

Topic for Wednesday:

Intestinal Digestion & Absorption

Topics for today:

- Role of pancreas in digestion
- Control of pancreatic secretion
- Role of liver and bile
- Role of small intestine in digestion
- Absorption of digestion products
- Hepatic processing of absorbed material

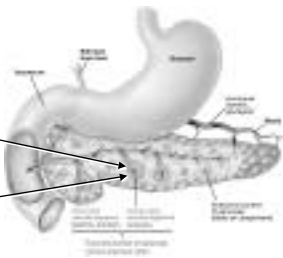
Pancreatic secretions

Ductule secretion

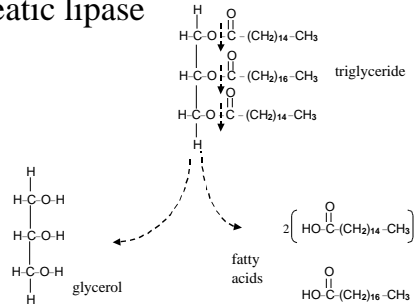
- Bicarbonate-rich fluid

Acinar cell secretion

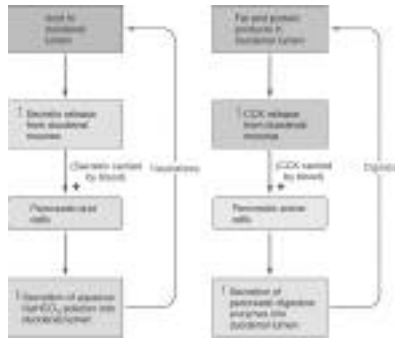
- Trypsinogen
(trypsin precursor)
- Carboxypeptidase
- Amylase
- Lipase



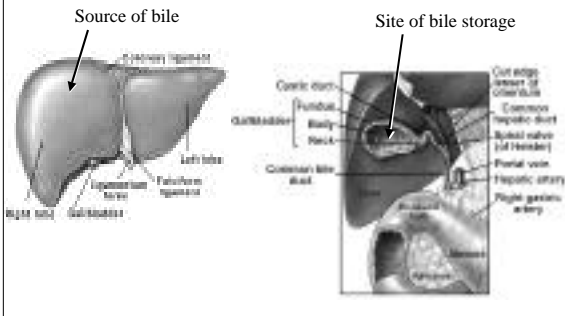
Action of pancreatic lipase



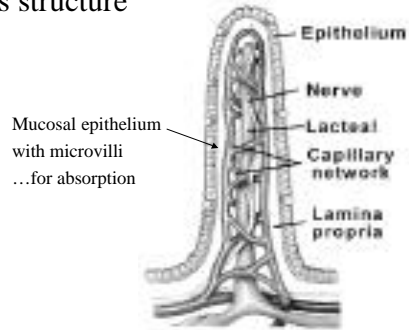
Control of pancreatic secretion



Liver and gall bladder



Villus structure

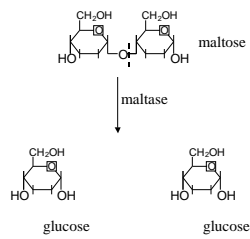


Secretions from Small Intestine

Duodenal mucosal secretions

- Aminopeptidase
- Maltase
- Sucrase
- Lactase

Action of intestinal Maltase



Regulation of digestion

Neural control (cephalic phase)
sight/smell of food stimulates
gastric secretion via vagus nerve

Hormonal control

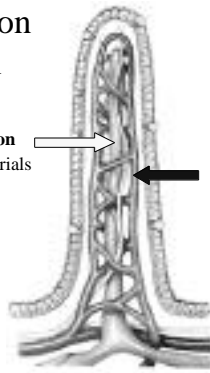
- Gastrin - stimulates gastric secretion
- Gastric inhibitory protein - blocks gastric flow
- Secretin - stimulates HCO_3^- secretion from pancreatic ductules
- Cholecystokinin - stimulates secretion of enzymes from pancreatic acini

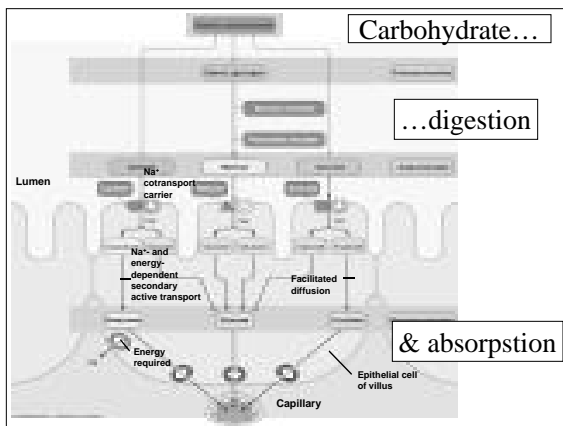
Absorption by Villi

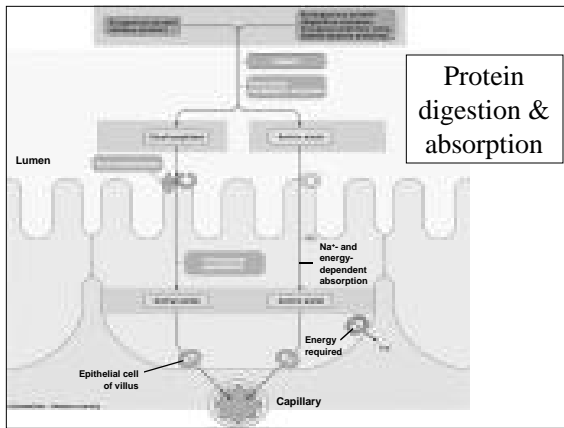
Passive absorption of lipophilic materials into lacteals

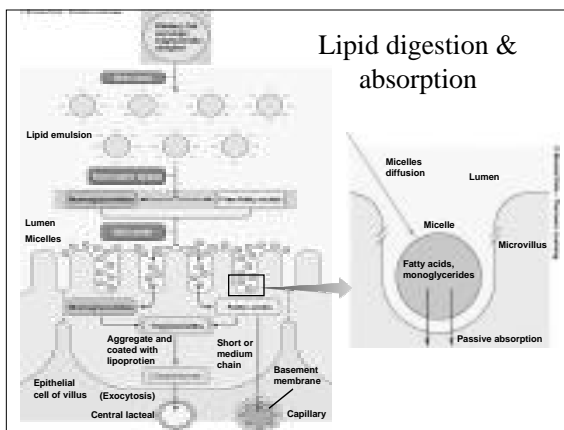


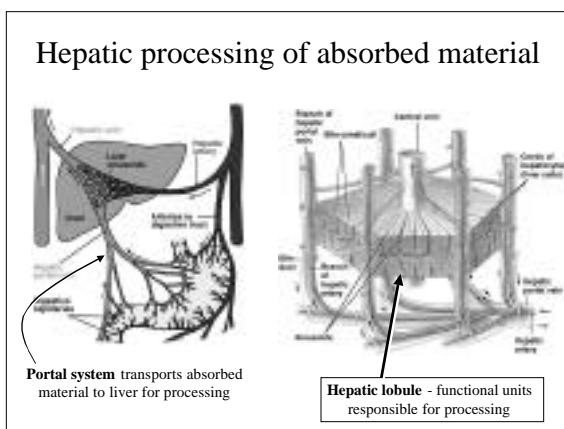
Active absorption of hydrophilic materials into capillaries











Distribution of stored fuels*

Storage form	Site of storage	Kcal stored	Equiv daily supply
glycogen	muscle	480	0.3 day
glycogen	liver	280	0.2 day
protein	muscle	24,000	14 days
triglyceride	adipose tissue	141,000	82 days

* See list on p721

Topic for Friday:

Nutrient Use & Metabolism

Read p719-727
