



# Basic Human Nutrition

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**Course name : Introduction to Human Nutrition**

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# Learning Objectives

- **Understand the importance of good nutrition.**
- **Identify food sources of nutrients.**
- **Describe the roles of nutrients in the body..**

# Good Nutrition

- Consuming food and nutrients and using them to function healthily
- Both cause and result of good or poor health
- Not the same as “food” and “nutrients”
- Food = products eaten or taken into the body that contain nutrients for
  - Development, growth, and maintenance of tissues and cells
  - Resisting and fighting infection
  - Producing energy, warmth, and movement
  - Carrying out the body’s chemical functions

# Definition



**Basic nutrition** refers to the essential nutrients required by the body to maintain health, support growth, and ensure proper functioning. It includes the study of how food and its components such as carbohydrates, proteins, fats, vitamins, minerals, and water affect the body.

## Simple classification of dietary components

<b>Component</b>	<b>Use</b>
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

# Chemical composition of a human body weighing 65 kg

<b>Component</b>	<b>Percentage of body weight</b>
Water	61.6
Protein	17
Fats	13.8
Minerals	6.1
Carbohydrate	1.5

# Water

- Main component of the body (60 percent of body mass)
- Needed for digestion, absorption, and other body functions
- Regularly lost through sweating, excretion, and breathing
- Approximately 1,000 ml (4–8 cups) needed each day



**The recommended daily water intake can vary based on factors such as age, gender, activity level, and climate. However, general guidelines suggest:**

**1.For men:** About **3.7 liters** of water per day, which includes all fluids consumed (not just water but also beverages like tea, coffee, and fluids from food).

**2.For women:** About **2.7 liters** of water per day, including all fluids.



## Factors that influence water needs:

- 1. Physical activity:** Increased exercise or activity levels require more water to stay hydrated.
- 2. Climate:** Hot or humid weather can increase water needs due to sweat and heat.
- 3. Health conditions:** Illnesses such as fever, vomiting, or diarrhea increase fluid loss, requiring more intake. Pregnancy and breastfeeding also increase fluid needs.
- 4. Diet:** Diets high in protein, salt, or sugar may increase water requirements.

# Macronutrients: Carbohydrates

- Energy-giving foods composed of sugars
- Common staple eaten regularly, accounting for up to 80% of the diet in developing countries
- Quickly absorbed by the body

## Sources

- Cereals (e.g., millet, sorghum, maize, rice)
- Root crops (e.g., cassava, potatoes)
- Starchy fruits (e.g., bananas)

# Macronutrients: Carbohydrates

The recommended daily intake of carbohydrates can vary depending on factors such as age, gender, activity level, and overall health. However, general guidelines for the average person suggest: For adults: Carbohydrates should make up about 45% to 65% of your total daily calories.

# Factors That Influence Carb Needs:

- **Physical Activity:** Athletes or highly active individuals may need more carbohydrates to fuel their activity and recover afterward.
- **Age:** Children and adolescents typically need more carbohydrates for growth and energy.
- **Health Conditions:** People with certain health conditions, such as diabetes, may need to regulate their carbohydrate intake more carefully under the guidance of a healthcare provider.

# Macronutrients: Proteins

- Body-building foods
- Form main structural components of cells
- Help produce and maintain tissues and muscles
- Sources
  - Plants (e.g., beans, nuts, chickpeas)
  - Animals (meat, poultry, fish, dairy products, insects)



# Why Protein is Important:

- 1. Muscle building and repair:** Essential for maintaining and repairing body tissues, especially after physical activity.
- 2. Immune function:** Protein helps produce antibodies that protect the body from infections.
- 3. Hormone production:** Many hormones are proteins that regulate various body functions.

# Macronutrients: Fats and Oils (Lipids)

- Energy-giving foods
- Not produced by the body
- Absorbed more slowly than carbohydrates
- Account for small part of diet in developing countries
- Fats (solids): Butter, ghee, lard, margarine
- Oils (liquids): Corn oil, soybean oil, peanut oil



# Why Fat is Important:

- 1. Energy:** Fat is a concentrated source of energy, providing 9 calories per gram, compared to 4 calories per gram from carbohydrates and protein.
- 2. Absorption of vitamins:** Fat helps the body absorb fat-soluble vitamins (A, D, E, and K).
- 3. Hormone production and cell structure:** Fat is essential for the production of hormones and the structure of cell membranes.



# Micronutrients: Minerals

- Inorganic compounds not synthesized by the body
- Needed in very small quantities but possibly essential
- Important for biochemical processes and formation of cells and tissues

## Sources

- Plants
- Animal products



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# Micronutrients: Vitamins

- Organic compounds mostly from outside the body
- Do not provide energy
- Fat soluble: Dissolve in lipids, can be stored, not needed daily (e.g., vitamins A, D, E, K)
- Water soluble: Dissolve in water, absorbed into bloodstream immediately, needed daily
- Sources
  - Fruits
  - Dark leafy vegetables
  - Animal foods

