

Getting to Know: Digestive

Humans, like all other animals, need to eat food to survive. Our bodies use food for fuel. Food also contains many important nutrients, vitamins, and minerals that we need to stay healthy.

The nutrients in food are broken down, extracted, and absorbed into the bloodstream by the digestive system. *Digestion* is the process by which the body breaks down food into usable nutrients and waste products.

What is the purpose of the digestive system?

The *digestive system* actually has three main functions. Its first job is to break food down into nutrients that the body can use. It then absorbs these nutrients into the bloodstream so that they can be carried to the rest of the body. Finally, it eliminates any remaining substances that cannot be used by the body. This material is excreted as waste.



Fruits like apples provide natural sugars and other nutrients that your body needs.



Misconception 1: *Is it true that it takes seven years for the body to digest gum?*

It does not take seven years to digest gum. Gum travels through the digestive system just like any other solid. Any nutrients in the gum are extracted and absorbed, and the rest is eliminated as waste.

Which organs make up the digestive system?

The structure of the digestive system consists of organs that help break down food, absorb nutrients, and eliminate wastes. All of the organs in the digestive system serve at least one of these functions.

Organs that contribute to the breakdown of food include the mouth, esophagus, and stomach as well as the pancreas and gallbladder. Nutrients are absorbed through the small intestine, and remaining waste is eliminated through the large intestine and rectum.



Misconception 2: Doesn't digestion begin in the stomach?

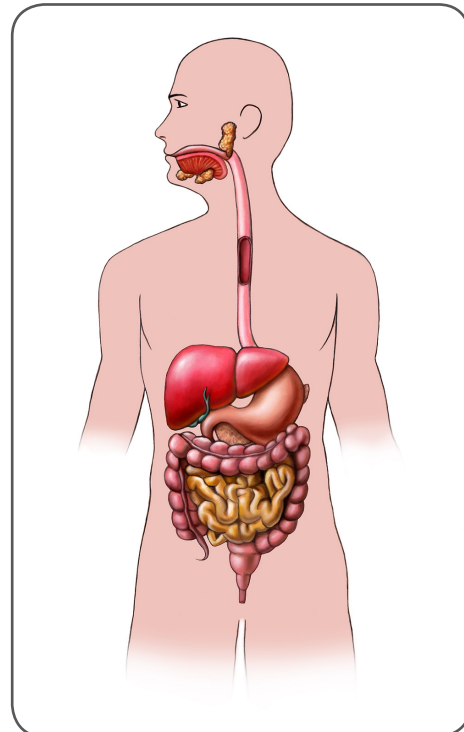
Digestion actually begins as soon as you put food into your mouth. The mechanical motion of chewing and the chemical process of adding saliva begin breaking food down. From there, food travels down the esophagus to the stomach, where digestion continues.

How does digestion work?

Digested food follows the passageway of the *alimentary canal*. This canal is a mucous membrane-lined tube of the digestive system through which food passes, mechanical and chemical digestion takes place, nutrients are absorbed, and waste is eliminated. It is also sometimes called the *gastrointestinal tract*.

Digestion begins when you put food in your mouth. This is the first phase of digestion called the *cephalic* phase. Chewing mechanically breaks down food, whereas the addition of saliva softens the food and begins the chemical breakdown. The food then travels down your esophagus to your stomach. There the continuous churning and the addition of the stomach's digestive fluids further break down the food. Additional enzymes from the pancreas and gallbladder also assist in the chemical breakdown once the food moves on to the small intestine for the *intestinal* phase of digestion.

Absorption of nutrients takes place in the small intestine. The surface of the small intestine is covered with millions of tiny finger-like structures called *villi*. Villi have very thin walls, and the nutrients from food pass easily through them into the bloodstream. Once all the nutrients are gone, all that is left is the matter that cannot be digested and must be eliminated from the body. At this point, the remaining matter moves into the large intestine. The large intestine carries it to the rectum, where it is excreted through the anus. At this point, the process of digestion has been completed. In this concept, you will learn more about how the digestive system functions.



The digestive system consists of the organs that help break down your food and eliminate wastes.



Misconception 3: Is it true that digestion only involves chewing and mechanical processes?

Digestion involves both mechanical and chemical processes. Chemical reactions involving enzymes speed up the digestion of food as it passes through the digestive system.