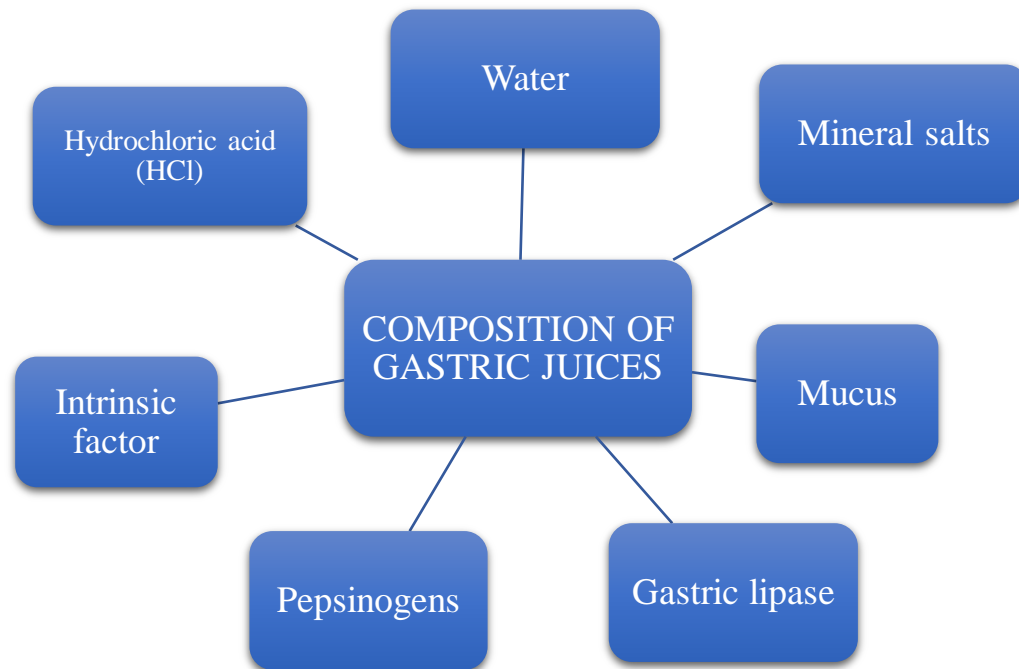


REGULATION OF ACID / GASTRIC JUICE

When the meal has been taken, the food accumulates in the stomach in layers. The muscle contractions cause churning movement that breaks down the bolus and mix it with gastric juice. When the muscles of the stomach are active the pyloric sphincter remains closed. After the contents are sufficiently liquefied, (Liquefied acidic food content of the stomach is called as chyme) the strong peristaltic contractions of the pyloric antrum force gastric contents through the pylorus into the duodenum in small spurts. Gastric juice is the secretion of gastric glands and is composed of



- About 2 - 3 liters of gastric juice are produced per day.
- The pH of gastric juice is 2-4.

There are three phases of gastric secretions as follows:

(a) Cephalic phase

The secretion of juice in response to the sight, smell, and thought of food is known as the cephalic phase. It is the result of reflex stimulation of the vagus nerves.

(b) Gastric phase

The entry of food into the stomach stimulates the production of the hormone gastrin which enters in blood. This hormone, on reaching through the blood to the gastric glands enhances the secretion of gastric juice. This phase is known as the gastric phase.

Sometimes Gram-negative bacillus *H. pylori* colonizes antral mucosa causing local inflammation and elevated gastrin and hydrochloric acid secretion. Presence of the organism is linked to peptic ulcer.

(c) Intestinal phase

In this phase, the secretion of juice reduces in response to the hormone complex enterogastrone that is released from the small intestine as soon as food from the stomach enters the intestine.

The water from the gastric juice assists in further liquefying food in the stomach. The acid medium generated by hydrochloric acid favors digestive processes in the stomach.

The pepsinogen is activated to pepsin in this medium. It acts on proteins. Hydrochloric acid kills many microorganisms that may prove harmful to the body. The intrinsic factor is useful for the absorption of Vitamin B12. The mucus lubricates the food and forms a protective barrier on gastric mucosa, protecting it from the contents of gastric juice.

The stomach acts as a temporary reservoir of food. The muscular actions of the stomach mix the food with digestive juice and propel it further to the small intestine. The gastric juice with its enzyme begins the digestion of proteins. The gastric lipase acts on fats converting them into fatty acids and glycerol. Certain substances (e.g. water, alcohol, and some drugs) are absorbed from the stomach in the venous circulation.