

The Esophagus

By Jennifer Kenny



- Digestion begins in the mouth. After food is broken down into small pieces, the tongue pushes these pieces into a round lump called a bolus so it is ready to travel from your mouth to your stomach.
- Well, when the time is right, the epiglottis, a flap of tissue, closes to prevent food from going down your trachea. The trachea is also called the windpipe. Therefore, the food can go down the tube it needs to enter, the esophagus, and not your windpipe, which would cause you to choke.
- The esophagus, the tube that goes from the mouth to the stomach, can be found behind the windpipe and heart. The esophagus is made of muscular walls and is about ten inches long in an adult.
- The outer layer of the esophagus is called the serosa. It is thin and it is a layer of connective tissue. Then comes a layer of longitudinal muscles, followed by a layer of circular muscles. Underneath the circular muscles is the submucosa. It is a tough, elastic layer and contains blood vessels and nerves. The inner layer is known as the mucosa. It is coated with a slimy liquid called mucus.
- The rhythmic contractions of the muscular walls in the esophagus push the food bolus toward the stomach. This process is called peristalsis. Picture this process like you would be squeezing toothpaste out of its tube. The ring of muscle in the esophagus behind the food bolus contracts and the ring of muscle in front of it relaxes. The bolus gets pushed to where the muscles are relaxed and keeps getting pushed this way. This peristaltic wave travels at about 1.6 inches per second.
- At the bottom of the esophagus is the esophageal sphincter. It is actually a ring of muscle. This muscle is usually tightly shut. When food arrives, though, the muscles relax to allow food to enter the stomach. Then the muscles contract and close the entrance. If the esophageal sphincter doesn't close properly, heartburn, which is a burning sensation, can occur. This is because the stomach acids can move into the esophagus where they don't belong.
- Can you imagine how quickly this all occurs? The food is able to go from the mouth to the stomach in five to six seconds!

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1. Digestion begins in the _____. <input type="radio"/> A Mouth <input type="radio"/> B Stomach <input type="radio"/> C Esophagus	2. When it is time to swallow your food, the _____ closes to prevent it from going down the trachea. <input type="radio"/> A Esophagus <input type="radio"/> B Sphincter <input type="radio"/> C Epiglottis
3. The outer layer of the esophagus is called the _____. <input type="radio"/> A Serosa <input type="radio"/> B Mucosa <input type="radio"/> C Submucosa	4. The process in which the contracting and relaxing of the muscular walls of the esophagus push food from the mouth to the stomach is called _____. <input type="radio"/> A Peristalsis <input type="radio"/> B Mucus <input type="radio"/> C Tubing
5. What is the name of the ring of muscle that allows food to enter the stomach? <input type="radio"/> A Submucosa <input type="radio"/> B Esophageal sphincter <input type="radio"/> C Epiglottis	6. Compare peristalsis to the process of squeezing toothpaste out of its tube. _____ _____ _____
7. Which statement can you infer from the informational passage? <input type="radio"/> A If the esophageal sphincter remains open after letting food enter the stomach, the individual may experience a painful result. <input type="radio"/> B If the esophageal sphincter remains open after letting food enter the stomach, there is no painful result.	8. Which is the main idea of this passage? <input type="radio"/> A The esophagus is the tube sending food from the mouth to the stomach during the digestive process. <input type="radio"/> B Heartburn is a burning sensation. <input type="radio"/> C The esophagus in an adult is about ten inches long.

The Stomach

By Jennifer Kenny



- Can you place your hand on your stomach? If you placed it on your belly button, you actually want to move your hand higher. The stomach is actually at the top of your abdomen.
- Think of your stomach as a bag made of muscles. It is shaped like a j. An adult's stomach is about ten inches long. Like a bag, the stomach can only fit so much. An adult's stomach can hold around 2.5 pints of food.
- As you know, digestion begins in the mouth. A round lump called a food bolus is sent from the mouth down the esophagus into the stomach. The stomach has three areas. The fundus is the upper part. The body is the middle part. The pylorus is the lower part. The stomach also has layers similar to the esophagus (serosa, muscles, submucosa, and mucosa).
- The mucosa contains glands that produce gastric juices. These juices are made of powerful acids and enzymes. The gastric juices contain hydrochloric acid that is strong enough to burn a hole in your carpet!
- Now, by the time food has reached the stomach, it has already changed into fat, protein, starch, and sugar. The stomach muscles contract and relax about three times a minute. This churns the food, thereby mixing it with the powerful digestive juices. This process turns food into a liquid called chyme.
- During this process, the starches and sugars stay in the stomach for one to two hours. Proteins remain for three to five hours. Fats stay even longer.
- During the whole process, the lining of the stomach is protected by mucus so the gastric juices, which are so powerful, don't hurt the stomach itself. Even so, the lining cells wear out and new ones constantly have to be produced. Incredibly, the whole stomach lining is replaced every three days!
- Now, despite these amazing tidbits, you might be wondering what happens to the chyme. The chyme moves through the pyloric sphincter into the small intestine. The pyloric sphincter is a ring of muscle that is usually shut tight so that the contents of the stomach can't leave before they are ready. When the contents are ready, though, contractions push some contents out and into the small intestine.
- When the stomach is finally empty, it tells the brain. Then you'll start to feel hungry. Did you ever hear your stomach growl? Well, that's the churning of these incredible stomach muscles – getting ready to work even before you've eaten!



The Stomach

1. Which best describes the location of the stomach in the human body? <input type="radio"/> A Near your belly button <input type="radio"/> B Bottom of the abdomen <input type="radio"/> C Top of the abdomen	2. The shape of the stomach most resembles the letter _____. <input type="radio"/> A J <input type="radio"/> B P <input type="radio"/> C X
3. An adult's stomach can hold around _____ pints of food. <input type="radio"/> A 25 <input type="radio"/> B 2 ½ <input type="radio"/> C 250	4. Pick the correct order of stops along the digestive tract. <input type="radio"/> A Mouth, small intestine, esophagus, stomach <input type="radio"/> B Small intestine, mouth, esophagus, stomach <input type="radio"/> C Mouth, esophagus, stomach, small intestine <input type="radio"/> D Small intestine, stomach, esophagus, mouth
5. Food leaves the stomach in a liquid form called _____. <input type="radio"/> A Chyme <input type="radio"/> B Mucus <input type="radio"/> C Hydrochloric acid	6. Which usually stays the longest in the stomach? <input type="radio"/> A Fats <input type="radio"/> B Proteins <input type="radio"/> C Starches and sugars
7. The whole stomach lining is replaced every _____ days. <input type="radio"/> A 6 <input type="radio"/> B 9 <input type="radio"/> C 3	8. The selection ends by telling you about something your stomach does. What does it tell you about? <input type="radio"/> A Stomach lining replaces itself <input type="radio"/> B Food entering the stomach <input type="radio"/> C Stomach growls and churns