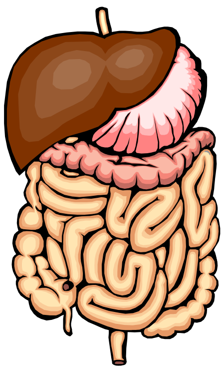
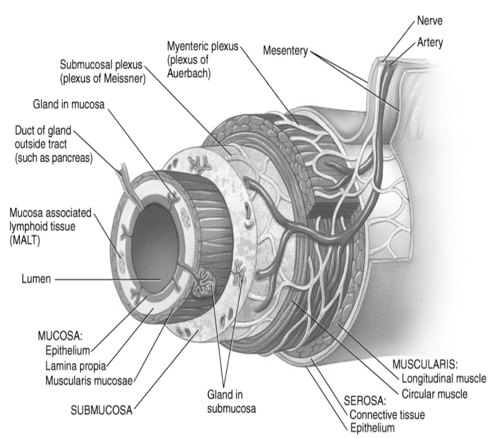
Bio& 242, Human A&P 2:
Unit 1/Lecture 2



Histology of the Digestive System

Basic Histological Layers

1. **Mucosa**
   a. **Epithelium**
   b. **Lamina Propria**
   c. **Muscularis Mucosae**
2. **Submucosa**
   a. **Submucosal plexus**
   "Plexus of Meissner"
3. **Muscularis**
   a. **Myenteric plexus**
   "Plexus of Auerbach
4. **Serosa**



Histology of the Mucosa

Organ	Epithelium
Mouth	Nonkeratinized Stratified Squamous
Pharynx	Nonkeratinized Stratified Squamous
Esophagus	Nonkeratinized Stratified Squamous
Stomach	Simple Columnar
Small Intestine	Simple Columnar
Large Intestine	Simple Columnar
Anus	Nonkeratinized Stratified Squamous

Histology of the Mucosa

Organ	Folds of the epithelium
Esophagus	none
Stomach	L: Rugae, S: gastric pits
Small Intestine	L: Plicae circulares, Villi S: Crypts of Lieberkuhn, microvilli
Large Intestine	L: Haustra S: Intestinal glands

Histology of the Submucosa

Organ	Specialized structures
Esophagus	Submucosal mucous glands
Stomach	None
Duodenum	Brunner's glands
Ileum	Peyer's Patches
Large Intestine	None

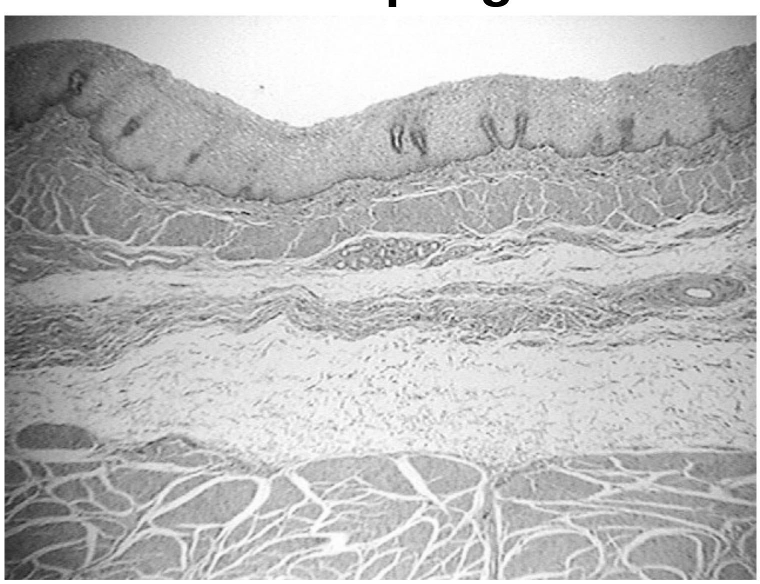
Histology of the Muscularis

Organ	Smooth muscle layers
Esophagus	2, circular and longitudinal
Stomach	3, oblique, circular, and longitudinal
Small Intestine	2, circular and longitudinal
Large Intestine	2, circular and longitudinal

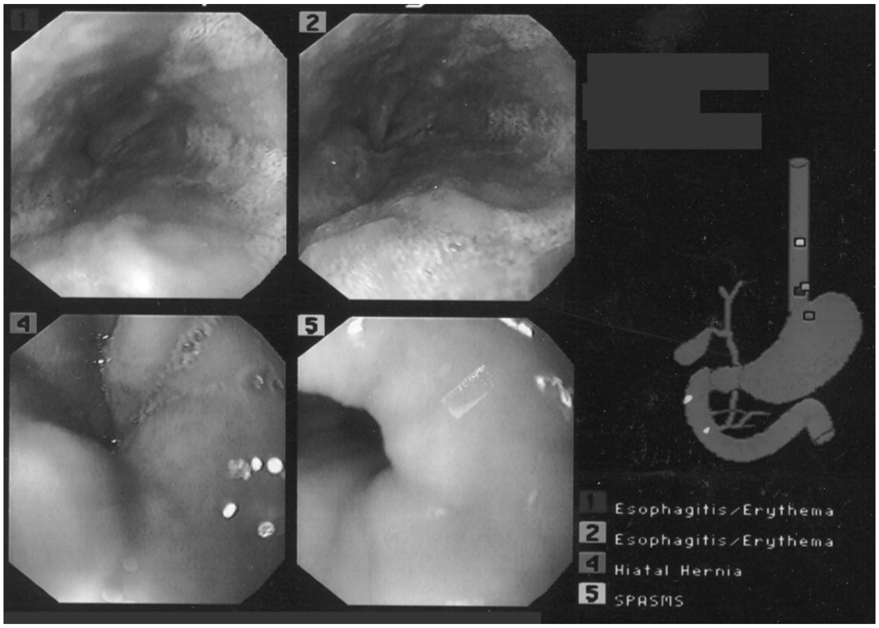
Histology of the Serosa

Organ	Serosa
Esophagus	Adventitia due to the fact that the esophagus is not in a cavity
Stomach	Visceral Peritoneum
Small Intestine	Visceral Peritoneum
Large Intestine	Visceral Peritoneum
Anus	Adventitia

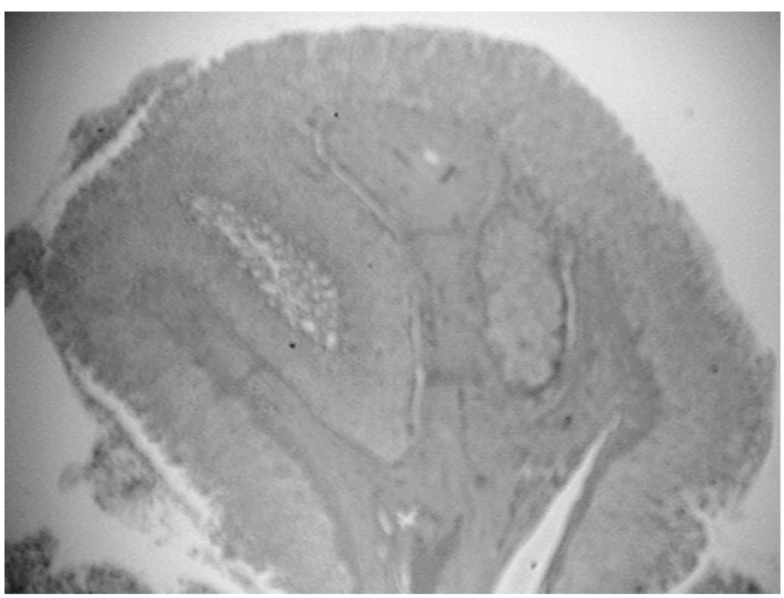
Microscopic View of the Esophagus



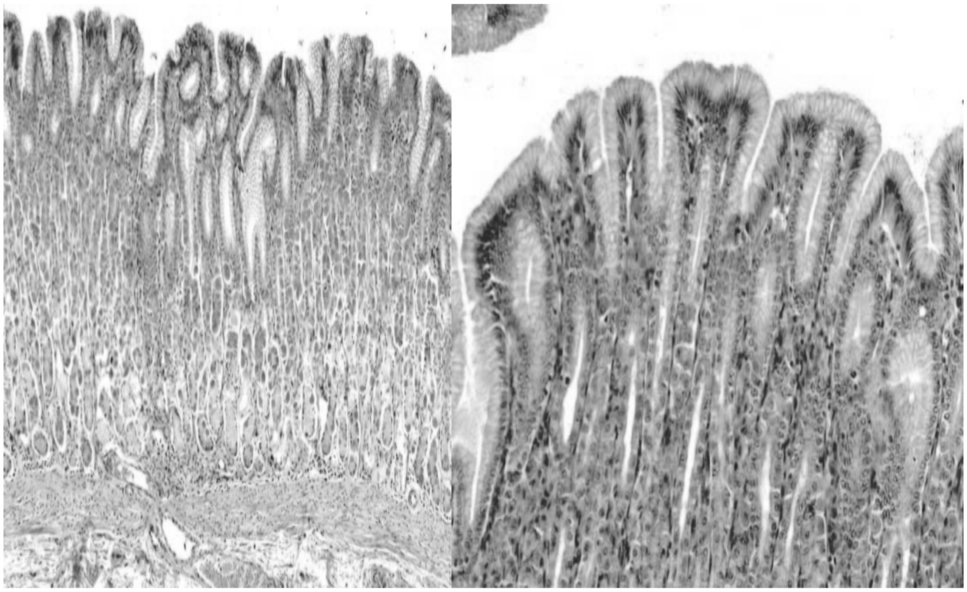
Endoscopic View of the Esophagus



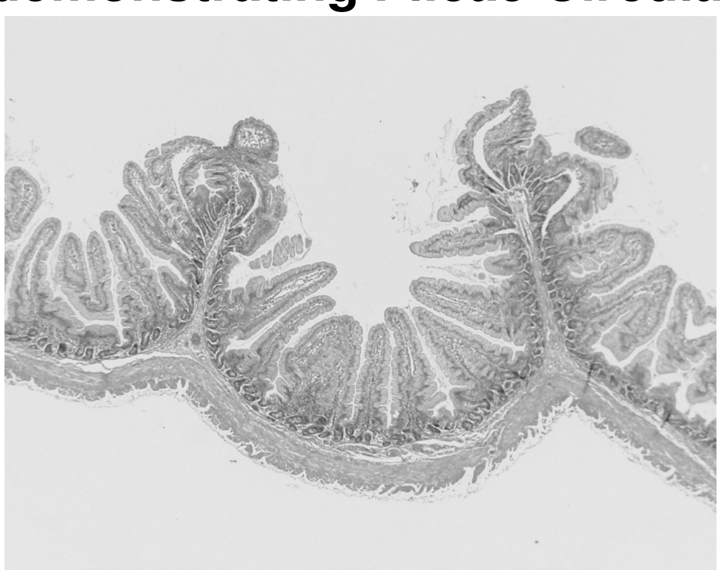
Low power view of the Stomach



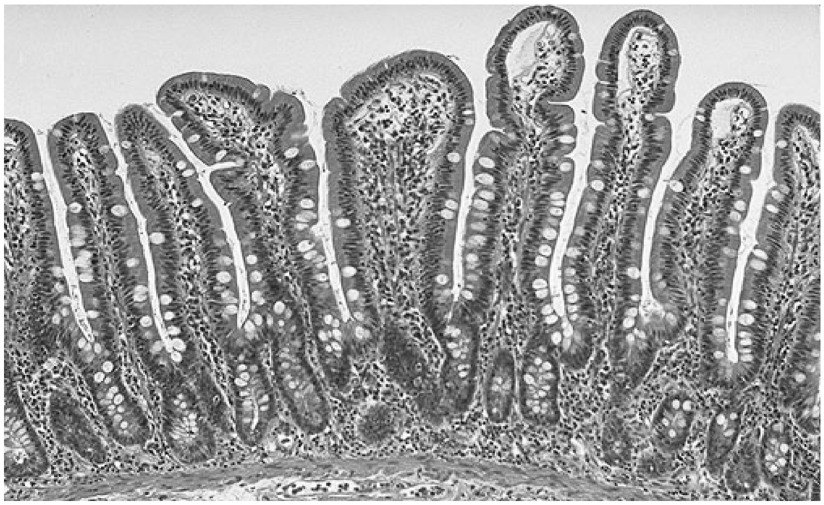
Low and High power view of the Stomach Mucosa



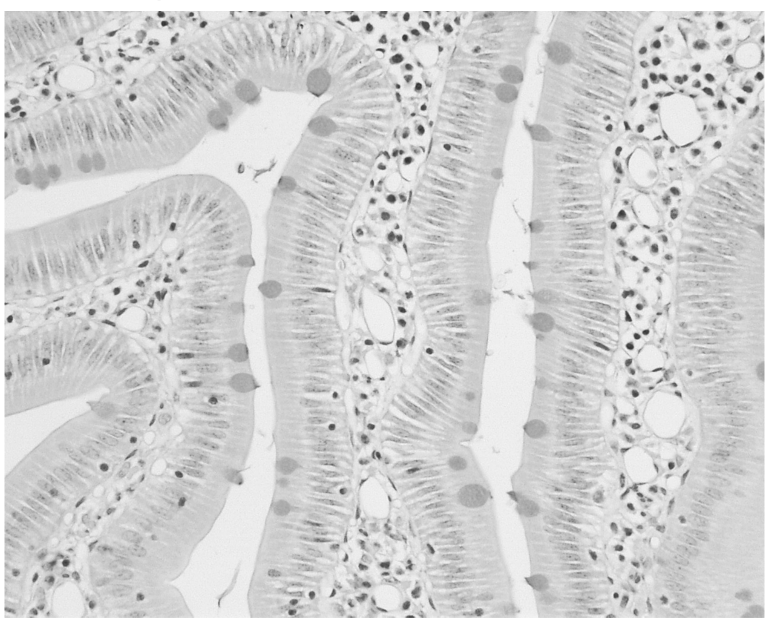
Scanning view of the Small Intestine demonstrating Plicae Circularis



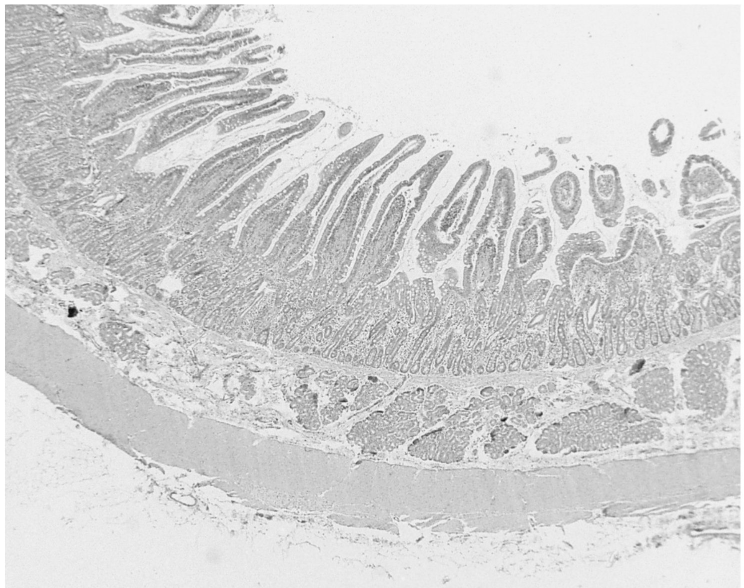
High power view of the duodenal Mucosa



High Power View of Villi

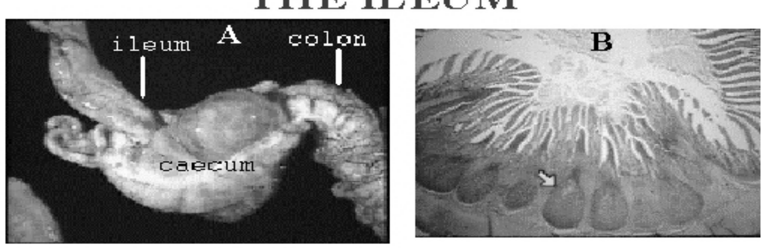


X-sectional view of the duodenum



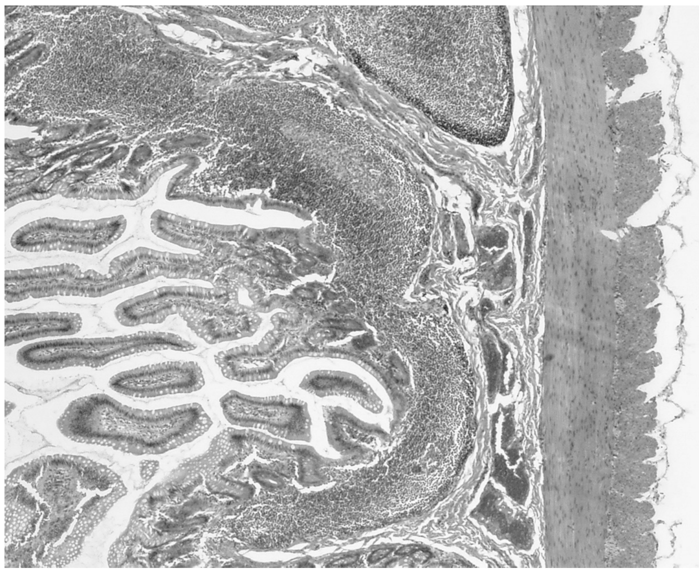
Gross view and low-power view of the ileum

THE ILEUM



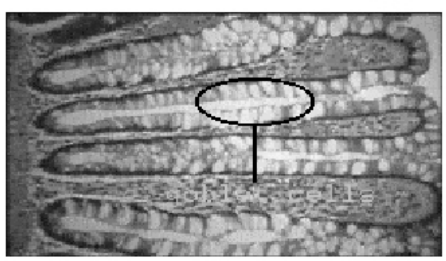
The ileum is the most distal portion of the small intestine (figure A). It shows the typical structure of the gut, i.e., serosa, muscularis, submucosa and mucosa. Aggregations of lymphoid tissue called Peyer's patches are found in the lamina propria immediately under the epithelial lining (figure B).

High-power view of the Ileum demonstrating Peyer's patches



High power view of the colon demonstrating intestinal glands

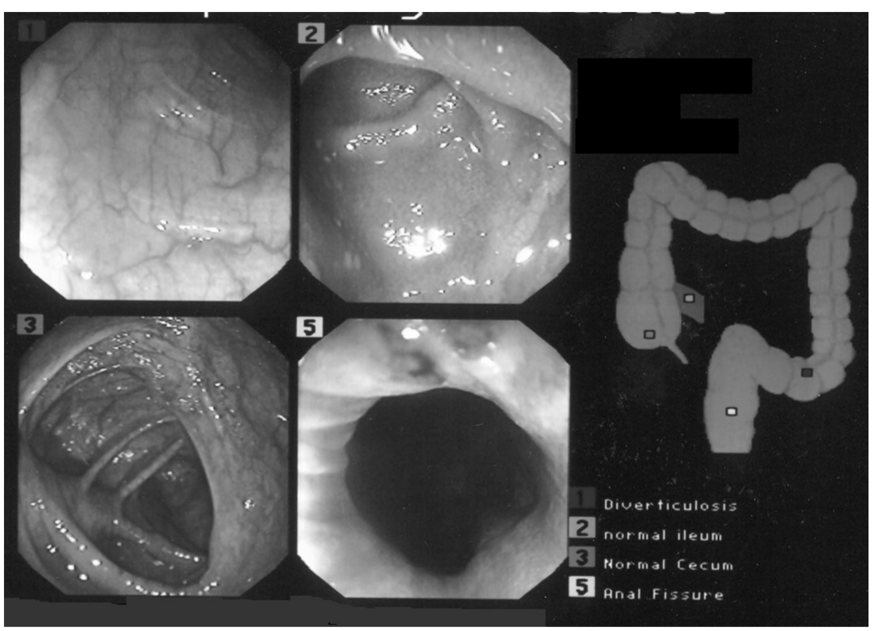
COLON - Histology

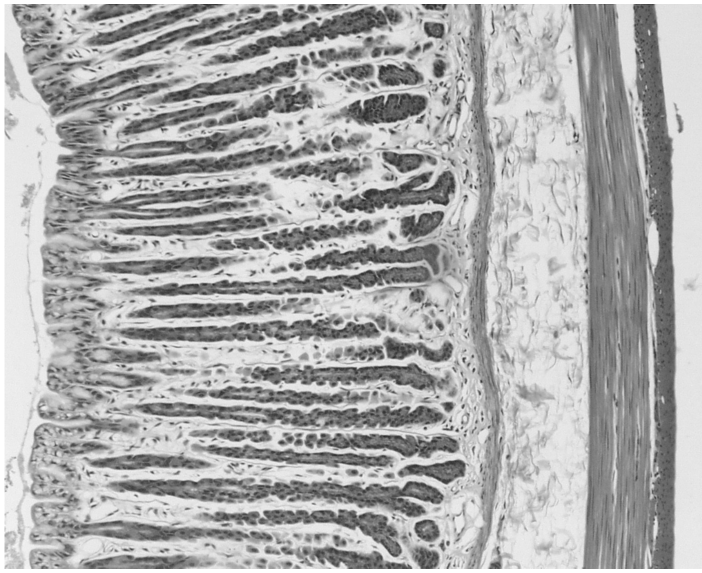


The mucosa of the colon is folded but shows no evidence of villi. The epithelium is simple columnar with an enormous number of mucous-producing goblet cells.

Large Intestine

Large Intestine and Rectum





Ano-Rectal Junction