

2/24 Biology Notes

Q: Just by looking at the cow's digestive system, what can you assume?

A: Its long length suggests that cows eat food that is difficult to digest

Structure and function of the human digestive system

- Ingestion
 - mouth, teeth
- Mechanical breakdown
 - teeth
- Chemical breakdown
 - mouth (salvia), stomach
- Absorption
 - small intestine
- Elimination
 - rectum

Human Digestion:

- Fig 34-4
- mouth (ingestion and breakdown)
 - Chewing -> mechanical breakdown
 - Enzymes: amylase -> chemical breakdown
 - enzyme in salvia; breaks down carbohydrates
- stomach (breakdown)
 - Mixing -> mechanical breakdown
 - Enzymes: pepsin (proteins) -> chemical breakdown
 - (Secreted as pepsinogen)
 - Fig 34-14
- small intestine (chemical breakdown)
 - Enzymes in pancreas -> chemical breakdown
 - Other secretions in gall bladder -> chemical breakdown
 - bile (needed for lipid digestion), emulsifier
 - Fig 34-15
- small intestine (absorption)
 - Villi and Microvilli -> a connection to circulatory system
 - Fig 34-16
- large Intestine (absorption)
 - Reabsorption of water and vitamins
 - Fermentation by bacteria

Q: Why is there so much folding in the intestines?

A: increased surface area

How is digestion controlled?

- Digestion is controlled by the nervous system and hormones
- Food triggers nervous system responses:
 - Salivary glands and other parts of the digestive system, preparing it to digest and absorb food

Hormonal Regulation:

- Amino acids and peptides in chyme stimulate cells in the stomach lining to release gastrin into the bloodstream
- Gastrin stimulates further acid secretion in the stomach, which promotes protein digestion
- Fig 34-17 / Table 34-5

Urinary System:

- Homeostasis
 - What is it?
 - something staying the same when the environment around it changes