Digestion, Absorption, Excretion

Today's topics:
• Digestive System
  • Hydrolysis
    • Stomach, Liver, Pancreas
  • Absorption
  • Intestine
• Excretion
  • Kidney (if time)

Digestive System

Digestion, Absorption, Excretion

Today's topics:
• Digestive System
  • Hydrolysis
    • Stomach, Liver, Pancreas
  • Absorption
  • Intestine
• Excretion
  • Kidney (if time)
Back to the Liver

- Hepatic vein takes absorbed nutrients to liver
  - Adjust nutrient balance
  - De-tox poisons

Liver is a major protein synthesis site

Maintaining Glucose Balance

- Stimulus: Blood glucose level rises after eating.
- Homeostasis: 90 mg glucose/100 mL blood
- Stimulus: Blood glucose level drops below set point.

Colon

- Carnivore
- Herbivore

Kidney is a blood filter
Kidney uses osmosis to concentrate urine

The kidney uses osmosis to concentrate urine by reabsorbing water from the filtrate. The concentration of solutes, such as sodium (NaCl), is increased in the medulla, leading to a higher osmotic gradient. This gradient draws water from the collecting ducts, producing a concentrated urine.

Key features:
- Proximal tubule: Reabsorption of water and solutes.
- Loop of Henle: Concentration of solutes and dilution of water.
- Distal tubule: Further modification of solute concentration.
- Collecting duct: Concentration of urine by water reabsorption.

Diagram details:
- Sodium (NaCl) concentration is high in the medulla.
- Water content decreases from the cortex to the medulla.
- Urea is also concentrated in the medulla.

The kidney ensures homeostasis by adjusting urine composition to meet the body's needs, such as maintaining fluid balance and removing waste products.