

The Abdomen

Muscles of the Abdominal Wall

- *Rectus abdominis*
- *External oblique*
- *Internal oblique*
- *Transversus abdominis*

The Descending Aorta *Abdominal Aorta & Branches*

Unpaired arteries :

- *Celiac trunk*-liver, stomach, spleen; Branches- left gastric, splenic, & common hepatic arteries.
- *Superior mesenteric*-pancreas, small intestine, most of large intestine.
- *Inferior mesenteric*-terminal colon & rectum

Abdominal Aorta & Branches (cont'd)

Paired arteries:

- *Inferior phrenic*
- *Suprarenal*
- *Renal*
- *Gonadal*
- *Lumbar*

Mesenteries

- *Fused double sheets of peritoneal membrane; provides routes for blood vessels, lymphatics, and nerves.*
- *Organ reinforcement, prevent entanglement*
- *Lesser/greater omentum, mesocolon(transverse, sigmoid)*
- *Retroperitoneal(pancreas, large intestine); intraperitoneal(stomach)*

The Esophagus

- **Hollow, muscular tube:** 25 cm. long, 2 cm diameter
- **C6 to T7**
- **Angiology:** esophageal, thyrocervical trunk, external carotids, bronchials, celiac trunk & inferior phrenic artery
- **Innervation:** Vagus & esophageal plexus

The Esophagus (cont'd)

- Mucosal stratified epithelium
- Esophageal glands
- Superior 1/3 has skeletal muscles fibers, middle third has skeletal/smooth mixture;bottom third has smooth;visceral reflexes
- No serosa

The Stomach

- Stomach functions in: storage of ingested food, mechanical breakdown, and chemical digestion(chyme formation).
- T7-L3
- 15-25 cm long; empty(50ml),full(up to 4L).
- Rugae
- Cardia, body, fundus, lesser/greater curvatures
- Pylorus, sphincter.

The Stomach (cont'd)

- **Angiology:** left gastric (lesser curve & cardia), splenic(fundus & greater curve),common hepatic(lesser/greater curves of pylorus)
- **Innervation:**Thoracic splanchnic nerves(sympathetic fibers) from celiac plexus; parasympathetics supplied from vagus nerve
- **Musculature:**circular, longitudinal

The Small Intestine

- Body's major digestive organ
- 6m long, 4cm-2.5 cm diameter
- Accounts for 90% of nutrient absorption
- **Plicae circulares**
- **Three subdivisions:** duodenum, jejunum, ileum

Small Intestine (cont'd)

- Duodenum is retroperitoneal; (L1-L4)
- Hepatopancreatic ampulla and sphincter, major duodenal papilla.
- Jejunum;2.5 m long
- Ileum(peritoneal);3.6m long;ends at valve

Large Intestine

- Frames small intestine on three sides and extends from ileocecal valve to anus
- 1.5m long
- **Functions:**(1) resorption of water/ electrolytes;compaction of feces(2)vitamin absorption(bacterial flora)

Large Intestine (cont'd)

- **Cecum, vermiform appendix**
- **Colon:** haustra, taenia coli, epiploic appendages
- **Colon regions:** Ascending>hepatic flexure>transverse>splenic flexure>descending>sigmoid flexure>sigmoid
- **Rectum:** Anal canal/ columns, internal/external anal sphincter, anal orifice.

The Liver

- **Largest visceral organ**
- Functions: metabolic/hematological regulation, bile production.
- Falciform ligament, ligamentum teres, lobes (right, left, caudate, quadrate), porta hepatis
- Angiology: hepatic artery proper, portal vein

Gall Bladder

- **Stores/modifies bile**
- **Fundus, body, neck**
- **Cystic duct**

The Pancreas

- *Exo/endocrine gland*
- *Head, body, tail*
- *Retroperitoneal*
- *Pancreatic/accessory pancreatic duct*
- *Exocrine product-pancreatic juice*
- *Islets of Langerhans*

Veins Draining the Abdomen

- *Lumbar*
- *Gonadal*
- *Hepatic*
- *Renal*
- *Suprarenal*
- *Phrenic*

Hepatic Portal System

Tributaries

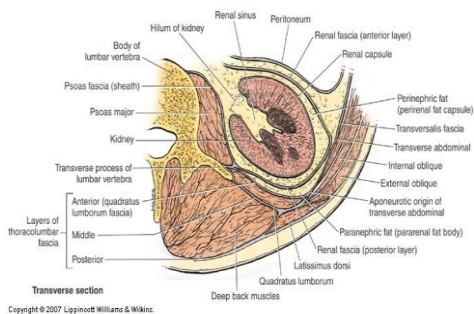
- *Inferior mesenteric*
- *Splenic*
- *Superior Mesenteric*
 - * *Hepatic portal vein formed by fusion of superior mesenteric and splenic*

Posterior abdominal wall

- Kidneys
- Ureter
- Urinary bladder
- Urethra

Kidney Anatomy *Location & External Anatomy*

- Retroperitoneal
- T12-L3
- 12cm long,6cm wide,3cm thick
- Convex lateral surface, concave medial surface (renal hilus)
- Renal capsule,adipose capsule
- Renal fascia



Kidney Anatomy *Internal Anatomy*

- Renal Cortex
- Renal Medulla
- Medullary pyramids
- Renal columns
- Renal pelvis
- Major/minor calyces

Renal histology

- Minor/major calyces, renal pelvis, ureters, urinary bladder, proximal urethra comprised of transitional epithelium

Ureters

- Mucosa
- Longitudinal (inner)
- Circular (outer)
- Adventitia

Kidney Angiology

- Renal artery >segmental> interlobar > arcuate>interlobular>afferent arterioles> glomerulus>efferent arterioles>peritubular capillaries>vasa recta>venules>interlobular veins>arcuate veins>interlobar veins>renal vein

The Adrenal Glands

- Paired
- Cortex
- Medulla
- 3 zones

Abdominal innervation

- Splanchnic nerves (greater, lesser, least)
- Lumbar splanchnic
- Sacral splanchnic
