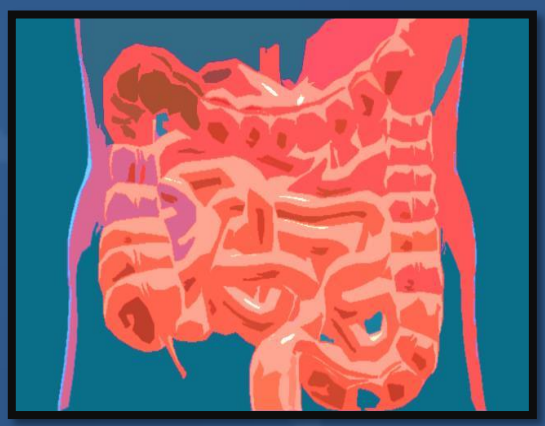
Physiology Team

REVISION








GASTOINTISTINAL TRACT

Done By
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Hormones	functions
Secretin	**LES:** 1. Relaxation **STOMACH:** 1. decrease stomach emptying by constricts the antrum 2. promotes constriction of pylorus sphincter 3. stimulate pepsinogen secretion 4. inhibits gastric H secretion & gastrin release **INTESTINE:** 1. inhibit intestinal motility - Contract ileocecal sphincter 2. stimulates intestinal secretion (Brunner's secretion & intestinal juice) **PANCREAS:** 1. Stimulates secretion of HCO3 & H2O (on pancreatic duct cells) 2. Stimulate hepatic bile flow & HCO3 secretion
CCK	**LES:** 1. Relaxation **STOMACH**: 1. Promotes constriction of pyloric sphincter (increase tone) . So, decrease stomach emptying 2. Stimulate pepsinogen secretion & gastric motility. 3. Inhibit the pyloric pump. SO, decrease stomach emptying 4. Act as inhibitor to block increase in stomach motility caused by gastrin **INTESTINE:** 1. Stimulate intestinal juice secretion **PANCREAS:** 1. Stimulate enzyme secretion (on pancreatic acinar cells) 2. Trophic effect 3. Contracts gall bladder 3.contracts gall bladder 4. Relaxes sphincter of oddi
Gastrin	**LES**: 1. Constriction **STOMACH:** 1. Stimulates HCL secretion 2. Stimulates pepsinogen secretion 3. Increases antrum & pyloric contraction. SO, increase stomach emptying **INTESTINE**: 1. Stimulates intestinal motility & intestinal juice secretion
Somatostatin, GIP & PG	**STOMACH:** 1. Decreases HCL secretion
glucagon	**INTESTINE:** 1. Inhibit intestinal motility 2. Contracts ileocecal sphincter 3. Stimulates intestinal juice secretion
Motiline	**INTESTINE:** 1. Increases intestinal motility & regulates MMC.
Insulin & 5HT	**INTESTINE:** 1. Stimulates intestinal motility.

ABSORPTION OF CHO & PROTEINS

2ndry active transport

Facilitative diffusion independent on NA

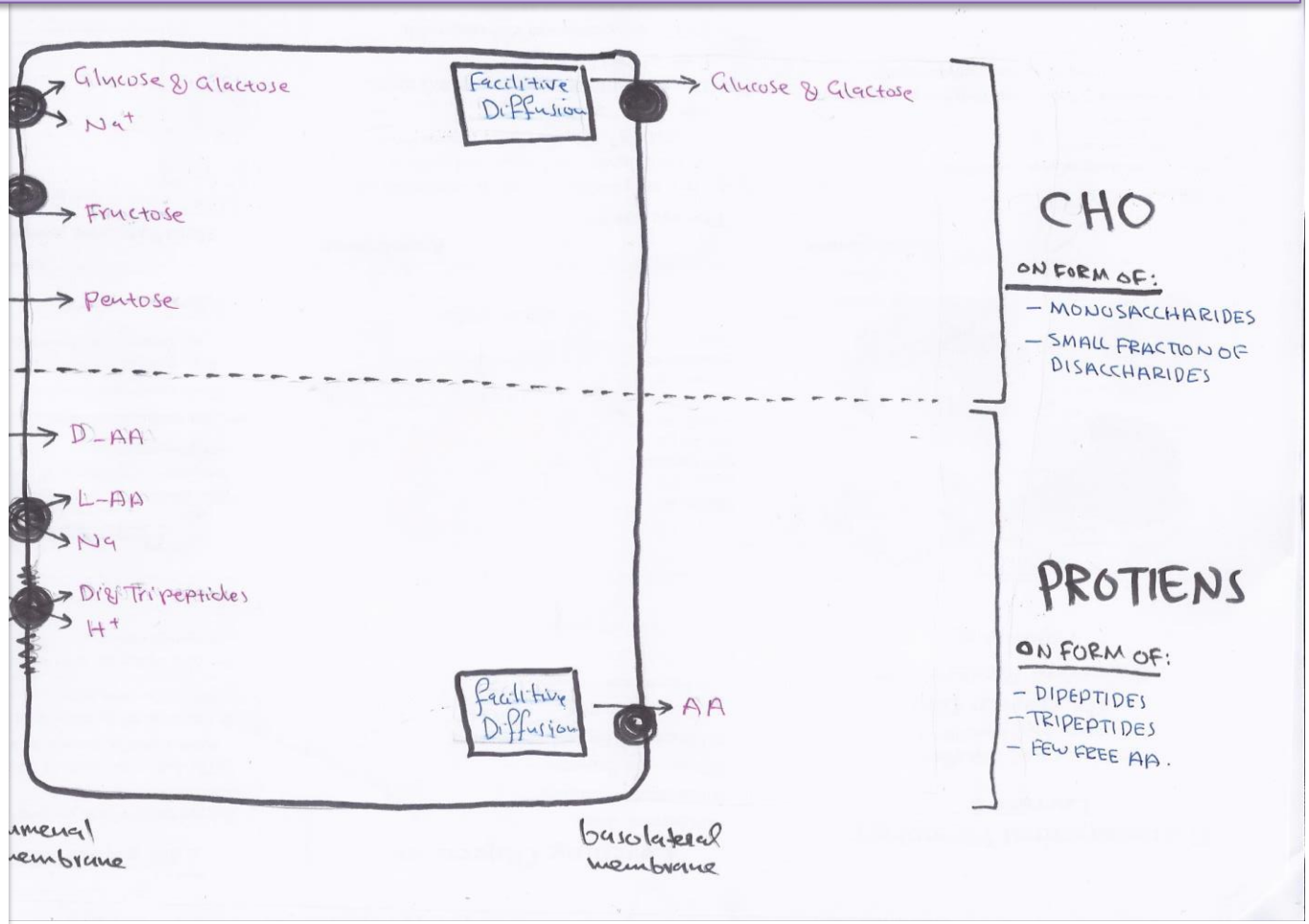
Passive diffusion

Passive diffusion

2ndry active transport

active transport protein carrier (cross brush border)

and hydrolysed by: brush border & cytoplasmic oligopeptidases



Digestion

CHOs	- Pancreatic amylase (split starch to maltose, maltotriose & dextrins) - Lactase - Sucrose - Maltase - Alpha-dextrinase } Intestine
PROTEINS	- Pepsin (stomach) - Trypsin - Chymotrypsin - Elastase - carboxypeptidase } From Pancreas (inactive) .. become activated in intestinal lumen* *endopeptidasen *exopeptidase
	- Aminopeptidases - Oligopeptidases - Di & Tri peptidases
FATS	- Pancreatic lipase (breaks TG into MG & FA) - Cholesterol esterase (liberate cholesterol) - Phospholipase A2 (split phospholipase into lysophospholipids & FA) All from pancreas

*trypsinogen >> trypsin by enzyme secreted by duodenal cells – **enteropeptidase** or **enterokinase**)

*trypsin activates all other proteolitic enzymes

- **Pepsinogin:** from chief cells
- **Lipase enzyme:** from fundus mucosa(hydrolyze TAG to MG & FA)
- **Intrinsic factor :** parietal cells (oxyntic)
- **Gastrin:** G-cells
- **HCL:** parietal cells (oxyntic)
- **Mucus & HCO3:** Mucus Neck Cells
- **Secretin:** S-cells
- **Enterogastrones:** from intestines (inhibitory hormones)

PH

- saliva = 6-7
- Pepsin= 1.5-3.5
- Succus Entericus= 7.5 – 8
- Gastric juice= 0.8
- Pancreatic enzymes activity = 8

Volume

- saliva= 800 – 1500 ml\day
- Water in sliva= 0.5 L sliva\day
- Gastric juice= 2-3 l\day
- Stomach can store= 0.8 – 1.5 L of food
- Pancreatic secretion= 1.2 – 1.5 L\day