

Secretion of gastric juice

There is always a small quantity of gastric juice present in the stomach, even when it contains no food. This is known as fasting juice. Secretion reaches its maximum level about 1 hour after a meal then declines to the fasting level after about 4 hours.

Three phases of secretion of gastric juice

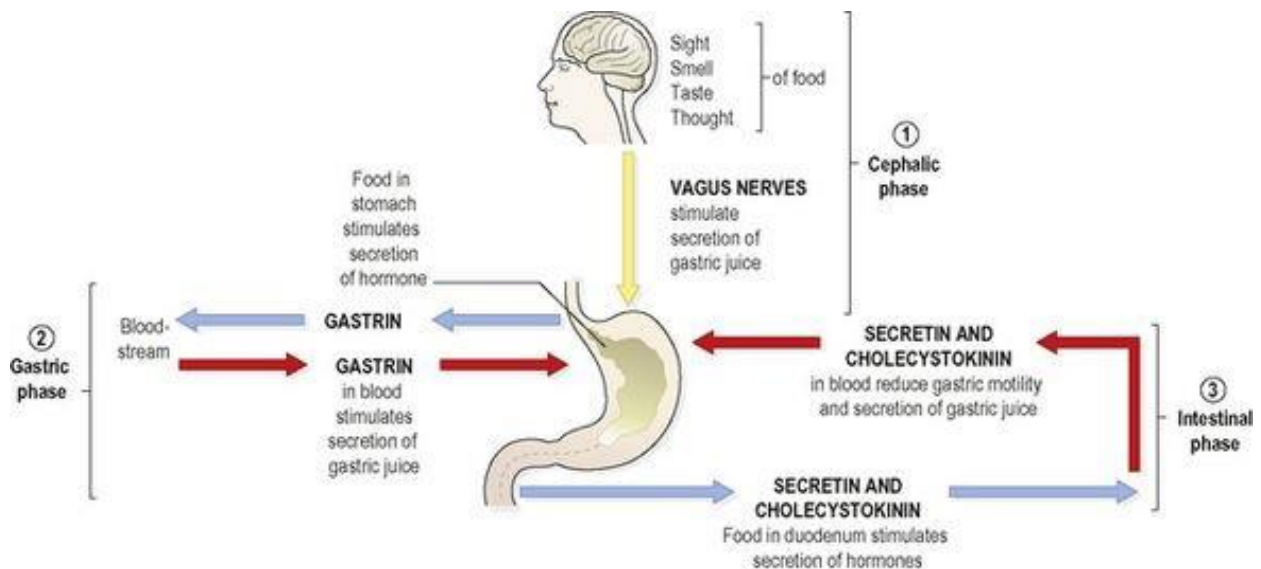


Fig: The three phases of secretion of gastric juice.

1.Cephalic phase

This flow of juice occurs before food reaches the stomach and is due to reflex stimulation of the vagus (parasympathetic) nerves initiated by the sight, smell or taste of food. When the vagus nerves have been cut (vagotomy), this phase of gastric secretion stops. Sympathetic stimulation, e.g. during emotional states, also inhibits gastric activity.

2 .Gastric Phase

When stimulated by the presence of food the *enteroendocrine cells* in the pylorus and duodenum secrete *gastrin*, a hormone which passes directly into the circulating blood. Gastrin, circulating in the blood which supplies the stomach, stimulates the gastric glands to produce more gastric juice. In this way secretion of digestive juice is continued after completion of a meal and the end of the cephalic phase. Gastrin secretion is suppressed when the pH in the pylorus falls to about 1.5.

3 Intestinal phase

When the partially digested contents of the stomach reach the small intestine, two hormones, *secretin* and *cholecystokinin*, are produced by endocrine cells in the intestinal mucosa. They slow down the secretion of gastric juice and reduce gastric motility. By slowing the emptying rate of the stomach, the chyme in the duodenum becomes more thoroughly mixed with bile and pancreatic juice. This phase of gastric secretion is most marked following a meal with a high fat content.