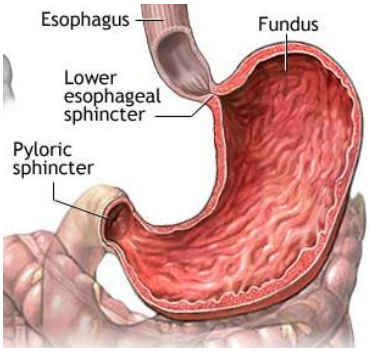
The Stomach and Digestion



The stomach is found on the left side of the abdominal cavity. The food that enters the stomach via the esophagus is controlled by the **esophageal sphincter**.

As food enters the lower esophagus, the esophageal sphincter opens, allowing the food to enter the stomach at a controlled rate. The sphincter then closes (*similarly to a drawstring on a bag*), preventing food and stomach acid from percolating upward (heartburn).

Acidic secretions in the stomach

Inside the stomach, food is liquefied by acid secretions of the **gastric glands** in the wall of the stomach. These glands produce water secretions called gastric juices, which contain **hydrochloric acid (HCl)**, and an inactive form of enzyme called **pepsinogen**. Inside the stomach, the food is churned by peristalsis and mixed with these gastric juices. Combined with the liquid from the salivary glands and the gastric glands, the food becomes a watery paste known as **chyme**.

The role of the stomach

Very little enzymatic digestion occurs in the stomach. The stomach's role is to prepare most food for enzymatic digestion that occurs in the small intestine. There are some exceptions however, and protein is one of them.

Hydrochloric acid (HCl) acts on **pepsinogen** converting it to its active form know as **pepsin**. Pepsin is an enzyme that catalyses the breakdown of protein into large fragments that will be broken down further in the small intestine.

Stomach: acidic setting

Hydrochloric acid (HCl) also creates an acidic environment in the stomach that kills most bacteria, thereby protecting the body from infection. The stomach lining is protected from destruction by an alkaline secretion known as mucus. Mucus coats the inner layer of the stomach (epithelium) protecting it from acid and pepsin. When HCl and pepsin come in contact with the epithelial cells of the wall of the stomach, painful ulcers form.

Chyme exits the stomach to enter the small intestine.

Chyme is ejected from the stomach into the small intestine by peristaltic contractions. When the wave of contraction reaches the pyloric sphincter, it opens and squirts into the small intestine.