrates into energy.**
- **Vitamin C, or ascorbic acid, is needed for building the connective tissue that holds body cells together. Vitamin C is essential for healthy teeth, gums and blood vessels. It also helps the body to absorb iron. These water-soluble vitamins are not stored in the body for long. Good sources should be eaten every day.**



Water

In order to live, every cell in the body must be bathed in water. Water takes an active part in many chemical reactions and is needed to carry other nutrients, to regulate body temperature, and to help eliminate wastes. Water makes up about 60 percent of an adult's body weight. Requirements for water are met in many ways. Most fruits are more than 90 percent water.

<http://www.linksnorth.com/nutrition/nutrients.html>

Simple Classification of Dietary Components

Components	Use
Water	To provide body fluid and to help regulate body temperature
Carbohydrates	As fuel for energy for body heat and work
Fats	As fuel for energy and essential fatty acids
Proteins	For growth and repair
Minerals	For developing body tissues and for metabolic processes and protection
Vitamins	For metabolic processes and protection
Indigestible and unabsorbable particles, including fiber	To form a vehicle for other nutrients, add bulk to the diet, provide a habitat for bacterial flora and assist proper elimination of refuse
http://www.africanutrition.net/info.cfm	

