

General layer of the GI tract:

- Mucosa

- Epithelium
- Lamina Propriae
- Muscularis mucosa

- Submucosa

- Glandular tissues
- Submucosal plexus

- Muscularis externa

- Longitudinal muscle
- Circular muscle
- Myenteric plexus

- Serosa

- Adventitia
- Epithelium

- Oesophagus

- Mucosa:
 - Stratified epithelium (Protection), transition to simple squamous epithelium into the stomach
- Submucosa
- Muscularis externa
 - Contains both skeletal (upper part for peristalsis) and smooth muscles
- Serosa
 - No visceral peritoneum

- Stomach: Three parts (Fundus, body, antrum pylorus*)

- Mucosa
 - **Rugae** folding in the internal surface to increase surface area
 - Squamous epithelium at surface, columnar epithelium in gastric pit.
- Submucosa
 - Glands in the gastric pit, parietal cells secrete HCl, chief cells in gastric glands secrete pepsinogen that activate in low pH,
 - Invaginations comparing to smoother surface in the duodenum
- Muscularis externa
 - Diaphragm contract create oesophageal-pyloric region
 - Outer to inner: Longitudinal, circular, oblique
 - Ring of muscle at the pylorus region - pyloric sphincter, no oblique at pylorus
 - Brunner's gland at pyro-duodenum junction, secrete bicarbonates.
- Serosa

- Small intestines: Three parts (Duodenum, Jejunum, Ileum)

- Mucosa:
 - Villi structure lined by simple columnar epithelial enterocytes, project outwards increase surface area, containing artery and vein and lacteal duct for lipid.

- Microvilli present on surface of enterocytes, increase surface area.

- Submucosa:

- Crypts of lieberkuhn: Goblet cells (mucous), paneth cells (antimicrobial peptides), and stem cells
- Uniform villi surface compared to invaginations in the stomach
- Greater fold in the duodenum & jejunum compared to the ileum

- Muscularis externa

- Serosa

- Large intestine: Cecum, colon, rectum

- Mucosa: Flat comparing to small intestine

- Submucosa:

- Lymph aggregates
- Goblet cells (mucous)

- Muscularis externa:

- Thicker circular and longitudinal
- Taenia Coli - 3 strands of longitudinal muscle along the length up to the rectum, allow contraction

- Serosa

Gastro-oesophageal junction: Diaphragm sphinctering, stratified - simple squamous

Pyloric-duodenum junction: Pyloric junction muscle, Brunner's gland secrete bicarbonate

Ano-rectal junction: Transition from simple to stratified epithelium(from ectoderm), separated by the dentate line.

Adenocarcinoma: cancer derived from epithelial tissues, causes colon cancer

- caused by mutation in the APC gene.