

Liver and Biliary System

LIVER

Largest gland in the body.

FUNCTIONS OF LIVER

1. Formation & secretion of bile
2. Storage of Carbohydrate, fat, vitamin A, B, Folic acid, Iron.
3. Synthesis of plasma proteins, clotting factors, heparin, blood group antigens.
4. Formation of ketone bodies, Phospholipids.
5. Synthesis of 25 hydroxy cholecalciferol.

Maximum heat production in body-Liver.

LIVER

FUNCTIONS OF LIVER (continued)

6. Reduction & conjugation of Adrenal & Gonadal steroids.
7. Detoxification of drugs, toxins.
8. Excretion of toxins, heavy metals, bile pigments, cholesterol, alkaline phosphatase.
9. Hemopoietic function in intrauterine life.
10. Destruction of RBC.
11. Reservoir of blood.
12. Kupffer cells are phagocytic.

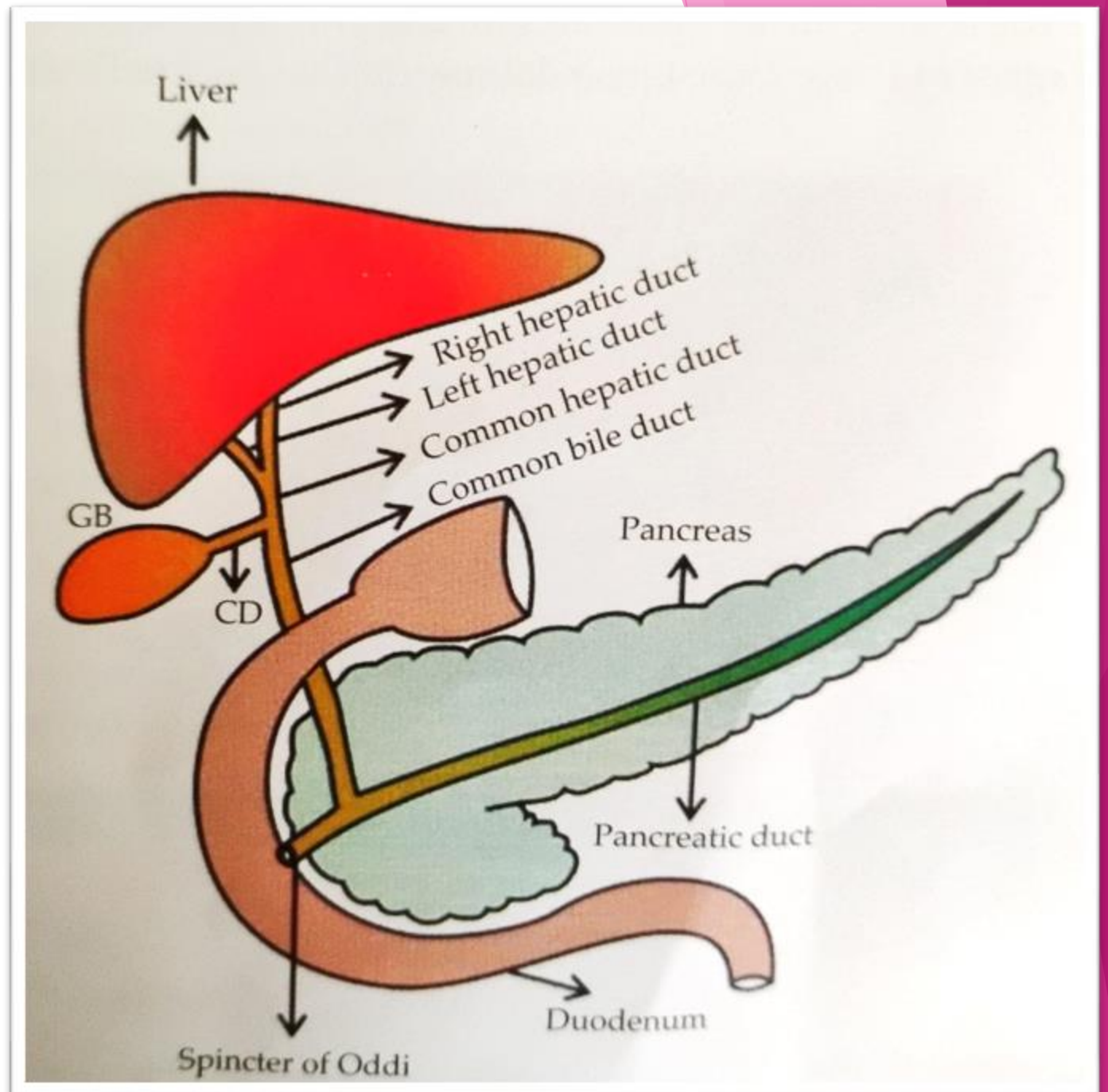
LIVER

13. METABOLIC FUNCTIONS

- Carbohydrate Metabolism
- Gluconeogenesis, Glycogen synthesis, Glycogenolysis.
- Protein metabolism
- Synthesis of urea, synthesis of Amino acid from fatty acid, Deamination of amino acid, Purine pyrimidine metabolism.
- Fat metabolism-Storage of fat

GALL BLADDER

- ▶ Thin walled sac.
- ▶ Capacity-60ml.



GALL BLADDER

FUNCTIONS.

1. Storage of bile

- In between meal-sphincter of Oddi closed-Bile diverted into gall bladder from hepatic duct through cystic duct

2. Concentration of bile

- Gall bladder mucosa absorb water, Na, Cl & Bicarbonate. Bile salt, Bile pigment, Cholesterol, Lecithin & Calcium not reabsorbed.
- Bile concentrated to a maximum of 20 fold.
- 1000ml secreted /day.

GALL BLADDER

FUNCTIONS.

3. Acidification of bile

- It is by, Reabsorption of Bicarbonate from bile ,Secretion of H^+ in exchange for Sodium.

4. Increase viscosity

- By secreting mucous- Lubricant.

5. Equalise pressure in biliary system- By reabsorption of water

DIFFERENCE BETWEEN HEPATIC & GALL BLADDER BILE

In Gall bladder bile	
Water content-	Less
Ph	Less
Solids,	More
Bile salts,	More
Viscosity	More

CONTRACTION OF GALL BLADDER

- When pressure in gall bladder 70 to 100 mm of bile- contraction – Bile flow into duodenum in spurts.
- Control- Vagus, Cholagogues (cholecystokinin, fatty acids)

BILE

- Secretory & excretory Product of hepatocytes.
- 500-1000ml/day.
- Composition
- 97% water ,3% solids.
- Organic constituents- Bile salts, bile pigments, Cholesterol, lecithin, fatty acids, fat, alkaline phosphatase.
- Inorganic constituents-Sodium, Potassium, Calcium, Bicarbonate, Chloride.

Mechanism of secretion

- First stage-Hepatocytes secrete bile with bile acids, cholesterol, & organic constituents.
- Second stage-Secretory epithelial cells of bile duct secrete Na^+ & HCO_3^- → added to bile (under the influence of secretin.)

