Your Digestive and Urinary Systems

Chapter 18 Lesson 1

Functions of the Digestive System

- **Digestion-** *the mechanical and chemical breakdown of foods for use by the body's cells*
- **Absorption-** *the passage of digested food from the digestive tract to the circulatory system*
- **Elimination-** *the expulsion of undigested food or body wastes*
- Once food is broken down, nutrients from it are absorbed through the small intestine.
- Food not broken down during this process is eliminated as waste.

The Mouth and Teeth

- Digestion begins in the mouth with the teeth, tongue, and salivary glands.
- **Ingestion-** *the taking of food into the body,* takes place in the mouth

The primary function of your teeth is to break down food into smaller pieces.

Mastication- *the process of chewing,* prepares food to be swallowed.

The Tongue

- Your tongue forms food into a ball to prepare for swallowing.
- As you begin to swallow, a wave of muscular contractions pass over your tongue, forcing food into the pharynx.
- At the same time, the ovula, a small muscular flap of tissue suspended at the back of your mouth, closes over the opening to the nasal passages.

The Esophagus

- The muscular tube that extends from the pharynx to the stomach, situated behind the trachea.
- The esophagus is about 10 inches long.
- A process called **peristalsis-***a series of involuntary muscular contractions,* moves food through the esophagus.
- A sphincter muscle opens to allow food to enter the stomach. Sphincter muscles are located along the digestive tract to prevent food from backing up.

The Stomach

- The stomach is flexible and consists of three layers of muscles. The main activities of the stomach are to:
- Continue breakdown of food
- Serve as a storage organ for food until it's ready for the small intestine
- Mix together food and **gastric juices-** *secretions from the stomach lining that contain pepsin and hydrochloric acid.*
- *Pepsin is an enzyme that breaks down protein*
- *Hydrochloric acid kills bacteria and is strong enough to dissolve metal.*
- As food is churned in the stomach, food is turned into **chyme-** *a creamy, fluid mixture of food and gastric juices.*

The Small Intestine

- The majority of digestion and absorption occurs in the small intestine.
- The small intestine is 20-24 feet long.
- Consists of three parts: the duodenum, the jejunum, and the ileum. Chyme enters the duodenum from the stomach. The ileum opens into the large intestine.
- Peristalsis moves food through the small intestine in three to five hours.
- Millions of fingerlike projections called villi line the small intestine. Villi increase the surface area of the jejunum and allow more absorption to take place.
- Unabsorbed material leaves the small intestine and enter the large intestine.

The Large Intestine

- The large intestine (colon) forms the lower part of the digestive tract and is 5-6 feet long.
- The main functions of the large intestine are to absorb water and eliminate undigested food.
- Water absorption in the large intestine is where the majority or vitamins, and mineral salts are absorbed into the bloodstream.
- Many harmless bacteria live in the large intestine, changing the consistency of undigested food to a semisolid waste, called feces.

Organs that Aid Digestion

- **The Liver-** the second largest organ in your body (skin is the largest) functions as your body's chemical factory and regulates the levels of most of the main chemicals in your blood.
- The liver acts to clear the blood of drugs and poisonous substances. The liver absorbs these substances, changes their chemical structures, and makes them water soluble.
- These substances are then excreted in **bile-** *a yellowish/green bitter fluid important in the breakdown of fats.*

Organs that Aid Digestion cont.

- **The Gallbladder-** a small pear shaped sac 3-4 inches long located underneath the liver.
- The neck of he gallbladder forms a neck leading to the duodenum-the first section of the small intestine.
- The gallbladder stores bile until food moves into the duodenum from the stomach.

Organs that Aid Digestion cont.

- **The Pancreas-** as part of the endocrine system, produces the hormone insulin.
- As part of the digestive system, the pancreas produces three digestive enzymes: trypsin-digests proteins, amylase- digests carbohydrates, lipase- digests fats.