

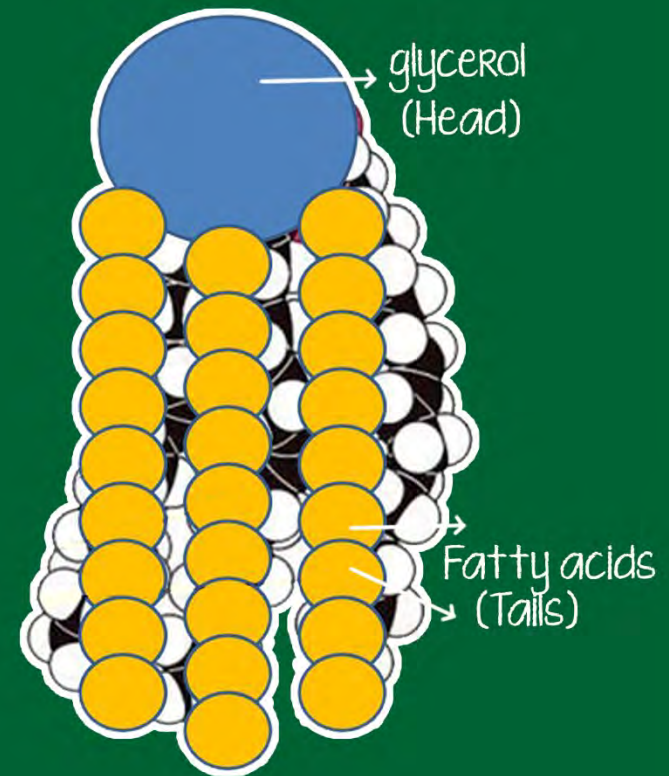
Fats



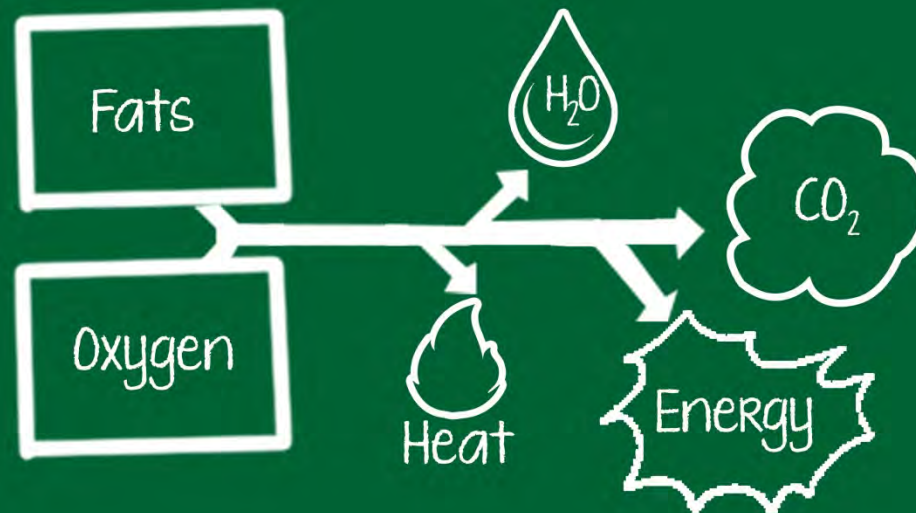
What are Lipids / Fats

- One of the macronutrient and is the concentrated source of energy.
- Body utilises the fat reserve for energy by converting fat into glucose.
- Nutrient fats are made up of Fatty acids and Glycerol.
- 10 - 15% of the energy requirement should be met through Fats

Lipids Structure



Fats Facts



Energy	Heat	Respiratory Quotient
9kCal / g	4%	0.7

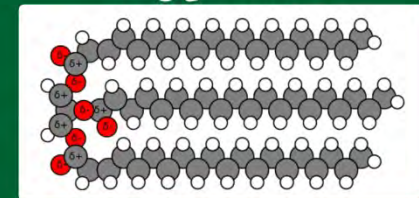
Classification of Lipids / Fats

Simple Lipids - Nutrient Fat : e.g., Fatty acids

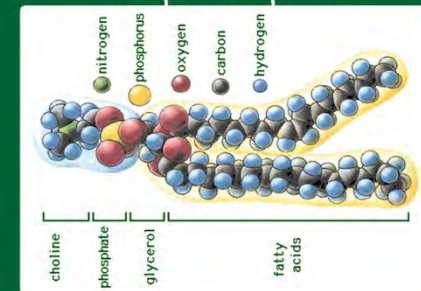
Compound Lipids : e.g., Phospho-lipids
- compound of phosphoric acid, fatty acid and nitrogen base.
Lipo-protein - compound of lipid + protein.

Miscellaneous lipids : Eg., Cholesterol, Bile salts, Vitamin A, E, K.

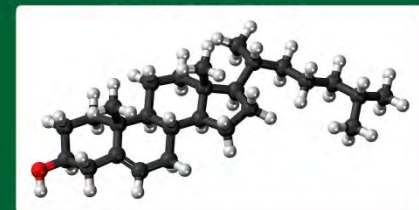
triglycerides



Phospho-Lipids



Cholesterol



Classification of Nutrient Fats

Nutrient Fats

Saturated Fat

- No Double bond between fatty acids.
- Typically solid at room temperature.



Unsaturated Fat

- one OR more Double bond between fatty acids.
- Typically Liquid at room temperature.



Hydrogenated Fat / transfat

- Synthetically produced unsaturated fats from vegetable fats.



Functions of Lipids / Fats

- Provides concentrated source of energy.
- Medium for absorption of fat soluble vitamins.
- Acts as insulator in SC tissue and around organs.
- Preserves body heat and maintains temperature.
- Precursors of hormones.
- Important part of cell membrane



Fatty Acids

Fatty Acids

Saturated Fatty Acids

- No Double bond between fatty acids.
- Typically solid at room temperature.
- e.g., Palmitic, Arachidic

Medium Unsaturated Fatty Acids (MUFA)

- only one Double bond between fatty acids.
- Typically semi solid at room temperature.
- e.g., Palmitic, Arachidic

Poly Unsaturated Fatty Acids (PUFA)

- two or more Double bonds between fatty acids.
- Typically Liquid at room temperature.
- e.g., Omega 3 & Omega 6, Linoleic, ALA, EPA, DHA.

Essential Fatty Acids

Linoleic Acid : Deficiency : Dermatitis & decreased growth.
Source : Sun Flower Oil.



Linolenic Acid : Deficiency : Numbness, Weakness.
Source : Soya bean oil, Linseed oil.



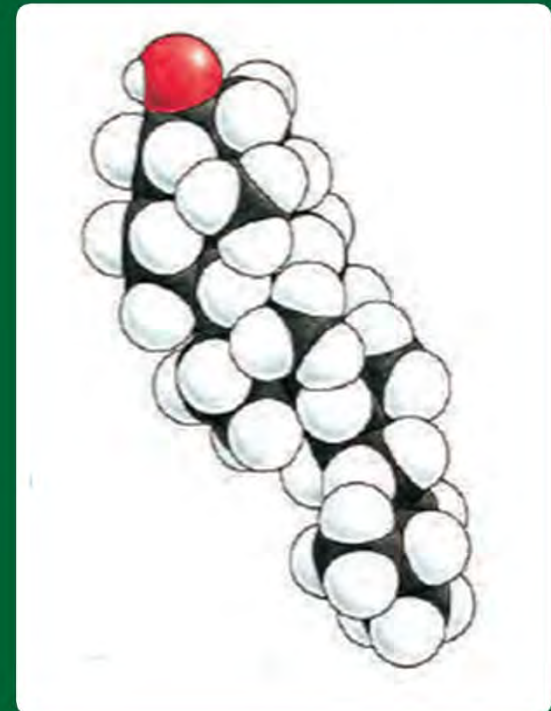
EPA & DHA : Deficiency : Vision & Brain problems.
(EicosaPentaenoic acid & Docosa Hexaenoic Acid)
Source : Fish oil, Algal oil.



Cholesterol

- Essential components of cell membrane.
- Synthesized and stored in the liver.
- Found only in foods of animal origin.
- Major component of brain.
- Important intermediate in synthesis of steroids, bile acids.

Cholesterol Structure



Summary

- Fats add taste to Food.
- There are good fats and bad fats.
- Concentrated form of energy.
- Fats are essential for body functions.
- Some fatty acids - like omega 3 - may provide other health benefits such as complimenting the cognitive processes of the brain.