Embryology, anatomy and physiology of stomach

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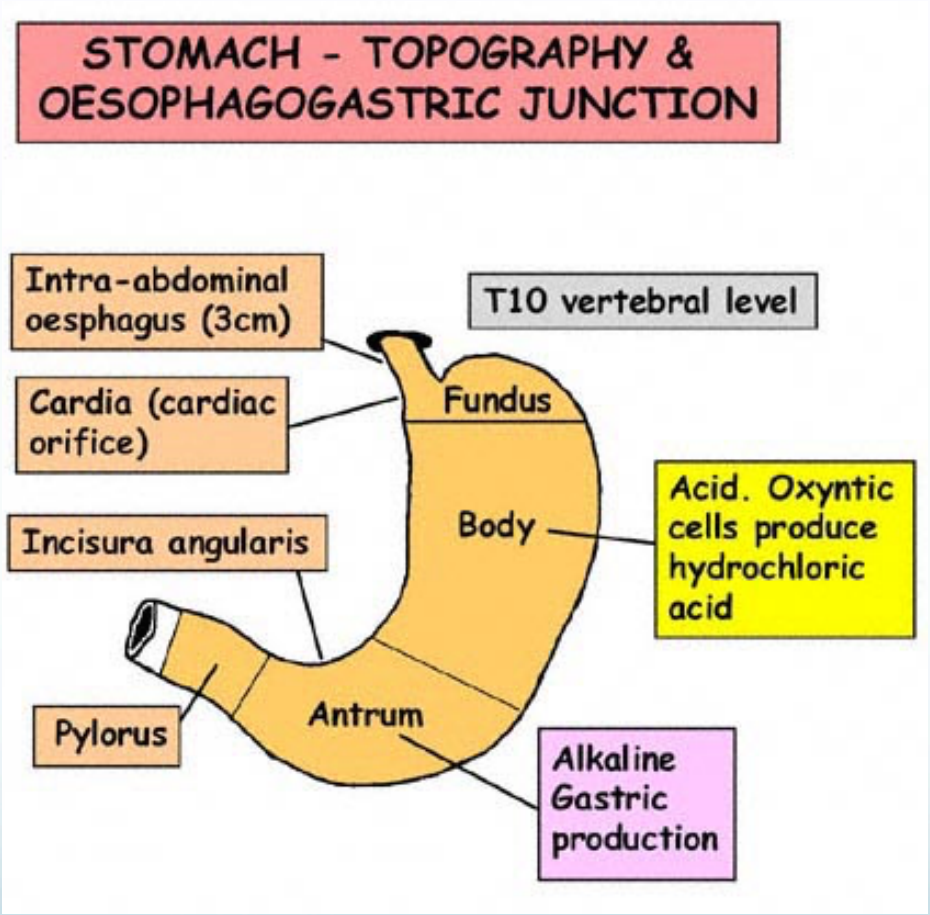
Embryology

Anatomy

- Most dilated part of the alimentary tract
- Lie in left hypochondrial, eipgastric, and umbilical regions.
- Capacity ~1.5L in adult
- Divided into cardia, fundus, body, pylorus
- Completely invested by peritoneum

STOMACH - TOPOGRAPHY & OESOPHAGOGASTRIC JUNCTION



Cardia

- Gastro-oesophageal junction
- Most fixed part of the whole organ
- Lies under the diaphragm
- Left of the midline at T10

Fundus

- Projection upwards above the level of the cardiac
- In contact with left dome of the diaphragm

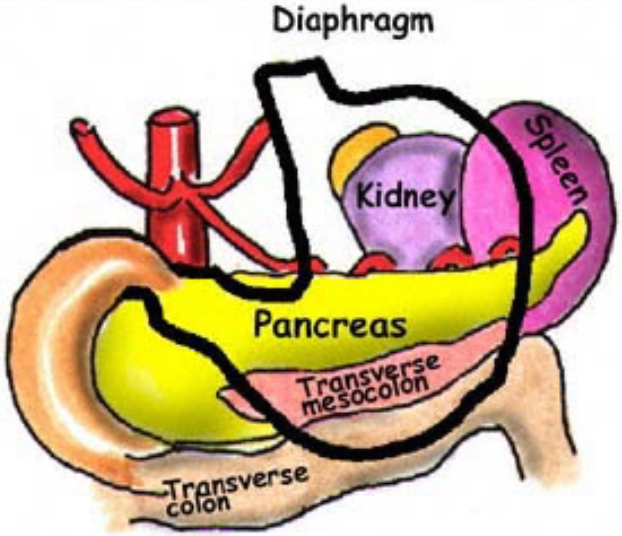
Body

- Largest part of the stomach
- Extends from the fundus to the angular notch

Pyloric part

- Extends from angular notch to the gastroduodenal junction
- Consists of pyloric antrum and pyloric canal
- Distal end of canal = pyloric sphincter
- Narrow lumen within the sphincter = pylorus
- Pyloric sphincter marked by prepyloric vein
- Enclosed between peritoneum of the greater and lesser menta = relative mobility

Relations



ANTERIOR
Abdominal wall
Left costal margin
Diaphragm
Left lobe of liver

SUPERIOR
Left dome of diaphragm

POSTERIOR
Lesser sac
Pancreas
Transverse mesocolon
Transverse colon
Left kidney/suprarenal gland
Spleen/splenic artery

Stomach bed

- Refers to the structures to which the posterior surface of the stomach is related in the supine position.
- Diaphragm (left crus and dome)
- Upper part of the left kidney
- Pancreas/Spleen/Suprarenal gland
- Splenic artery
- Transverse mesocolon
- Aorta and coeliac trunk

Arterial supply

- Supplied by branches from the coeliac trunk
- Left and right gastric arteries (between 2 layers of the lesser omentum)
- Short gastric arteries (in the gastrosplenic ligament)
- Left and right gastroepiploic arteries (between 2 layers of the greater omentum)

Arterial supply

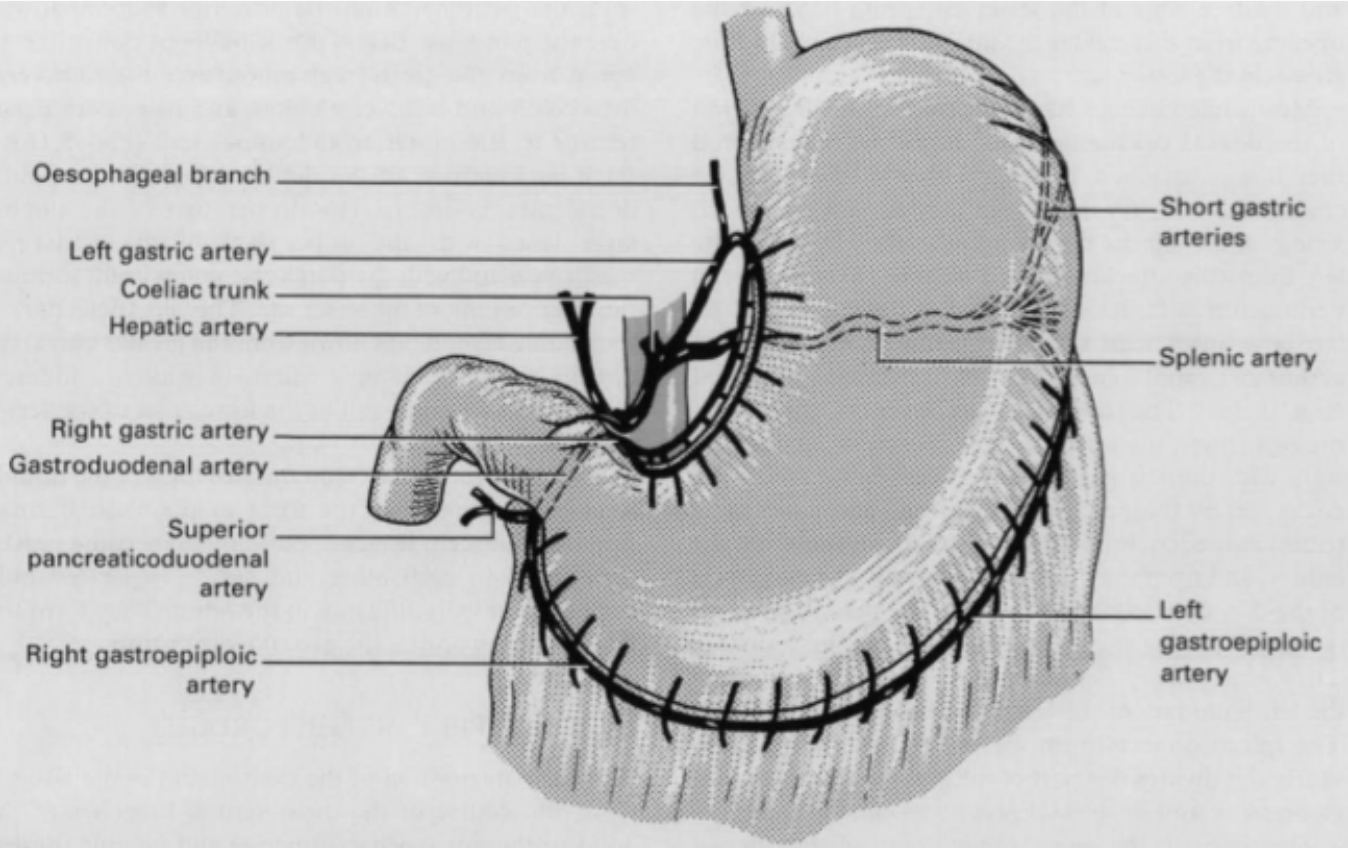
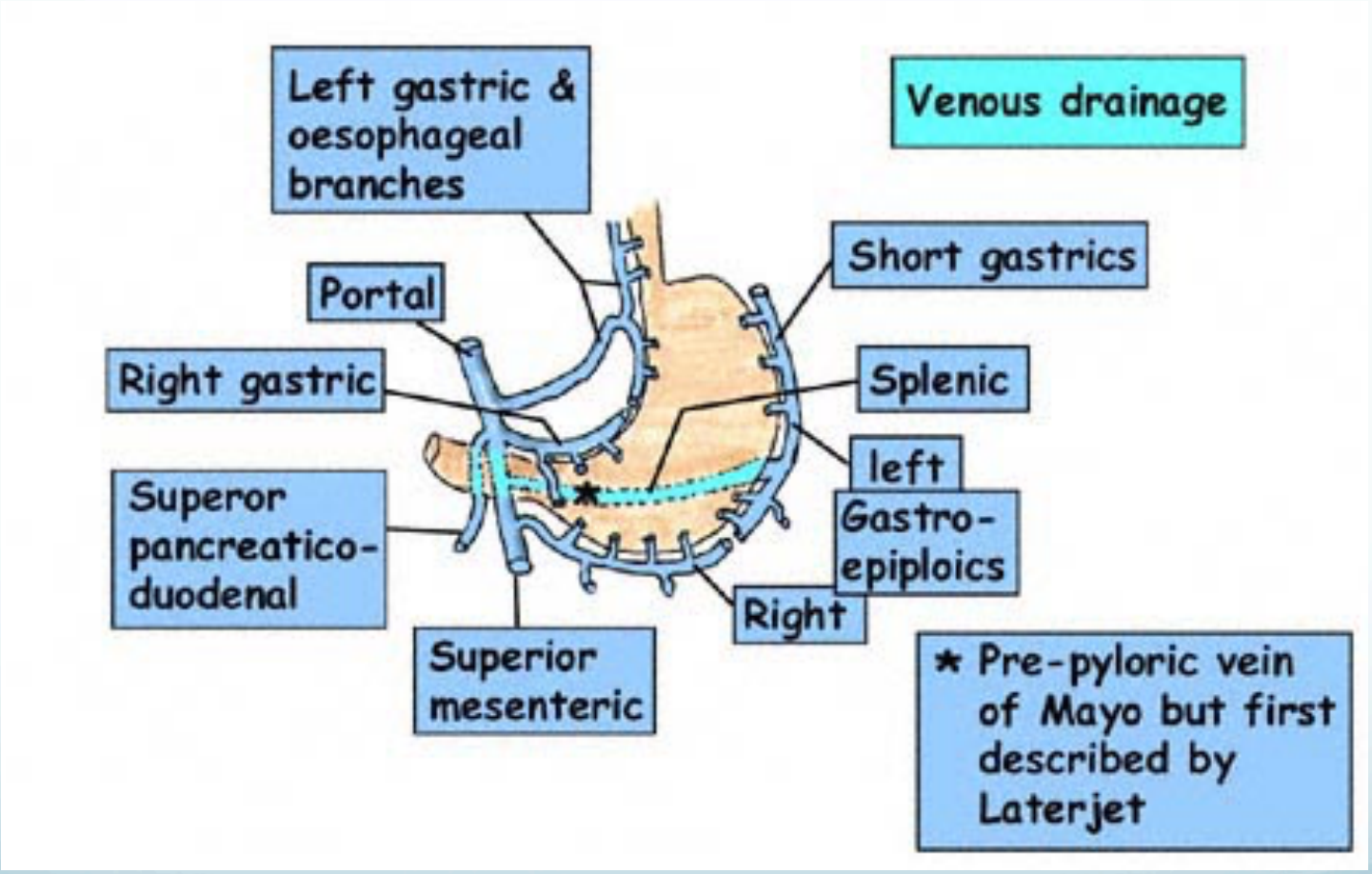


Fig. 5.25 Arterial supply of the stomach, from the three branches of the coeliac trunk.

Venous drainage

- Gastric and gastroepiploic veins run with the corresponding arteries then to portal vein
- SMV
- Splenic vein received short gastric and left gastroepiploic vein.
- Watershed area: oesophageal & left gastric veins

Venous drainage



Lymph drainage

- All lymph eventually reaches coeliac nodes
- Valves in the vessels direct the flow
- ULQ → splenic nodes
- Rest of stomach → gastroepiploic and pyloric nodes
- Troisier's sign

Lymph drainage

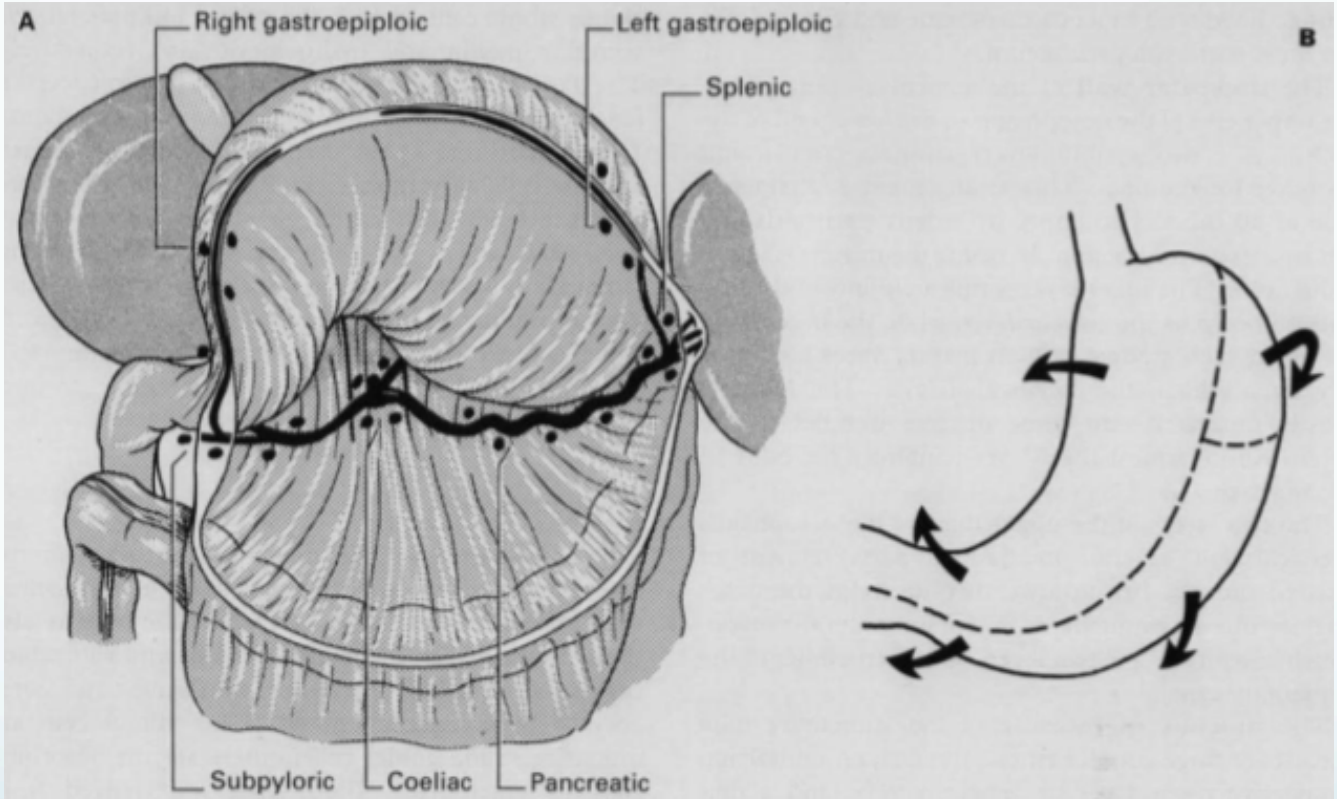
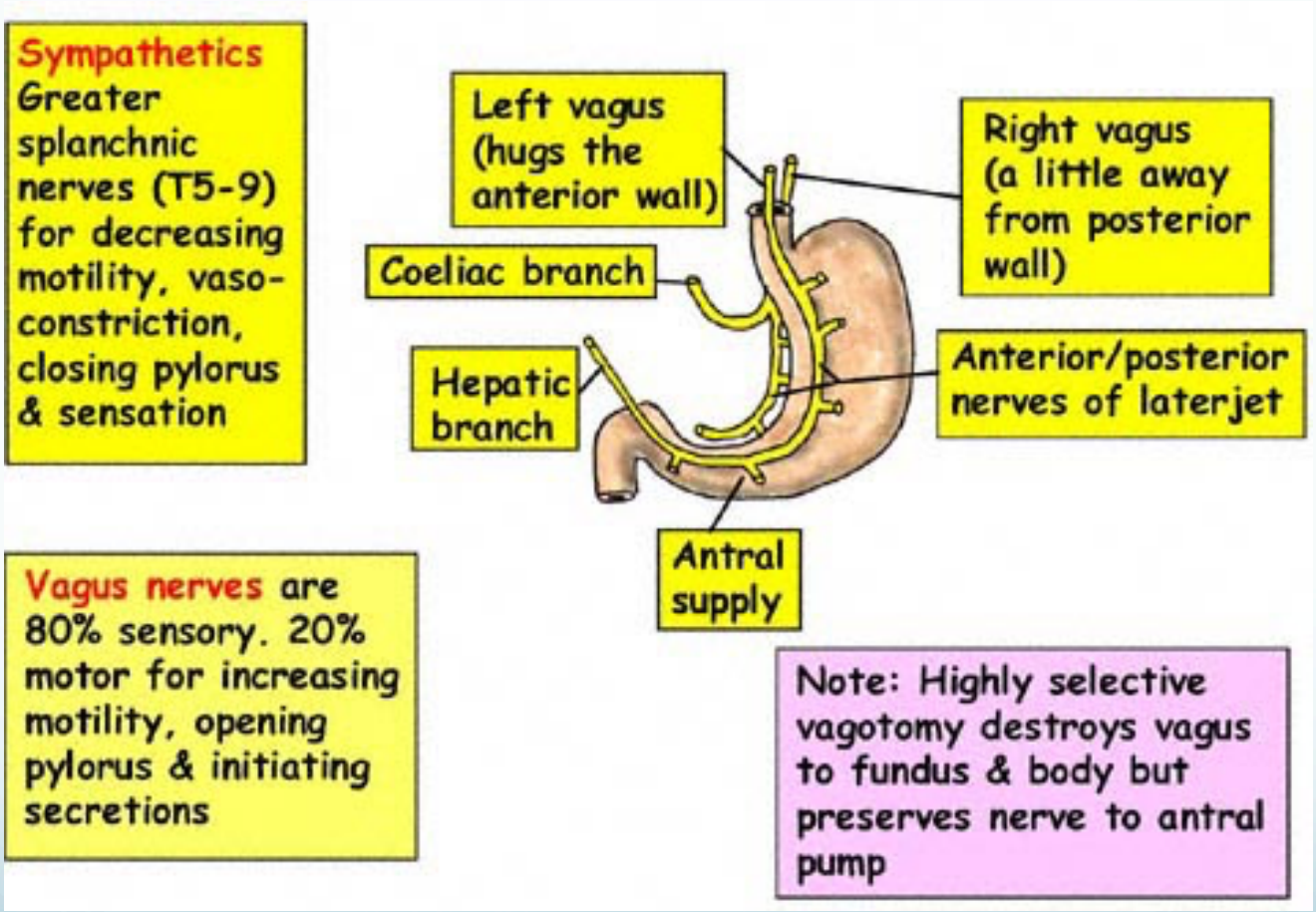


Fig. 5.27 Lymph drainage of the stomach. **A** The lesser sac has been opened up by cutting the gastrocolic omentum above the transverse colon, to show lymph nodes associated with branches of the coeliac trunk. **B** Direction of lymph flow from the stomach, as described in the text.

Nerve supply

- Nerve of Latarget
- Run down in the lesser omentum
- Anterior vagal trunk
  - in contact with oesophagus
  - branches to anterior stomach and liver
- Posterior vagal trunk
  - not in contact with oesophagus
  - branches to posterior stomach and coeliac ganglion

Nerve supply



Vagotomy

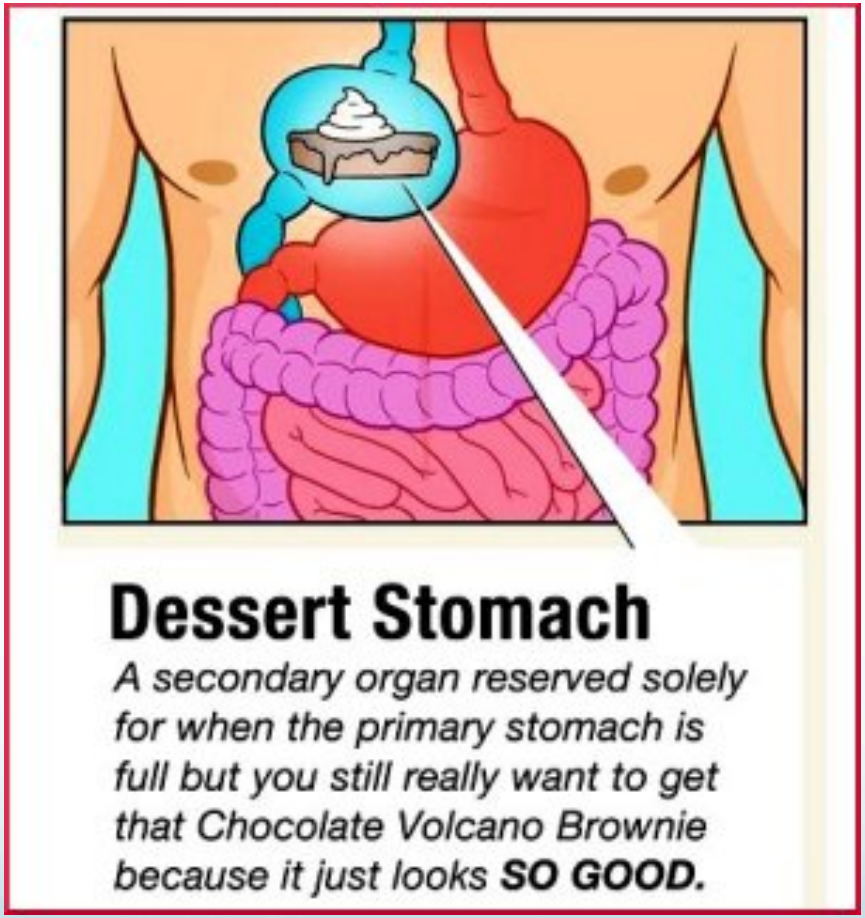
- Truncal
  - at the level of the abdominal oesophagus
- Selective
  - at lesser curvature

→ Gastric stasis

- Highly selective
  - cutting only fundus and body
  - sparing antral nerve

Function

1. Storage of food
2. Digestion of protein
3. Gastrin production
4. Intrinsic factor production
5. Conversion of Fe^{3+} (ferric) to Fe^{2+} (ferrous) to enable ileal receptor mediated uptake
6. Sterilization of gastric content
7. Absorption of food


Dessert Stomach
A secondary organ reserved solely for when the primary stomach is full but you still really want to get that Chocolate Volcano Brownie because it just looks SO GOOD.