



أوراق محاضرة

GIT physiology

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طالب كلية الطب - جامعة عمران

اللجنة العلمية للدفعة الثالثة

طب بشري

جامعة عمران

لمشاهدة المحاضرة الأولى GIT Physiology قم بالضغط على الرابط

<https://youtu.be/hxZekh05vSs>

و لمشاهدة محاضرات GIT PHYSIOLOGY

<https://www.youtube.com/watch?v=hxZekh05vSs&list=PLMU6BnQ-P8ysT2wRfBXWISHLcFrEa6KLP>

لمشاهدة فيديوهات و شروحات اللجنة العلمية زوروا قناتنا على اليوتيوب

<https://www.youtube.com/channel/UC9RzRw4eHuohHR0pzORJmVw/videos>

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# Gut motility

## Types of contraction

phasic occur in wall of organ sphincter

GIT physiology  
Mr. Khalid MD  
الطبيب العام  
الطبيب العام

## Control by ENS

Hormone  
glucagon secretion  
CCK, gastrin  
motilin  
Submucosal plexus Myenteric plexus

## Types of motility

propulsive  
"peristalsis"

Mixing  
"segmental"

Division

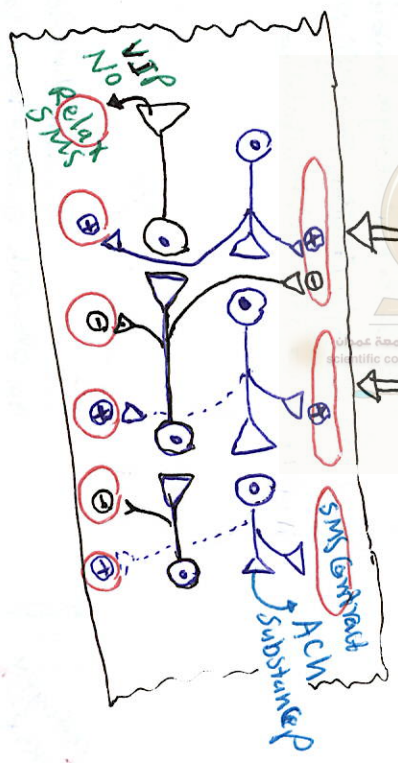


Peristaltic  
Ruch

MMCs

occur during fast every 40 to 120 minute  
- Create peristalsis  
1st in stomach → S. intest  
Clean them → Bacterial growth

it's abnormal character by strong peristaltic caused by strong irritation "infection" Malabsorption, Malabsorption & diarrhea





# Regulation substance in GIT

GI hormone  
Mr. Khalid MD

Paracrine

Neurocrine

Satiety

Satiety Center "SC"

Feeding Center "FC"  
if FC -> Sensed number of up for site

Gastrin  
① GIB ② HCL ③ All GI hormone  
④ Enzyme ⑤ motility ⑥ ↑ HCL

GIP  
① Insulin ② HCL secretion  
Pancreatic polypeptide

GLP-1  
① Insulin Release  
Somatostatin utilize

Oral Glucose  
① Insulin Release  
② Insulin utilize

Motilin  
produce migrating motor complex (MMC)  
interdigestive

Motilin R agonist  
e.g. erythromycin  
↑ peristalsis by intestinal SMCs

Motilin  
① Fast State  
② Satiety

Micro organism  
M. Cell  
Peyer Patch's

Enterochromaffin  
① ↑ Gut motility by ↑ HCL  
② ↑ Gut motility by ↑ HCL

VIP  
① Enkephalin  
② GIP  
③ K<sup>+</sup> cell  
④ "OCH" ⑤ ptn ⑥ Fat

Enkephalin  
① Relax SMCs ② GIB ③ GIB ④ GIB ⑤ GIB  
⑥ HCL secretion ⑦ Pan ⑧ Intestinal secretion  
⑨ Secretion ⑩ HCL electrolyte of fluid electrolyte

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# Motor function of stomach



Storage (10%)

Receptive R

Accommodative R  
Occur to accommodate ingestion meal

1st stretch LES  
Mechano R  
Myenteric plexus  
aff via 10th → enteric

EFH via 10th → Relaxms  
Vago vagal → Storage  
CCK participate

Vagotomy

Hunger Pain

- Occur after 8 hours  
- Occur after 3 day become maximum  
- more common w/ hypoglycemia

Gastric Motor dysfunction

Gastroparesis delayed gastric emptying

- associated w/ peripheral neuropathy  
- failure to generate enough force to empty stomach can be cause by loss of intrinsic innervation as in Vagotomy

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Mixing Movement 80%

Occur to mix solid & stomach  
So very fine particles  
more with sphincter  
Retro propulsion



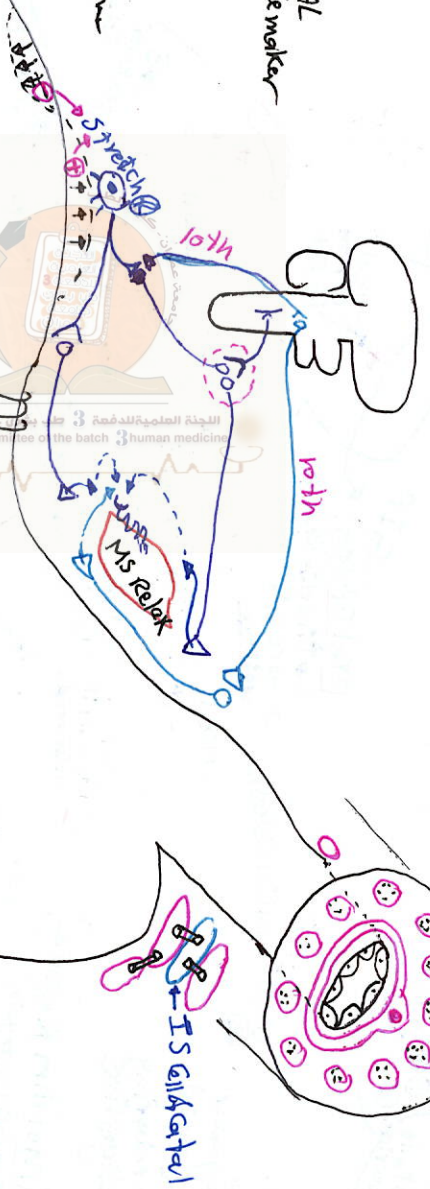
Gastric Sack (weak)

- 1 Volume of food → emptying  
↓ volume of food → emptying
- 2 Gastrin → ↑ enteric distension → emptying
- 3 PSN → emptying

Duodenal (strong)

- 1 Enterogastric R which by Duodenal Distension lead to  
↳ ④ Local Reflex ③ long (vago vagal R) ganglion R  
② pH → ⑤ Secretin ③ fat → ⑥ CCK ④ hyper, hypertonic → ⑦ GIP

Gastric emptying 20%



Rapid gastric emptying

- ① often related to surgical procedure as
- ② Pyloric Reflexion
- ③ Vagotomy: less gastric compliance & ↑ rate emptying

② Pyl w/ duodenal ulcer exhibit rapid gastric emptying due to less -ve feed back control  
- if eat → vomiting (unbilious)

Pyloric Stenosis

- may due to congenital  
- common in male infant born w/ hypertrophy & extrinsic pyloric MS



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Tonic

## Division

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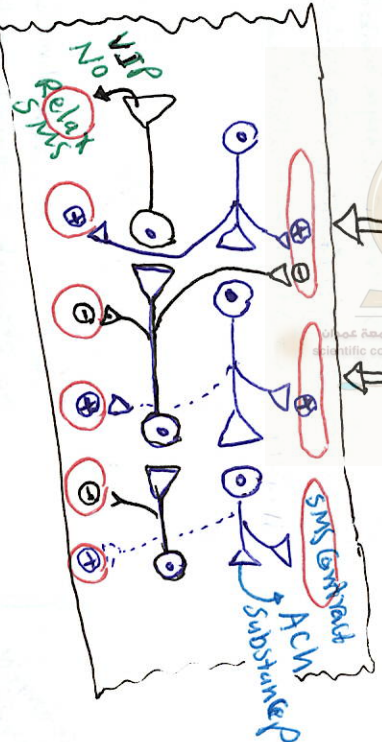
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## Peristaltic Rutch

MMCs  
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# Megacolon

Occurs in Rectal D. Colon, due to congenital absence of Enteric plexus ganglia due to abnormal crest cell migration



## Diarrhea

Occurs when fluid delivery to colon exceeds its absorptive capacity  
 ↓ absorption of H<sub>2</sub>O + electrolyte  
 ↓ secretion of fluid

# GI motility & its clinical correlation

## Intestinal Motor dysfunction

Symptoms such as nausea, vomiting abdominal distension, colic, diarrhea and constipation Rely result from abnormal in moving luminal content & intestinal

## Irritable Bowel Syndrome

Emotional factor strongly influence large intestinal motility via ENS as IBS occurs during stress and result constipation; ↑ segmental contraction; ↓ relaxation; ↓ segmental contraction; ↓ relaxation; ↓ segmental contraction; ↓ relaxation

## Paralytic ileus

When whole myenteric plexus of GIT become paralyzed due to ① abdominal surgery ② severe electrolyte imbalance ③ any irritant → paralysis myenteric → stop GIT also called **ileus**

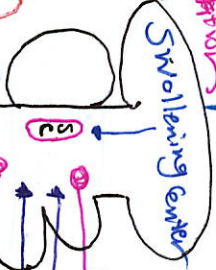
## GERD

may occur if tone of LES is decrease and gastric content reflux into esophagus

## Achalasia

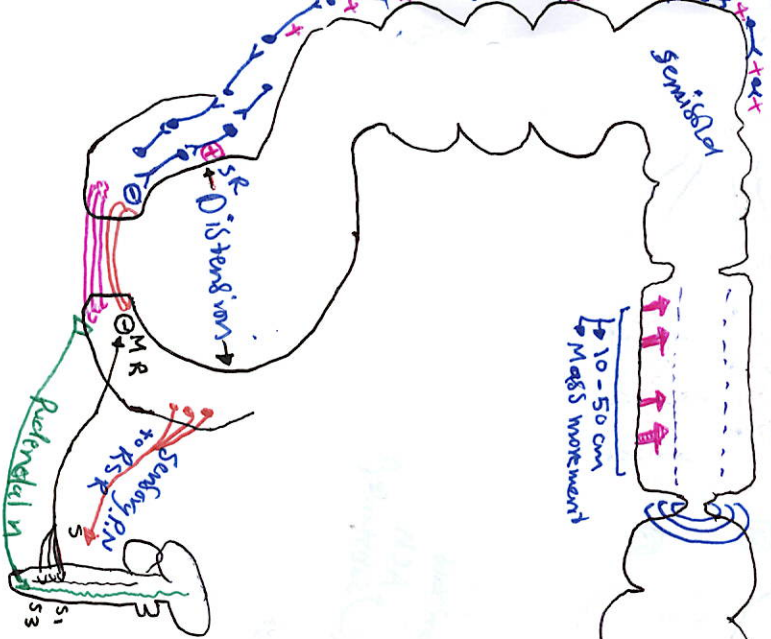
Primary A Occurs due to parasympathetic myenteric plexus especially LES which isn't relax during swallowing  
 Secondary A Occurs due to accumulation of food

## Dysphagia



Ileocecal valve in direction of to prevent bacteria from to S. intestinal  
 Ileocecal sphincter: ↑ Cecum content → close tightly open by gastroileal reflex

## Fecal incontinence



occurs due to sphincter reflex



## Gastric Secretion & its clinical

