

Q:

Classification and types of:

Protein

Fats

Carbohydrates

Their definition and characteristics and ea

Balance diet

A diet which contains all essential nutrients and minerals in appropriate amounts which is essential for proper physical and mental growth of a human body is called **balance diet**

The average caloric of a human body in a day is **2400-3000**.

Malnutrition:

The lack of proper diet and failure or flow of proper balance diet is called malnutrition

A balanced diet contains many components but there are the most important components of a balanced diet which we use in our daily food. Our daily food must be the mixture of complex

chemical substance

Main Components;

Protein

Fats

Carbohydrates

Minerals

Dietary fibers

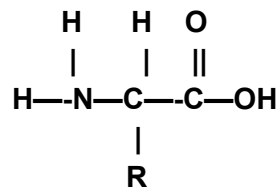
Vitamins

Water

Protein:

- Protein is derived from the Greek word proteos which means **Primary** .
- Protein is essential for a body after water, it is necessary for a body
- **20%** of our body are made up of proteins
- Protein are made up of carbon hydrogen oxygen and nitrogen
- Nitrogen is the most essential element in protein. Protein is made up of amino molecule

Chemical Formula of Amino Acid:



- Protein is essential for children who are at the stage of growth.
- Protein can be animal protein or plant proteins . Animal rich food includes eggs, fish, meat, milk, cheese and pulses.
- Plant protein rich food contains pulses of beans.

Function of protein:

- Building the body structure such as muscles
- Help in blood clotting and wound healing

- Hemoglobin is a protein which transports oxygen and helps in maintaining the oxygen level.
- Protein help in the formation of hair nails etc
- Protein also help our body in synthesis of antibodies
- **Antibodies** provide resistance against germs and help to increase the immunity of our body

Disease:

- Protein deficiency in diet cause the protein energy malnutrition disease in body which cause very serious disease in children such as Kwashiorkor and marasmus
- In the Thar desert of Sindh many children die every year due to the protein energy malnutrition diseases.
- The excess amount of protein in diet also increase many heart disease and also increase the rate of heart attack

So;

Excess of everything is Bad

Fats/ Lipids :

Lipids are biomolecules that are essential in making the structure of living cells. These are some collectively refers to as Fats / Triglycerides

- It includes fats,oil, waxes, and certain vitamins which are fats soluble and some hormones.
- It is included in our diet because both animals and plants use fats to store energy in their body.

There are two types of lipids on the bases of their structure

- Fats
- Oils

Fats: they are solid at room temperature such as banaspati ghee and

Oil; they are liquid at room temperature such as cooking oil, sunflower oil etc.

Classification of the Fats:

Unsaturated fats:

They are solid at room temperature and are natural fats from animal sources.

For example:

Butter , cream, cheese

Saturated Fats;

They are liquid at room temperature and found in plants and vegetable such as olive oil and seeds oils

Function of lipids:

- It help to use fat soluble vitamins vitamin A,D,E and K
- Protect our body organ from shock
- Maintain the body temperature
- Build up body structure like membrane

Disease:

The use of Fats increases the arteriosclerosis and increases the blood pressure.

Carbohydrates:

Carbohydrates are a large group of organic compounds occurring in foods and living tissue including sugars, starch, and cellulose. They contain hydrogen and oxygen in the same ratio as water H₂O (2:1). An excellent source of carbohydrates containing roughly 60% of a person's diet or 310 grams. It is the biggest source of energy in our diet. We get it from rice, pasta, and wheat.

Types of carbohydrates

Monosaccharides

They consist of most basic unit of carbohydrates

1. Glucose (immediate for cellular respiration)
2. Fructose: found in milk
3. Galactose found in honey

Disaccharides

they form from 2 monosaccharides it contains

- Maltose; glucose + Glucose
- Lactose: milk and sugar Glucose and galactose
- Sucrose table sugar Glucose and fructose

Polysaccharides:

They are formed of many linked monosaccharides for example starch which stores glucose in plants

- Glycogen stores glucose in animals
- Oligosaccharides:
- The prefix oligo means few most of them are composed of three to 10 monosaccharides units they are not digestible in human gut

Function:

They provide energy for body function

They are helpful in maintaining digestive health

They are the part of different structures in animals' bodies such as tendons

Nutrients	Source	Caloric Require a day	Related disorder	Energy Release
Protein	Meat, fish, eggs, white, pulses, liver	50-60 at least 10% total intake	Kwashiorkor, marasmus	4Kcal/gm
Carbohydrate	Oats, barley, potatoes, sugars, fruits	300 grams	Diabetes, lactose intolerance	4Kcal/gm
Lipids	Butter,	90-130	Excess ;ead	9.1 kcal/gm

	ghee, cheese, milk,vegeta ble oil fish oil		tp hart attack liver disorders, high blood pressure, poor immunity	
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