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Lipid

lipid

Define Lipid

Identify the basic Structure of the lipid

list the Properties of lipid

Classify Types of Lipid

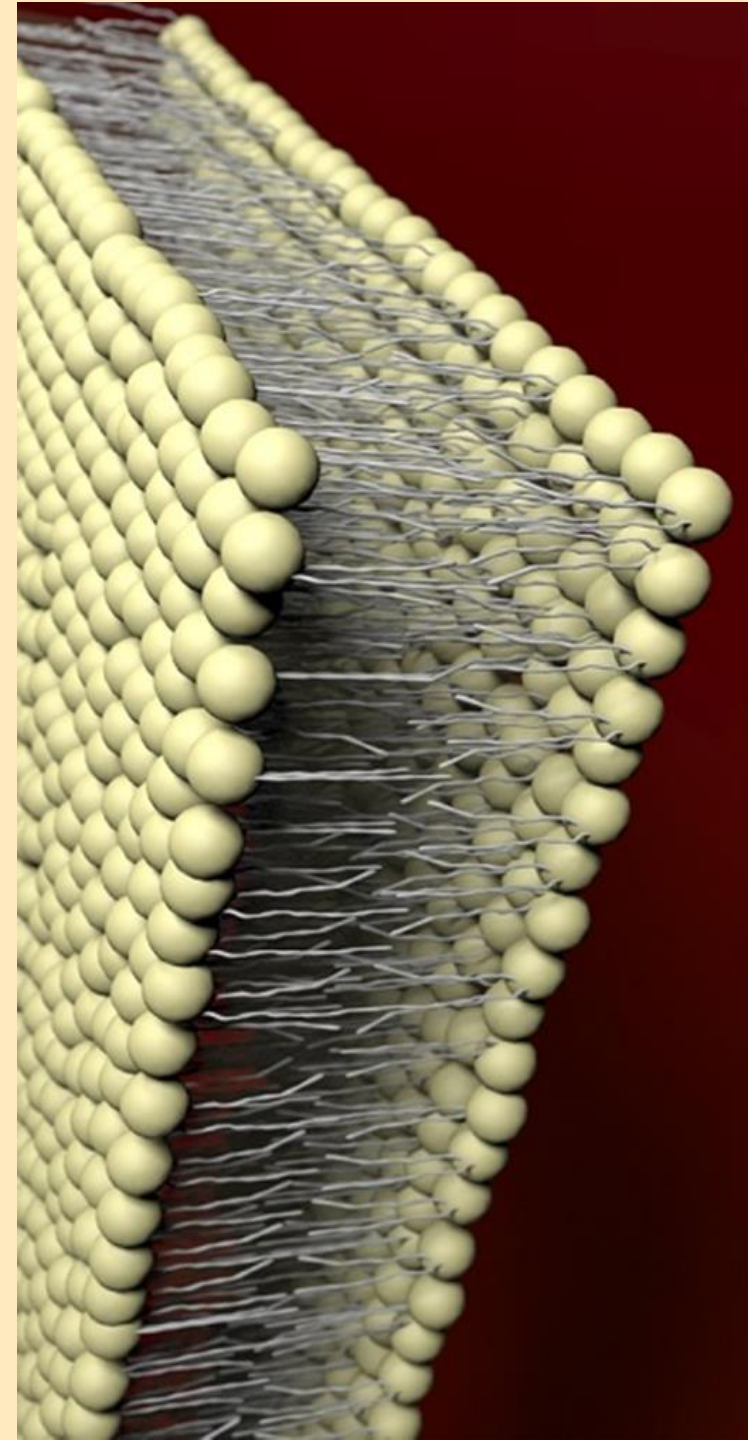
Identify the lipid Found in the body

List Functions of Lipids in the Body

Discusses the lipid disorder

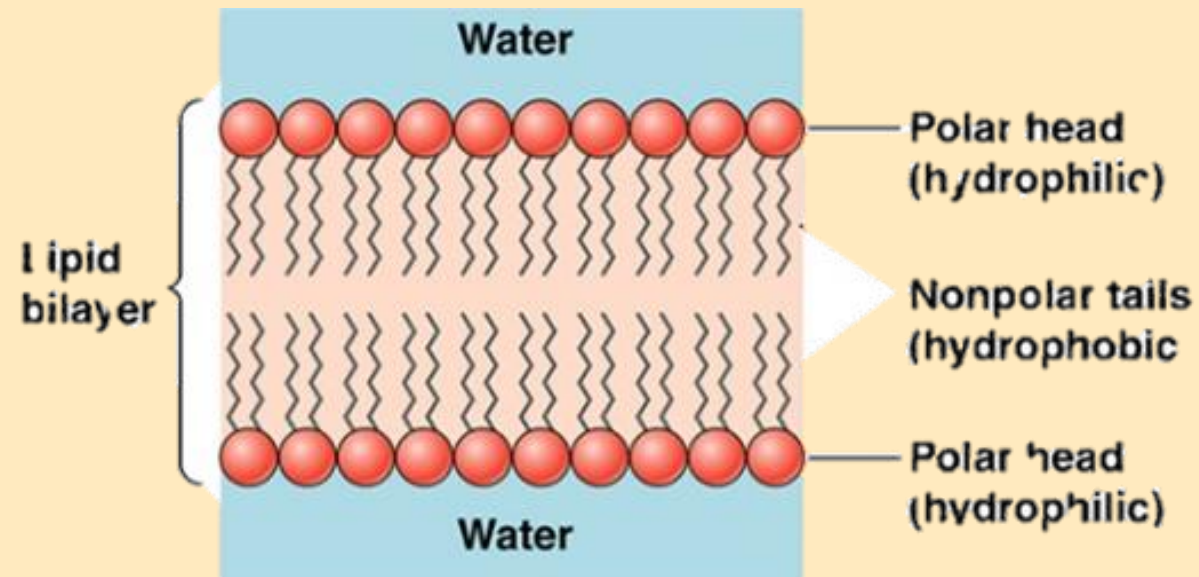
Define Lipid

The word lipid is derived from a Greek word lipos which mean fat, They are organic substances that have the ability to dissolve in organic compounds such as ether or benzene, and fats are not composed of one type of molecules, but rather of more than one type. sometimes including everything that is not dissolved in water.



Identify the basic Structure of the lipid

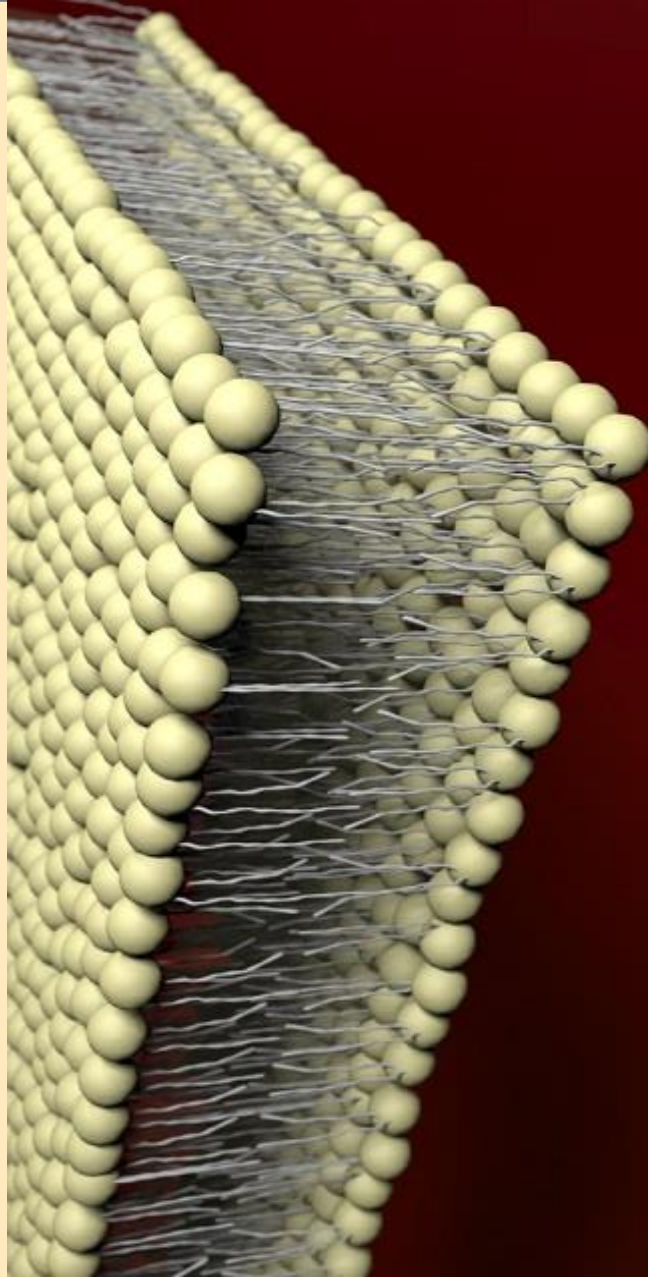
Lipids are the polymers of **fatty acids** that contain a long, **non-polar hydrocarbon** chain with a **small polar** region containing **oxygen**.



list the Properties of lipid

1| **Lipids** are oily or greasy nonpolar molecules, stored in the adipose tissue of the body.

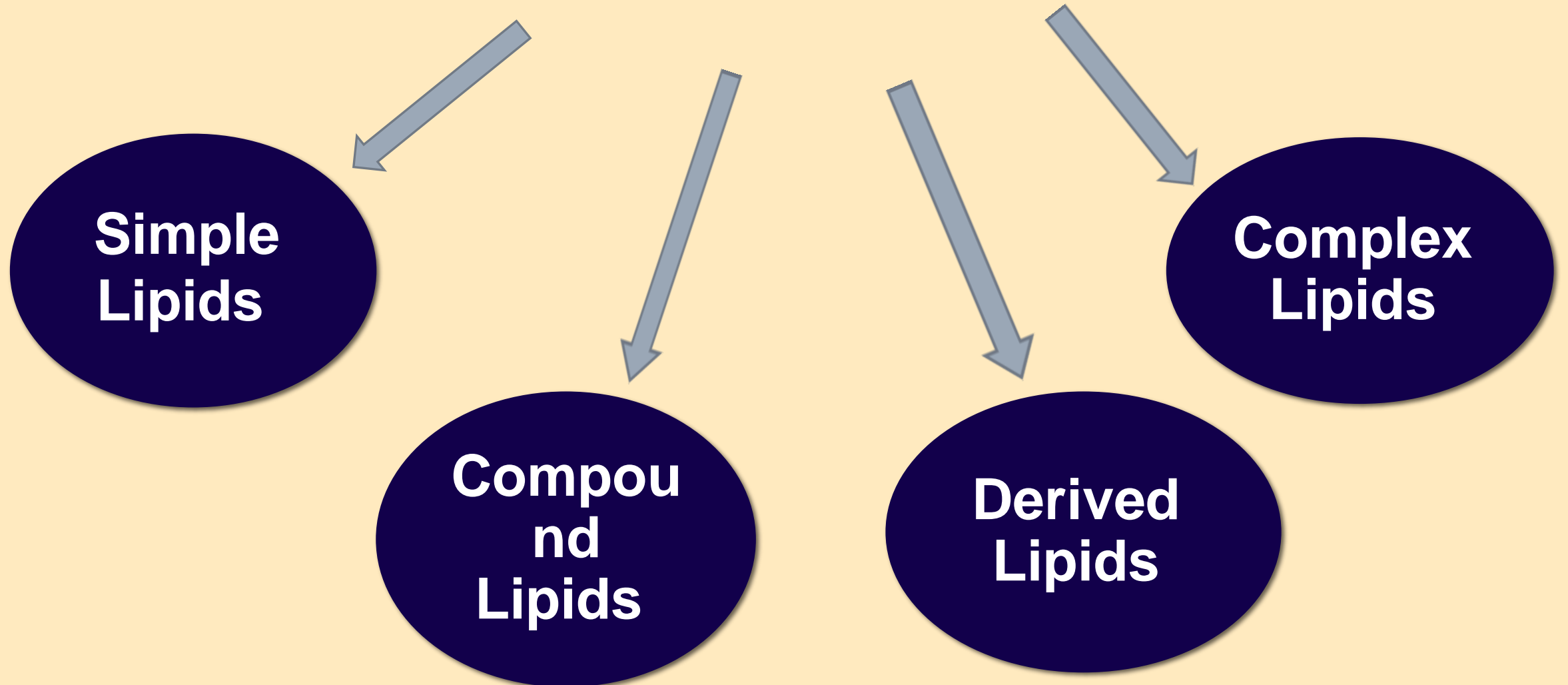
2| **Lipids** are a heterogeneous group of compounds, mainly composed of hydrocarbon chains.



3| **Lipids** are energy-rich organic molecules, which provide energy for different life processes.

4| **Lipids** are a class of compounds characterized by their solubility in nonpolar solvents and insolubility in water.

Classify Types of Lipid

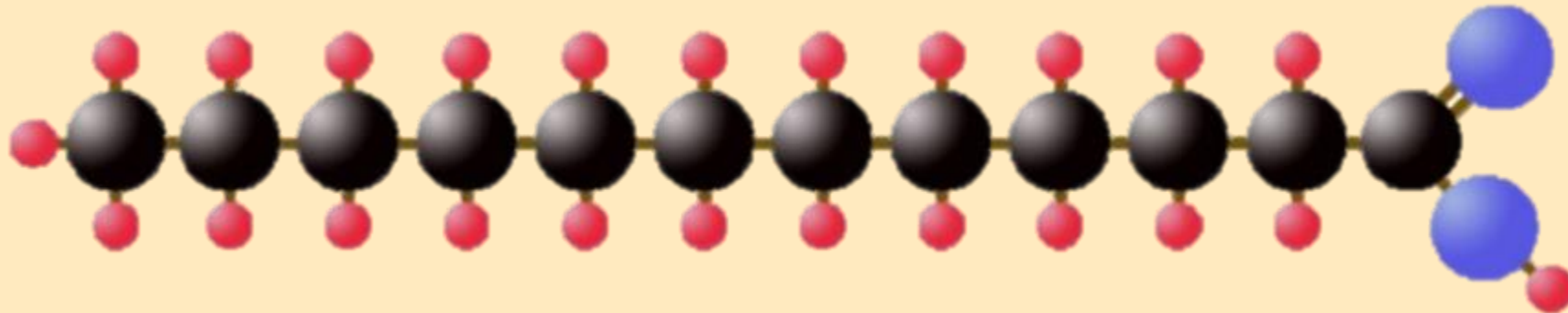


Simple Lipid

Esters of fatty acids with various alcohols.

Fats: Esters of fatty acids with glycerol. Oils are fats in the liquid state.

Waxes: Esters of fatty acids with higher molecular weight monohydric alcohols.



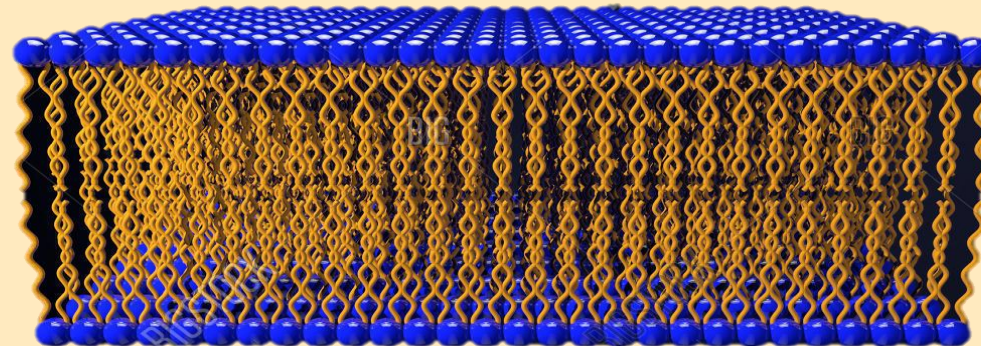
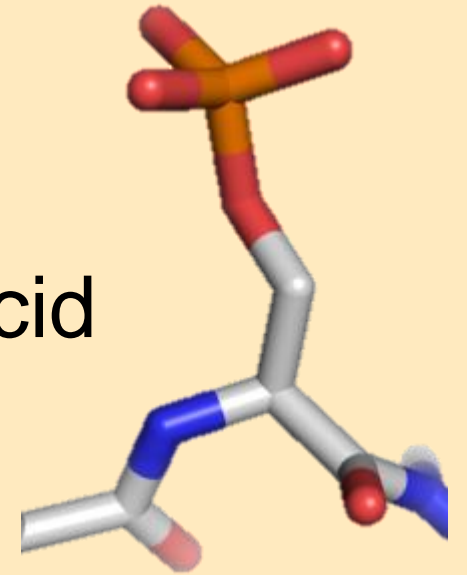
Compound Lipid

They are fatty acids esterified with alcohol , but in addition they contain other groups .

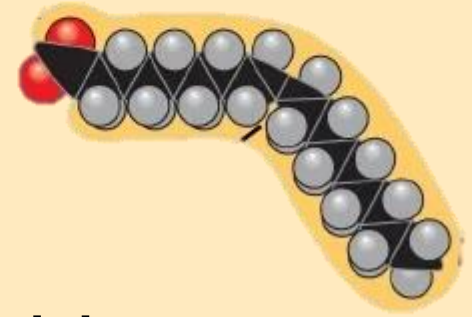
Depending on these extra groups

a . Phospholipids , containing phosphoric acid

b . Non - phosphorylated lipids .



Derived Lipid



They are compounds which are derived from lipids or precursors of lipids , e.g. fatty acids , steroids . For details of cholesterol and steroids .

Fatty Acids | are carboxylic acids (or organic acid) , usually with long aliphatic tails (long chains) , either unsaturated or saturated .

Saturated | Lack of carbon - carbon double bonds indicate that the fatty acid is saturated .

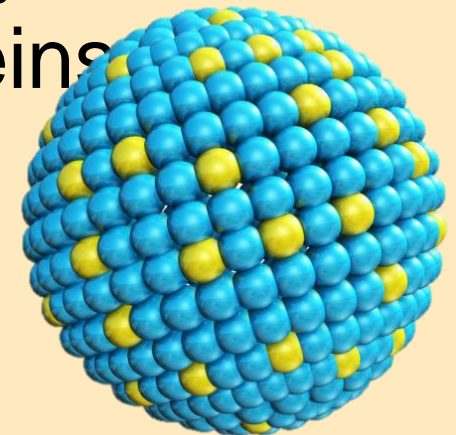
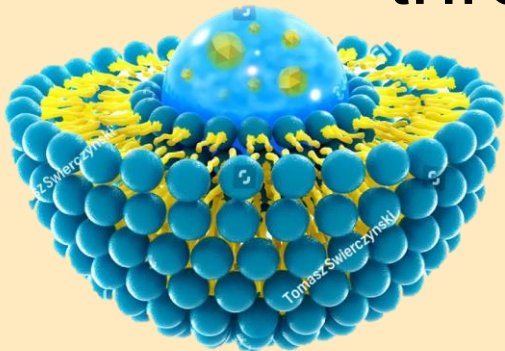
Unsaturated | Unsaturated fatty acid is indicated when a fatty acid has more than one double bond .

Complex Lipid

Esters of fatty acids containing groups in addition to alcohol and a fatty acid.

| Lipoprotein |

A molecule that is a combination of lipid and protein. Lipids do not travel in the blood by themselves, but they are carried through the bloodstream as lipoproteins.

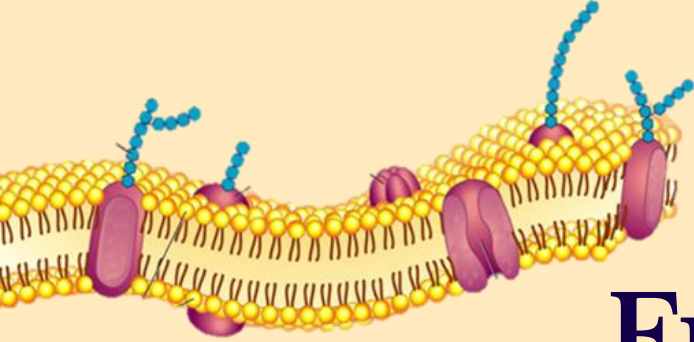


Identify the lipid Found in the body



They can be found in many parts of a **human**:

- cell membranes.
- Cholesterol.
- blood cells, and in the brain.



Functions of Lipids in the Body

- Storage form of energy (**triglycerides**)
- Structural components of biomembranes (**phospholipids and cholesterol**)
 - Metabolic regulators (**steroid hormones and prostaglandins**)
- Act as surfactants ,detergents and emulsifying agents (**amphipathic lipids**)
 - Act as electric insulators in neurons.



Functions of Lipids in the Body



- Provide insulation against changes in external temperature (**subcutaneous fat**)
 - Give shape and contour to the body.
- Protect internal organs by providing a cushioning effect (**pads of fat**)
- Help in absorption of fat soluble vitamins (**A** , **D** , **E** and **K**)
- Improve taste and palatability of food .

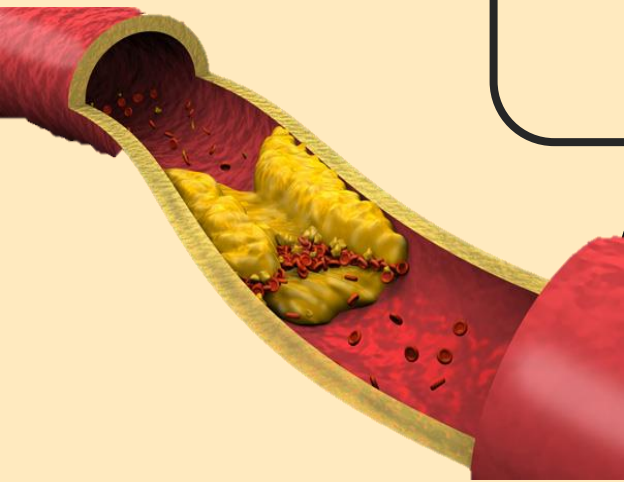
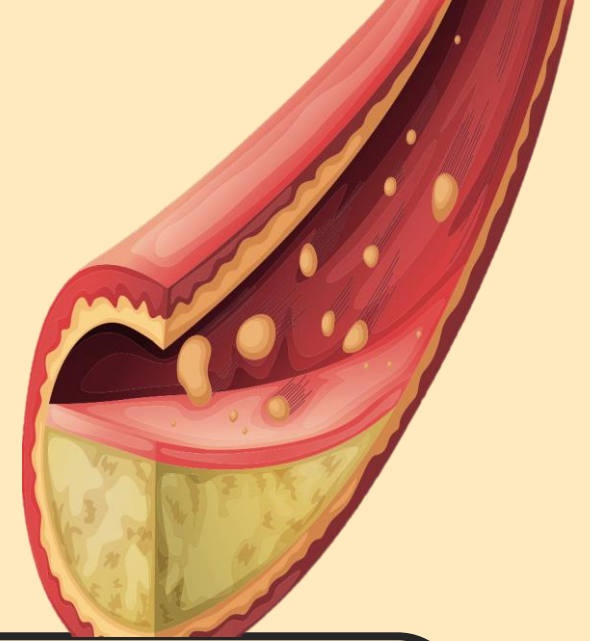


Discusses the lipid disorder

1. Excessive fat deposits cause obesity .
Truncal obesity is a risk factor for heart attack .

2. Abnormality in cholesterol and lipoprotein metabolism leads to atherosclerosis and cardiovascular diseases .

3. In diabetes mellitus , the metabolisms of fatty acids and lipoproteins are deranged , leading to ketosis



summary

- ❑ **Lipid** : They are molecules that contain carbon, hydrogen, and oxygen, and they include fats, oils, and waxes.
- ❑ **Lipid** are **made** up of | fatty acids + glycerol.
- ❑ **The function of lipid** | energy storage examples.
- ❑ **Triglycerides** | stored in the cells of the body.
- ❑ **Types of lipid** : Simple Lipid, Compound Lipid, Derived Lipid and Complex Lipid.
- ❑ Lipid are hydrophobic.

Reference

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**Thank you for
listening so well.**