



Curiosity Guide #204

Digestive System

Accompanies Curious Crew, Season 2, Episode 4 (#204)

Peristalsis Power

Investigation #2

Description

Do you know how food travels from your mouth to your stomach?

Materials

- Two friends plus you
- Saltine crackers
- Rubber ball
- Stocking or pantyhose cut to eight inches in length
- Stopwatch

Procedure

- 1) Each person gets a saltine cracker. At a signal, you will all begin chewing the cracker, *but...*
- 2) One person will chew the cracker while lying on his or her side. One person will chew the cracker while in a handstand position. The third person will chew the cracker while in a normal eating position.
- 3) At a given signal, everyone swallows. Immediately count or time 5 to 6 seconds.
- 4) Guess what? The food successfully traveled through the esophagus and into the stomach, even though two of you were not upright!
- 5) Place the rubber ball into the stocking. The ball represents food. The stocking is the esophagus that connects the mouth to the stomach.

- 6) Gently squeeze above the ball to force it through the stocking in a series of squeezes.
- 7) This squeezing action can go from top to bottom. We call this swallowing. The squeezing action can also go from bottom to top. We call this vomiting.

My Results and Observations

Explanation

The food, which is also known as bolus, enters the esophagus through the mouth. The esophagus is a tube, roughly 8 inches long. It connects the mouth to the stomach. The esophagus is positioned behind the windpipe and in front of the spine.

A muscular squeezing action pushes the food along the esophagus. The muscular pushing allows people to swallow and move food through the digestive tract when they are lying on their sides, or even when they are upside down. This muscular squeezing action is called peristalsis. Reverse peristalsis is the motion that permits a person to vomit.

Thanks to peristalsis, food will travel to the stomach, regardless of the way the esophagus is pointed.

Your esophagus has an important job, carrying food from your mouth to your stomach. On each end of that 8-inch long tube are muscles that will open or close the esophagus. Those upper muscles make sure that food goes to your stomach and air goes to your lungs. The lower muscles keep the food and acids in your stomach. Sometimes, if those muscles don't close all the way, those acidic juices can come up into the esophagus, and that is what people call heartburn. Esophagus burn would be a better name for it! Ouch!!

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