Stomach Histophysiology Encyclopedia Article

Stomach Histophysiology

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Stomach Histophysiology

The enlarged segment of the digestive tube between the esophagus and the small intestines is termed the stomach, and is located in the abdominal cavity below the **diaphragm**, occupying the left hypochondriac, the epigastric, and part of the right hypochondriac space. The stomach contains two orifices, the cardia that communicates with the esophagus, and the pylorus that gives access to the duodenum. The main portion of the stomach is known as the body and the part proximal to the pyloric canal, or pyloric region, is termed antrum; the superior pole is termed fundie or fundus. The body is subdivided in two physiological portions: the first two thirds is termed orad, and the last third of the body is the caudad. The stomach walls contain four layers of tissues; the internal face is coated with the mucous or mucosa, followed by the submucous, the muscular, and the serous (external layer) epithelia. The mucous contains the gastric glands, which secrete digestive juices and a gel-like alkaline **mucus** that protects the mucous epithelium against the hydrochloric acid that is secreted during **digestion**. The two major types of glands are the gastric glands, distributed in most of the body and fundus, and the pyloric glands, found in the antrum. The products of gastric (or oxyntic) glands are hydrochloric acid, mucus, pepsinogens, and intrinsic factor, whereas the pyloric glands secrete mainly mucus, the hormone gastrin, and discrete amounts of pepsinogens. The mucus secreted by the pyloric glands is thin, and helps to lubricate the stomach walls, easing food movement. The hydrochloric acid in the stomach breaks the pepsinogen molecules into pepsins, a family of **enzymes** that digests proteins. The intrinsic factor is secreted together with hydrochloric acid and promotes the absorption of vitamin B_{12}, an essential nutrient for red **blood** cells maturation in the bone marrow.

When food enters the stomach, gastric and pyloric glands are stimulated to secrete digestive juices, while the mid-portion of the stomach wall starts a discrete pattern of peristaltic contractions. The contractions are termed mixing waves because they actually mix the food with the gastric juice, promoting digestion and the formation of an emulsified semi-fluid paste, termed chyme. Antral contractions promote the emptying of the stomach as the chime gradually passes through the pylorus into the duodenum, where the final process of digestion continues with the processing of fats and starches through either hydrolysis or enzymatic digestion.