DIGESTIVE SYSTEM

A Histological Study
Layers of the Gut Wall

- Serosa
- Artery
- Vein
- Mesentery
- Circular fold
- Mucosa
- Submucosa
- Longitudinal muscle
- Circular muscle
Layers of the Gastrointestinal Tract

- **Mucosa**
  - Epithelium, CT, a little muscle
- **Submucosa**
  - CT, glands
- **Muscularis propria**
  - Muscles
- **Serosa**
  - CT
Mucosa

Epithelium
  Differs with location, functions
Lamina propria
  Loose CT, blood and lymph vessels
Muscularis mucosae
  Thin layer with smooth muscle
Protective epithelium
(stratified squamous)
Secretory
Absorptive
SUBMUCOSA

Loose/Dense irregular CT
Supports mucosa
Contains large blood vessels, nerves, lymphatics

MUSCULARIS PROPRIA

Two layers
Peristaltic contractions
Wall of the Gut
SEROSA/ADVENTITIA

Loose CT
Major vessels, nerves, adipose
TONGUE

- Filiform papilla
- Fungiform papilla
- Circumvallate papillae
- Lamina propria
- Taste buds
- Serous glands
- Mucous glands
- Gland ducts
- Lymphoid nodules

Lingual tonsils
Esophagus

- Muscular tube capable of pronounced peristaltic waves to propel food to stomach.
- Non-keratinized stratified squamous epith.
- Esophageal glands (mucus) in submucosa.
- Muscularis is striated muscle at proximal end, smooth muscle at distal end.
Esophagus
Esophagus

- Outer longitudinal layer of muscularis externa
- Inner circular layer of muscularis externa
- Lamina propria
- Stratified squamous nonkeratinizing epithelium
- Lumen of the esophagus
- Submucosa
- Muscularis mucosa
- Mucosa

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ESOPHAGUS x10

- MM (Muscular Layer)
- LP (Lamina Propria)
Esophagogastric Junction
Stomach

• Breaks down food by mechanical and chemical means.
  – Churning, gastric juice

• Rugae
  – Folds that permit distension of wall

• Regions
  – Cardia, fundus, body, pylorus
Regions of the Stomach

- Esophagus
- Cardiac region of stomach
- Fundic region of stomach
- Body of stomach
- Pyloric region of stomach
- Pyloric canal
- Pyloric sphincter
- Rugae
- Duodenum
STOMACH

Lymph patch in the lamina propria

Mucosa

Submucosa

Muscularis externa

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The Stomach
Gastric Glands of Stomach
GASTRIC GLAND

- Nuclei of smooth muscle cells
- Base of gland containing chief cells
- Parietal cells
- Mucous neck cells
- Surface mucous cells
Layers of the Stomach
Stomach

Section of the gastric glands in the fundus of the stomach. Note the superficial mucus-secreting epithelium. Parietal cells (light-stained) predominate in the mid and upper regions of the glands; chief (zymogenic) cells (dark-stained) predominate in the lower region of the gland. MM, muscularis mucosae.
SMALL INTESTINE

- Plicae circularis
- Villus
- Enterocyte
- Brush border (microvilli)
- Crypts of Lieberkuhn
- Brunner glands (Duodenum)
- Peyer’s patches
DUODENUM
GASTRODUODENAL JUNCTION
SMALL INTESTINE

Plica circularis
Plica Circularis
Small Int Brunner’s Gland x40
Villus

Goblet cells

Intestinal glands (Crypts of Lie-Berkhuhn)

Crypts contain Paneth cells (alkaline mucus Secretion)
Villus
Crypt
Villus
VILLUS
ENTEROCYTES
Small Int Ileum Circularis x2
SI  Ileum  Peyer’s Patch  x4
The Colon

- Mucosa with crypts (glands)
- Glands consist of absorptive cells and mucus secreting cells
- Muscularis propria is very pronounced
- Longitudinal muscle occurs in 3 bands (taeniae coli) rather than completely surrounding tract.
Large Int GALT  x4  (Gut associated lymphoid tissue)
Large Int Crypts cx  x20
http://www.lab.anhb.uwa.edu.au/mb140/Big/Big.htm