

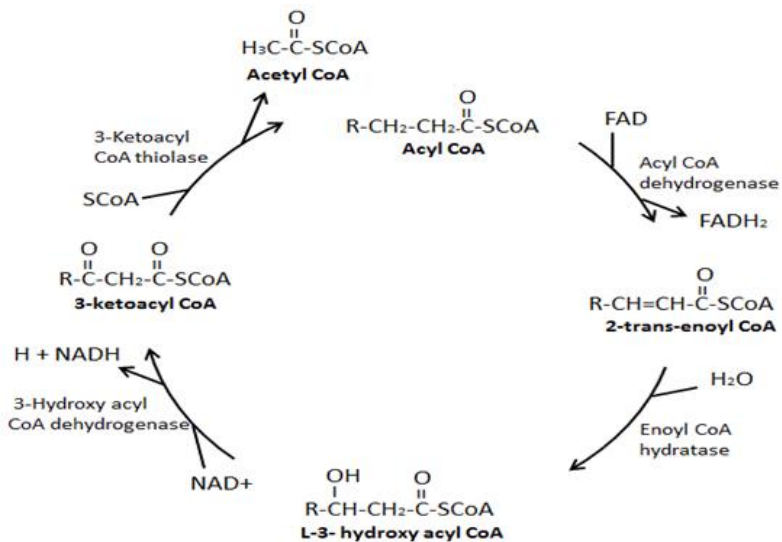
LIPID METABOLISM

1.β-oxidation of saturated fatty acid (Palmitic acid)

❖ Definition:-

Beta oxidation is a metabolic process involving multiple steps by which fatty acid molecules are broken down to produce energy.

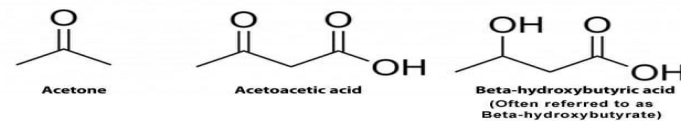
• Palmitic acid cycle:-



2. Formation & utilization of ketone bodies; Ketoacidosis

Definition:- Ketone bodies, or simply ketones are substances produced by the liver during gluconeogenesis a process that creates glucose in times of fasting and starvation.

- There are three ketone bodies produced by the liver.

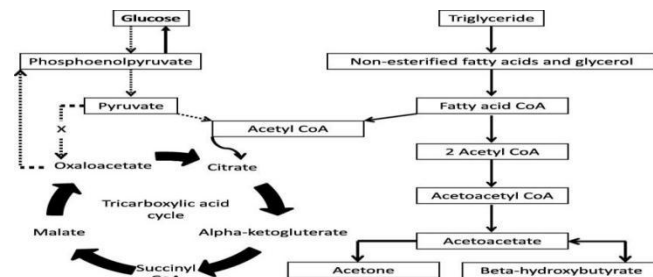


They are accelerated beta-hydroxybutyrate and acetone.

❖ Ketoacidosis:

Diabetic ketoacidosis is a serious complication of diabetes that occurs when your body produces high levels of blood acids called ketones.

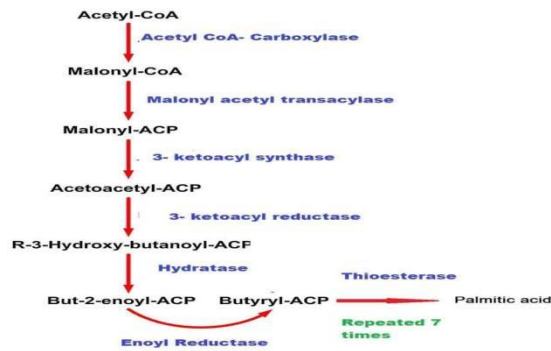
❖ Example of ketoacidosis:-



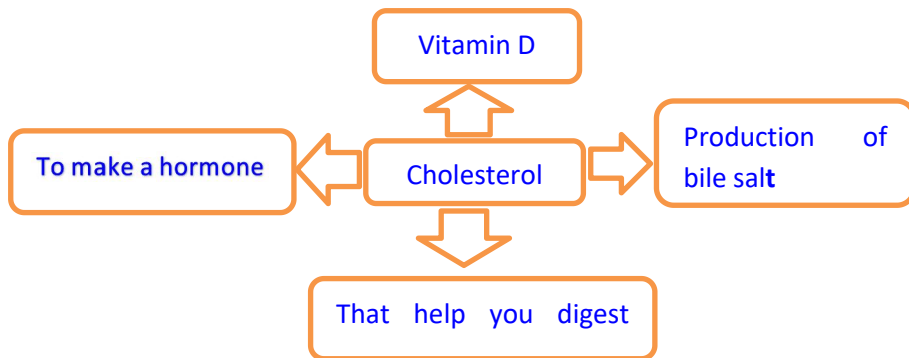
3. De novo synthesis of fatty acid (palmitic acid) :

- De novo Lipogenesis refers to the synthesis of fatty acids from acetyl-CoA,

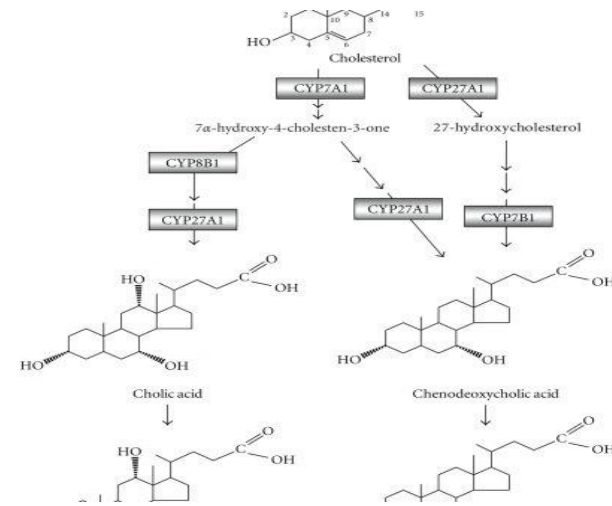
❖ Pathway:-



❖ Biological significance of cholesterol :

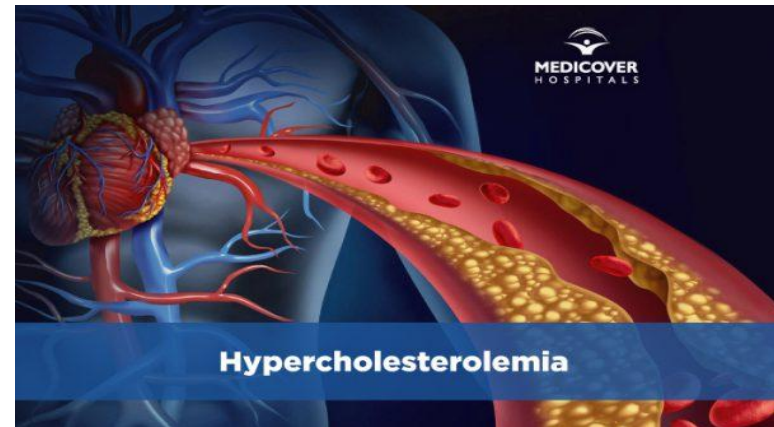
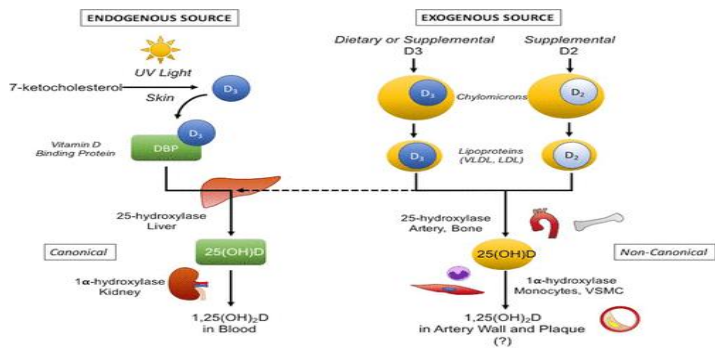


Conversion of cholesterol into bile acid :- The enzyme cholesterol 7 alpha hydroxylase (C7H) Converts cholesterol into the bile acid 71



❖ Steroid hormone and vitamin D :-

- Bioactive vitamin D or calcitriol is a steroid hormone that has long been known for its important role in regulating body levels of calcium and phosphorus, and in mineralization of bone.



❖ Disorder of lipid metabolism:

- LDL-hypercholesterolemia, hypertriglyceridemia, mixed hyperlipoproteinemia, and low HDL cholesterol
- Diet and lifestyle factors. Foods that are high in saturated fats can also cause high blood cholesterol and high levels of triglycerides. ...
- Medical conditions. Underlying health conditions may increase cholesterol levels.

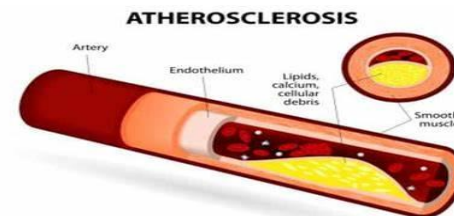
❖ Hypercholesterolemia:-

- Hypercholesterolemia is a high level of cholesterol in the blood .
- Reducing the extremely high levels of LDL (bad) cholesterol.
- This helps lower the risk of heart attack and death.

❖ Atherosclerosis:-

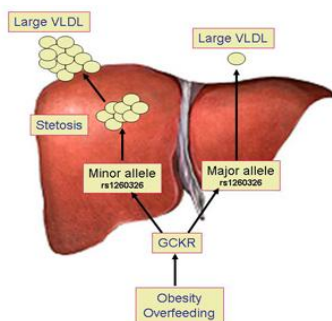
Atherosclerosis is the buildup of fats ,cholesterol and other substances in and on your artery wall.

- Arteries to narrow , blocking blood flow .
- The plaque can also burst ,leading to a blood clot.



❖ Fatty liver and obesity:-

- Non-alcoholic fatty liver disease is strongly associated with obesity.
- People tend to develop fatty liver if they have certain other condition, such as obesity, diabetes, high triglycerides.



Reference:-

1) Textbook of biochemistry David Nelson and Cox M.M, Lehninger;

By Google :-

<https://www.sciencedirect.com/>

<https://www.ncbi.nlm.nih.gov/>

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Subject:- Biochemistry

Topic Name:- Lipid metabolism

Subject code :- BP203T

Class:- First year B.pharm

Academic year:- 2021-2022