Digestive & Urinary Systems

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Lesson Objectives/Content Standard

- To know the four stages of creating waste in digestive and urinary systems.
- To recognize the organs in both the digestive and urinary system.
- To understand the functions of each organ in the digestive and urinary system.
- To understand the purpose of the organ function in the digestive and urinary system.
- To understand how the digestive and urinary system maintain homeostasis.

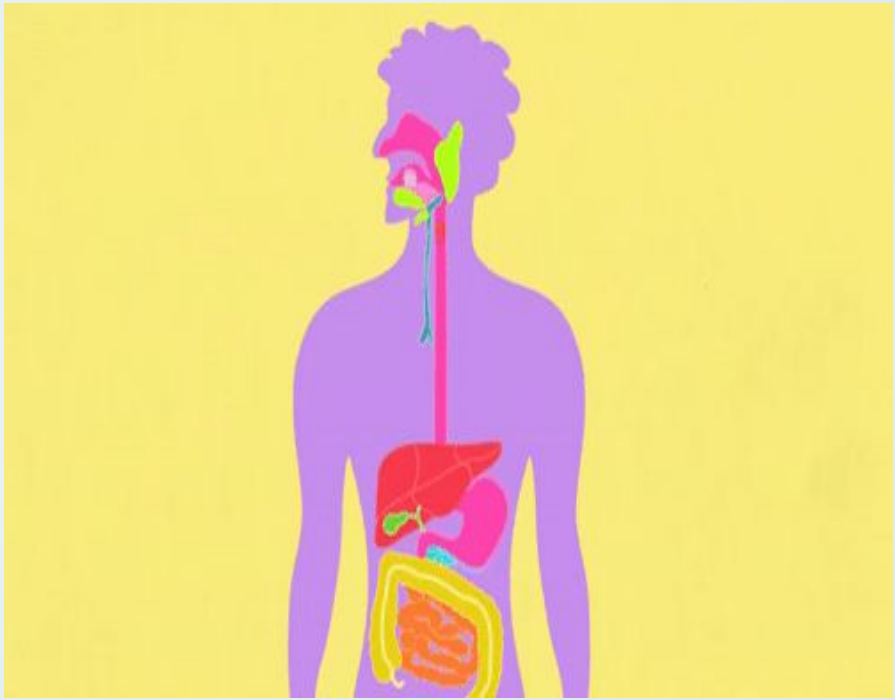
IMPORTANCE OF THE DIGESTIVE SYSTEM/HOW IT MAINTAINS HOMEOSTASIS

The digestive system is important because it breaks down nutrients to a size that allows your body to absorb and use for energy, growth, and cell repair. The organs work together and individually to maintain homeostasis ensuring the stomach environment pH balance and producing hormones that regulate food ingestion and digestion.

Overview

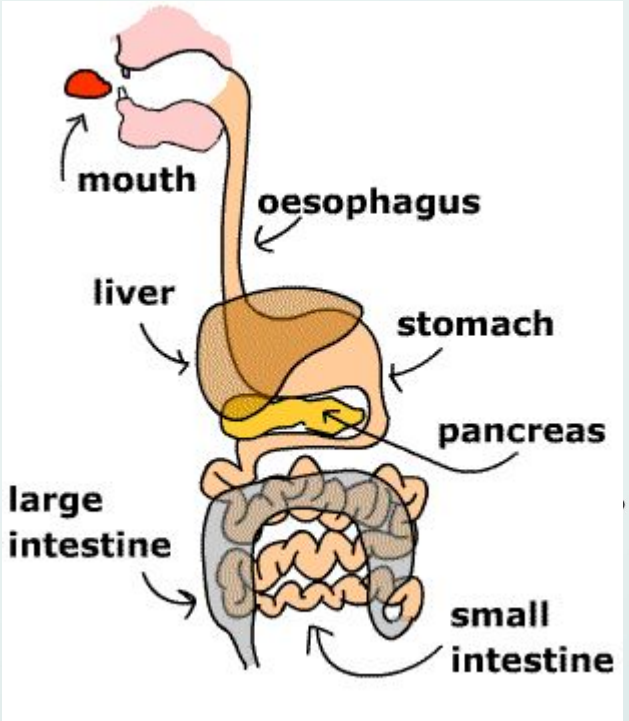
It all starts with the The four stages of the digestive system

- **Ingestion**: The consumption of substances “Eating”
- **Digestion**: The breakdown of substances turning into nutrients for the body
- **Absorption**: The uptake of nutrients into the body
- **Elimination**: Disposal of non consumable substances



Digestive System Organs

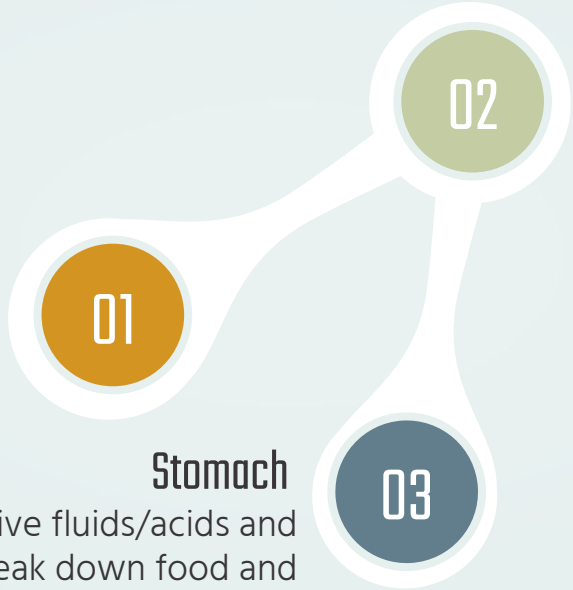
- Mouth
- Pharynx
- Esophagus
- Stomach
- Small intestine
- Large intestine
- Pancreas
- Liver



FUNCTIONS OF THE GASTROINTESTINAL TRACT

MOUTH

The salivary glands moisten food while you chew to break down food that allows it to travel to the stomach easier.



Pharynx & Esophagus

Food and Liquids travel down to the stomach through these organs. It is the start of the Gastrointestinal Tract. Pharynx permits the entry of solids and liquids into esophagus.

Stomach

Creates digestive fluids/acids and enzymes that break down food and stores it until ready to empty into the small intestine.Lined with mucus layer to protect from acid damage. The sac shape is to store food effectively.

FUNCTIONS OF THE GASTROINTESTINAL TRACT

Small Intestine

Further digests food from the stomach and absorbs nutrients and water. It is the longest and smallest, in diameter, segment in the GI tract. The walls make enzymes that work with enzymes from the pancreas and liver to further break down food

Pancreas

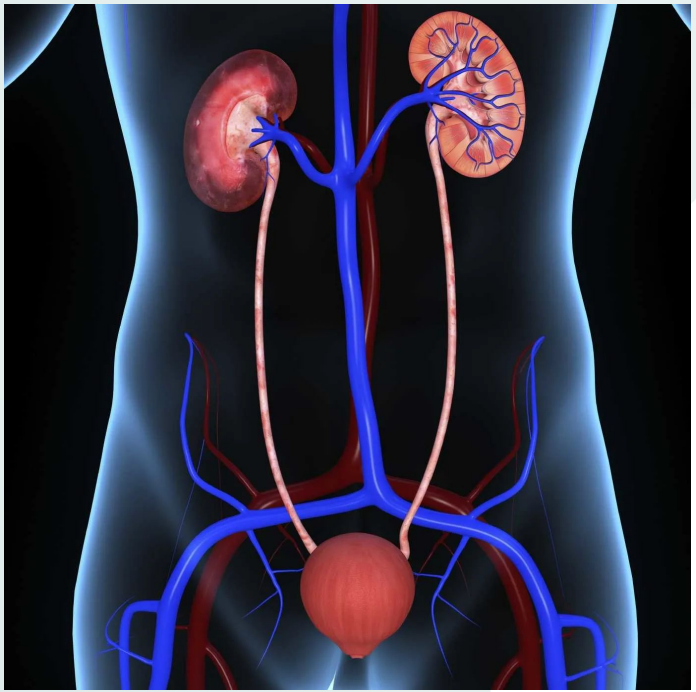
Makes pancreatic fluids, enzymes, that break down sugars, starches, and fats. It also helps make hormones, including insulin and glucagon. The enzymes created by the exocrine gland help break down food in the duodenum segment in the small intestine. The spongy texture makes it blood rich to process blood sugar.

Liver

Breaks down and converts fats containing excess carbs and proteins that are stored for later, also combining other fats such as cholesterol. The blood leaving the stomach and intestines pass through the liver. It balances and metabolizes nutrients and substances to use for the rest of the body.

Large Intestine

Absorbs water and salts that have not been digested as food. It then rids the body of the leftover waste products.. It is divided into the colon (tube), rectum (end of tube, space between colon and anus), and anus(where the waste exits the body.

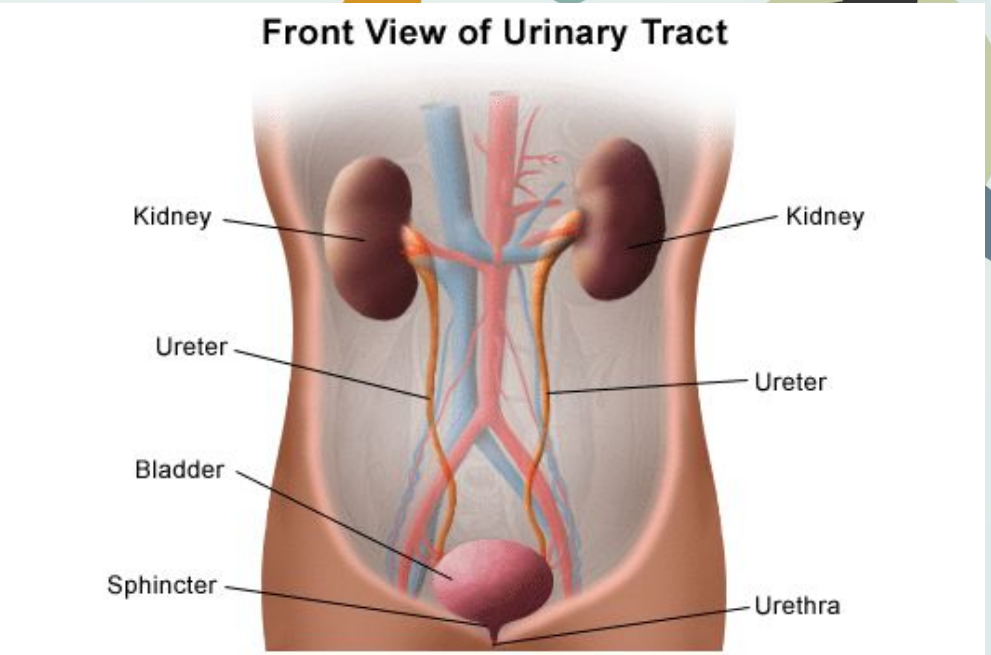


IMPORTANCE OF THE URINARY SYSTEM/HOW IT MAINTAINS HOMEOSTASIS

The urinary system filters out excess fluid and substances from the bloodstream and secreting urine as a waste by-product. It maintains homeostasis by regulating water, pH, and blood pressure.

Urinary Tract

Kidney, Renal Pelvis, Ureter, Bladder, Urethra

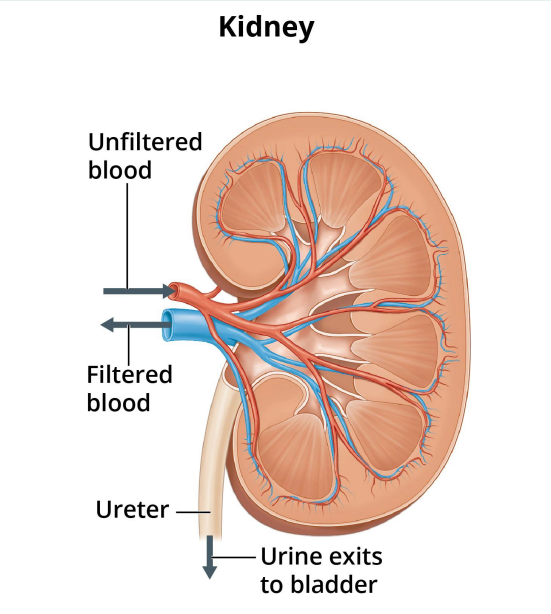


01

IN DEPTH

Kidney

Filters blood and separates vitamins from toxins. Toxins get sent to the renal pelvis as urine and sends vitamins and minerals back into the bloodstream.



Four Steps of Creating Urine

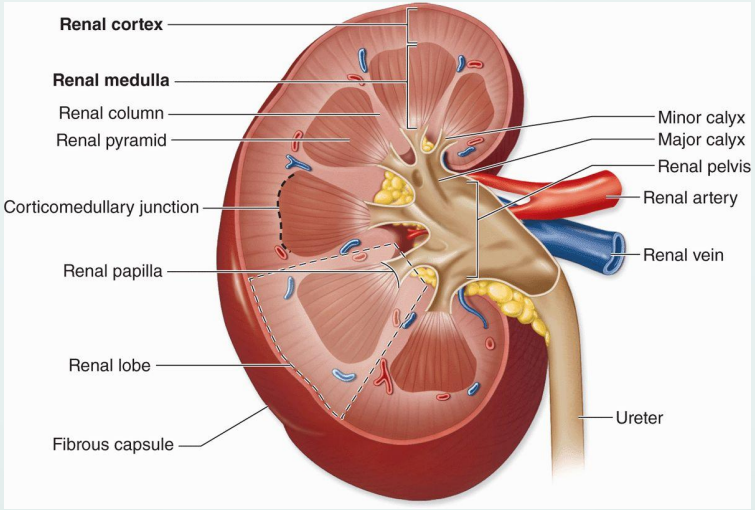
- **Filtration**: The kidney filters blood allowing water and small solutes to pass but stopping blood cells and large protein cells
- **Reabsorption**: Nutrients and water get reabsorbed back into the bloodstream.
- **Secretion**: Hydrogen and waste ions get secreted to create urine.
- **Excretion**: Urine is pushed out of the kidney and onto its path out of the body.

IN DEPTH

02

Renal Pelvis

Works as a funnel to collect urine from kidneys as it is produced and pushes it on the the ureters.



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Ureter

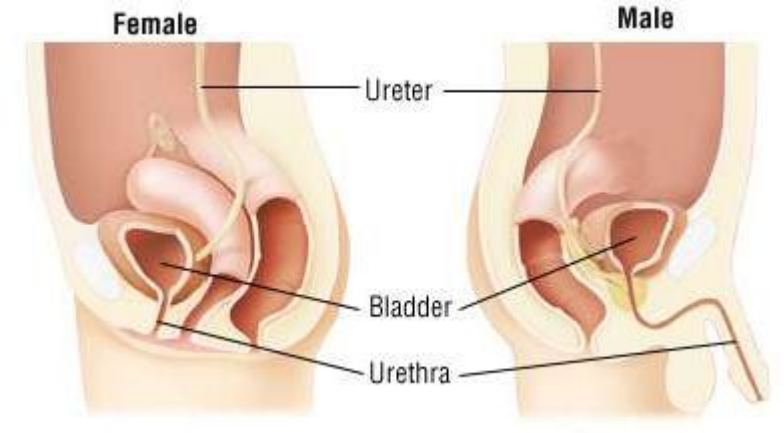
Two tubes that carry urine from the renal pelvis down to the bladder through contracting and relaxing to push the waste down.

IN DEPTH

04

Bladder

Pouch-like organ that expands with the addition of urine. It then contracts to force the urine down into the urethra. Can hold up to 500 mL of urine for women and 700 mL for men. The triangular shape of it helps funnel the urine into the urethra.



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Urethra

Tube that expels liquid waste from the body. Comes in the form of a penis for a man and a vagina for a woman.

Homework

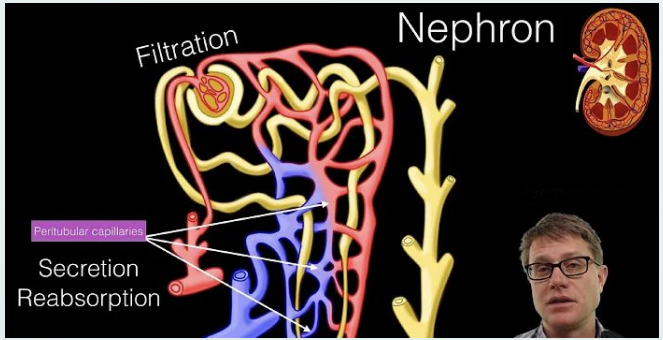
Watch these two videos and take notes:

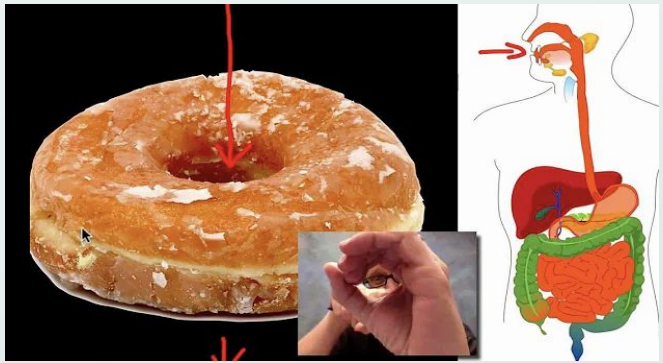
- “The Urinary System”

https://www.youtube.com/watch?v=H2VkW9L5QSU

- “The Digestive System”

https://www.youtube.com/watch?v=nM5kMSjBrmw





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