

Medical Biochemistry Department
The Respiratory Block Lectures
Objectives & Outlines

F.A. Oxidation Lecture:

Objectives:

1. To explain how fatty acids can be oxidized by many tissues to provide energy.
2. To clinically correlate between fatty acid oxidation and some diseases as sudden infant death syndrome (SIDS).

Outlines:

1. Storage form of fats
2. Fatty acid oxidation which will include their:
 - a. release from stores
 - b. mitochondrial transport by means of carnitine shuttle
 - c. reactions of oxidation
3. Energy yield of fats & fatty acids oxidation
4. Diseases arising from abnormalities in fatty acids oxidation

Medical Biochemistry Department
The Respiratory Block Lectures
Objectives & Outlines

Ketone Bodies Utilization Lecture:

Objectives:

1. To understand how ketone bodies can be used as an alternate fuel for cells
2. To relate ketone bodies to the pathology of diabetes .

Outlines:

1. Ketone bodies and their importance as alternative fuel
2. Synthesis of ketone bodies (ketogenesis)
3. Oxidation of ketone bodies (ketolysis)
4. Diabetes mellitus and excessive production of ketone bodies
5. Manifestations of diabetic ketoacidosis

Medical Biochemistry Department
The Respiratory Block Lectures
Objectives & Outlines

The Preferential Utilization of Energy by Tissues Lecture:

Objectives:

1. To understand the different ways of energy utilization by various organs
2. To be familiar with: how fuel availability during absorptive state affects different organs' energy utilization relative to fasting state

Outlines:

1. Overview of the major ways in which glucose is metabolized in selected tissues
2. Intertissue relationships in absorptive and starvation states:
 - A- Liver
 - B- Brain
 - C- Skeletal muscle and heart
 - D- Adipose tissue
 - E- Kidney
 - F- Red blood cells

Medical Biochemistry Department
The Respiratory Block Lectures
Objectives & Outlines

Phospholipids & Their Clinical Significance Lectures (1&2):

Objectives:

1. To study the structure of physiologically important phospholipid classes- glycerophospholipids and sphingolipids
2. To discuss the synthesis of phospholipids of clinical and physiological relevance and their degradation by phospholipases
3. To study the role of phospholipids like phosphatidylinositol in signal transduction and membrane anchoring

Outlines:

1. Overview of phospholipids.
2. Structure of Glycerophospholipids and sphingolipids.
3. Synthesis of phospholipids: Phosphatidic acid, phosphatidyl- choline, ethanolamine and serine, cardiolipin and sphingomyelin etc.
4. Degradation of phospholipids by phospholipases.
5. Role of phosphatidyl choline in lung surfactant
6. Role of phosphatidylinositol in signal transduction and membrane anchoring