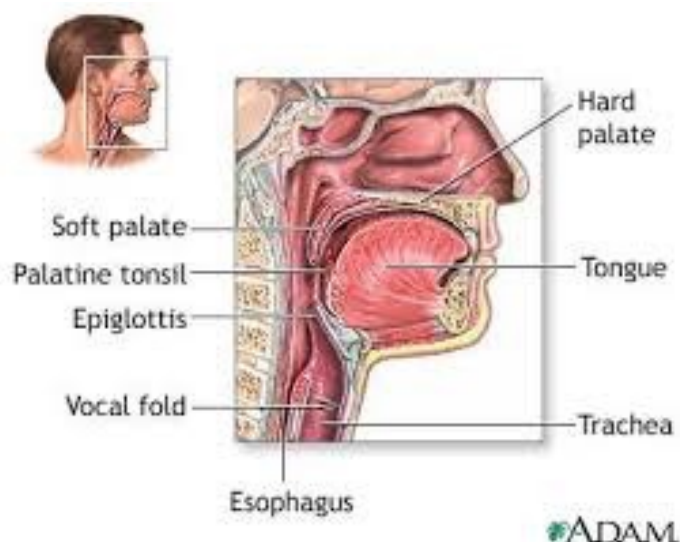


to a bluish face of a person due to lack of oxygen



When the food is dirty (association with the brain), the stomach will revert its movement so the food will go out from the stomach, passing through the esophagus. Reverting requires great amount of energy

- stimulant - one reaction
- poison - continuous reaction
- too much food - one reaction

The stomach can only hold 1 liter of food. As it contracts the volume capacity and diameter become smaller.

- **structure** (gross)

- banana shaped bag that can stretch.
- inner membrane densely folded, corrugation (**rugae**), so can accommodate stretching.
- sealed off on the top by the **cardiac (gastroesophageal) sphincter**
- sealed off on the bottom by the **pyloric sphincter**.

3. **Stomach**

- **storage** = the stomach is a muscular bag that is elastic and can stretch to store food
- **churning** = mechanical digestion = mixing food
- where food stays for **four hours**

- low pH, gastric juice, protection by mucus against self-destruction

- **Parietal cells** secrete **HCl** that causes the pH to be very acidic.

- **Gastric juice** = HCl + pepsin + hormones = secreted by the stomach (parietal, chief cells, and enteroendocrine cells)

- **Pepsin** = protease that works best in acidic environment.

- **Goblet cells** secrete **mucus** lining that protect the stomach from the acid and self-digestion

- first digestion of protein

Chyme - hydrochloric acid + pepsinogen

HCl + pepsinogen = **pepsin** - active form of pepsinogen that acts upon protein

- production of digestive enzymes, site of digestion

- **Chemical digestion**: Stomach produces pepsin, which digests proteins (secreted in an inactive form, gets activated in acidic environment)

- **Pepsin** is special in that it works best at very acid pH.

- **Mechanical digestion**: Stomach churns food (peristalsis)

4. **Small intestine (main digestive organ)**

- absorption of food molecules and water
- major place for digestion and absorption.

- Folds, villi, and microvilli increases the surface area for absorption.

- absorbs digested food into **circulation** (fats into lacteals, all others into **capillaries** - immediately to villi).

- Active transport occurs to absorb against the concentration gradient.

- Intestinal lumen (less glucose) -> enterocyte (more glucose): Secondary active transport by Na⁺-K⁺ pump + Na⁺-Glucose symport.

- Passive/facilitated diffusion occurs to absorb down the concentration gradient.

- Enterocyte (more glucose) -> extracellular fluid (less glucose): Facilitated diffusion (then the glucose will go from the extracellular fluid to blood).

- structure (anatomic subdivisions)

1. Duodenum.
2. Jejunum.
3. Ileum.

Villi

- Villi = finger-like protrusions inside small intestine

- Microvilli = same as villi but on the surface of a single absorptive cell.

- production of enzymes, site of digestion

- The small intestine is the major place for digestion and absorption.