



Basic Textbook Nutrition

Nutrients

1. Protein

Main function

To build, repair, and maintain muscle tissue.

Other functions

Involved in the structure of skin, bones, and tendons. Involved in many bodily functions (all enzymes are proteins) and a component of all organs.

It is composed of various amino acids. Essential amino acids have to be obtained from food. Non-essential amino acids can be produced in the body.

2. Carbohydrates

Main function

Body's primary and most easily available source of energy.

Other functions

Metabolism of fats and proteins. Mental functioning.

Glycemic index (GI)

Carbs are categorized based on a scale of 1-100 (1 burning very slowly and 100 burning very fast) for how fast the calories "burn" within the body. In general, lower glycemic index foods are preferred thus making your body work harder to digest and giving you energy for a longer period of time.

Simple carbs burn the fastest.

Complex carbs (starches) burn at a slower rate and help maintain insulin and energy levels.

Fiber functions to maintain colon and gastrointestinal tract health by increasing mobility through the digestive system.

Eat breakfast! – When you wake up in the morning, your body is depleted of carbs since you have been asleep for about 6-8 hours.

3. Fats

Main function

Most concentrated form of energy in the diet. Provide the major source of stored energy (body fat)

Other functions

Used for insulation, protection of tissues, and sex hormone formation.

Types of fatty acids

Saturated – animal fat; significant contributor to unhealthy cholesterol.

Monounsaturated – oleic acid (extra virgin olive oil); best source of natural fat.

Polyunsaturated – vegetable oils.

Trans fatty acids – fats processed under high heat; greatest detriment to health.

4. Water

Major component of the body (made up of 40-60% water).
Constitutes 72% of muscles.

Functions

Means of transportation for the various chemicals in the body.

Medium in which the various biochemical reactions among the basic nutrients take place.

Without sufficient intake of water, you become dehydrated. Your body begins to retain water to protect itself, and much of this water is stored subcutaneously.

5. Vitamins

- Organic substances necessary for health. Assist enzymes in their functions.
- Water soluble vitamins A, B1, B2, B3, B5, B6, B12, C, Biotin, and Folate are not stored in the body and excess amounts are flushed out.
- Fat soluble vitamins A, D, E, and K cannot be utilized within the body if fat is not present and are dissolved and stored in the fatty tissues of the body.

6. Minerals

- Inorganic substances that are constituents of bone, teeth, tissues and nerve cells.
- Important minerals the body needs in substantial amounts: calcium, phosphorus, magnesium, sodium, chlorine, potassium, sulfur.



- Minerals needed in trace amounts: iron, zinc, copper, iodine, manganese, fluoride, cobalt, selenium, chromium.

Calories

- Calorie – measurement of the amount of energy contained in any given amount of food.
 - o 1 gram of protein = 4 calories
 - o 1 gram of carbohydrates = 4 calories
 - o 1 gram of fat = 9 calories
- 3,500 calories burned = 1 lb of fat loss