Fat
FAT
Fats

• Fat is one of the three main macronutrients

• Fats are also known as triglyceride, are esters of three fatty acid chains and the alcohol glycerol.

• 1 gram of fat provides 9 kilo calories of energy
• The terms "oil", "fat", and "lipid" are often confused.

• "Oil" normally refers to a fat with short or unsaturated fatty acid chains that is liquid at room temperature.

• While "fat" may specifically refer to fats that are solids at room temperature.
• "Lipid" is the general term, as a lipid is not necessarily a triglyceride.

• Fats, like other lipids, are generally hydrophobic and are soluble in organic solvents and insoluble in water.
Types of fats

- Saturated fats
  I. Trans fatty acids

- Unsaturated fats
  I. monounsaturated fats
  II. polyunsaturated fats
Saturated fats

- Foods high in saturated fats raise blood cholesterol.

- These foods include high fat dairy (cheese, whole milk, cream, butter and ice cream), fatty fresh and processed meats and the skin and fat of poultry, lard, palm oil and coconut oil.
Trans fatty acids

- Foods high in *trans* fatty acids tend to raise blood cholesterol.

- These foods include those high in partially hydrogenated vegetable oils, such as many hard margarines and shortenings.

- Foods with a high amount of these ingredients include some commercially fried foods and some bakery goods.
Unsaturated fats

- Unsaturated fats (oils) do not raise blood cholesterol. They occur in vegetable oils, most nuts, olives, avocados, and fatty fish like salmon.

- Unsaturated oils include both
  a) monounsaturated fats and
  b) polyunsaturated fats.
• Olive, canola, sunflower, and peanut oils are some of the oils high in monounsaturated fats.

• Vegetable oils such as soybean oil, corn oil, and cottonseed oil and many kinds of nuts are good sources of polyunsaturated fats.

• Use moderate amounts of foods high in unsaturated fats, taking care to avoid excess calories.
Functions of fats

The main function of fats in the body is to provide energy:

- By supplying energy, fats save proteins from being used for energy and allow them to perform their more important role of building and repairing tissues.

- Fats on oxidation provide almost twice as much energy as that given by carbohydrates.
In addition to supplying energy, fats also help in forming structural material of cells and tissues such as the cell membrane.

Fats carry the fats soluble vitamins A, D, E and K into the body and help in the absorption of these vitamins in the intestines.

Some fats supply essential fatty acids.

Satiety value fats also contribute to flavors and palatability to the diet.
Fats in the body

- Supply fuel to most tissues.

- Fuel reserve: excess kilocalories consumed are stored in the specialized cells called adipose cells.

- Organ protection: Examples of organs protected by fat are eyes and kidneys
• Lubrication:
  fats also lubricates body tissues

• Insulation:
  The subcutaneous layer of fat beneath the skin helps to insulate the body by protecting it from excessive heat or cold