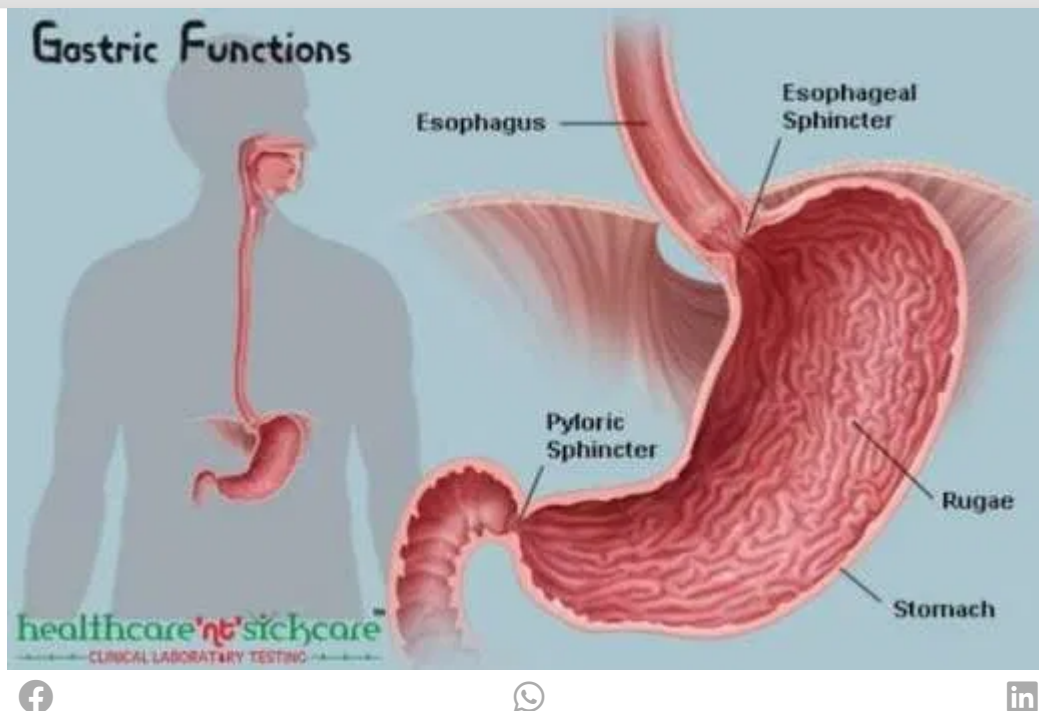


What Are Gastric Function? Gastric Function Test



Gastric Function Test – Whatever food or drink we consume is sent to the stomach where it is stored for further degradation.

Gastric Function

In This Article...



1. Gastric Function
 - 1.1. Secretion Of Gastric HCl
 - 1.1.1. Gastric Secretion
2. Gastric Function Test
 - 2.0.1. Augment Histamine Test Meal
 - 2.0.2. Insulin Test Meal
 - 2.0.3. Tubeless Gastric Analysis
 - 2.1. What is a Gastric Emptying Study?
 - 2.1.1. Gastric Emptying Scan

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The stomach is a major organ of digestion and performs the following functions:

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- Stomach elaborates hydrochloric acid (HCl) and proteases which are responsible for the initiation of digestive process.
- The products obtained in the stomach stimulate the release of pancreatic juice and bile.

What are gastric function?

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Secretion Of Gastric HCl

The parietal cells of gastric glands produce HCl. The pH in the gastric lumen is as low as 0.8 (against the blood pH 7.4). Therefore, the protons are transported against the concentration gradient by an active process.

Gastric Secretion

A unique enzyme called K^+ activated ATPase present in the parietal cells is connected with the mechanism of HCl secretion. The process involves an exchange of H^+ ions (of the parietal cells) for K^+ ions (of the lumen). This is coupled with the consumption of energy, supplied by ATP. The H^+ are continuously generated in the parietal cells by the dissociation of carbonic acid, which in turn, is produced from CO_2 . The bicarbonate ions (HCO_3^-), liberated from the carbonic acid (H_2CO_3) dissociation, enter the blood in exchange for Cl^- ions. The latter diffuse into the gastric lumen to form HCl. Gastrin, a peptide hormone of gastrointestinal tract, stimulates HCl secretion.

Following a meal, there is a slight elevation in the plasma bicarbonate concentration which is linked to the gastric HCl secretion. This is referred to as alkaline tide.

Gastric Function Test

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Fractional Test Meal: This is rather old and not used these days. Fractional test meal (FTM) involves the collection of stomach contents by Ryle's tube in fasting. This is followed by a gastric stimulation, giving a test meal (rice, black coffee etc.) The stomach contents are aspirated by Ryle's tube at different time periods (usually every 15 min for 2 hrs.) The samples are analyzed for free and total acidity in the laboratory. The results are normally represented by a graph.

Pentagastrin Stimulation Test: Pentagastrin is a synthetic peptide which stimulates the gastric secretion in a manner similar to the natural gastrin. The test procedure adapted is as follows:

The stomach contents are aspirated by Ryle's tube in a fasting condition. This is referred to as residual juice. The gastric juice elaborated for the next one hour is collected and pooled which represents the basal secretion. Pentagastrin (5 microgram/kg body weight) is now given to stimulate gastric secretion. The gastric juice is collected at 15 minute intervals for one hour. This represents the maximum secretion. Each sample of the gastric secretion collected is measured for acidity by titrating the samples with N/10 NaOH to pH 7.4. The end point may be detected by an indicator (phenol red) or a pH meter.

Basal acid output (BAO) refers to the acid output under the basal conditions i.e. secretion.

Maximal acid output (MAO) represents the acid output after the gastric stimulation by pentagastrin i.e. maximum secretion.

In normal individuals, the BAO is 4-10 mmol/hr while the MAO is 20-50 mmol/hr.

Augment Histamine Test Meal

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the next one hour at 15 minute intervals. The acid content is measured in all these samples.

Insulin Test Meal

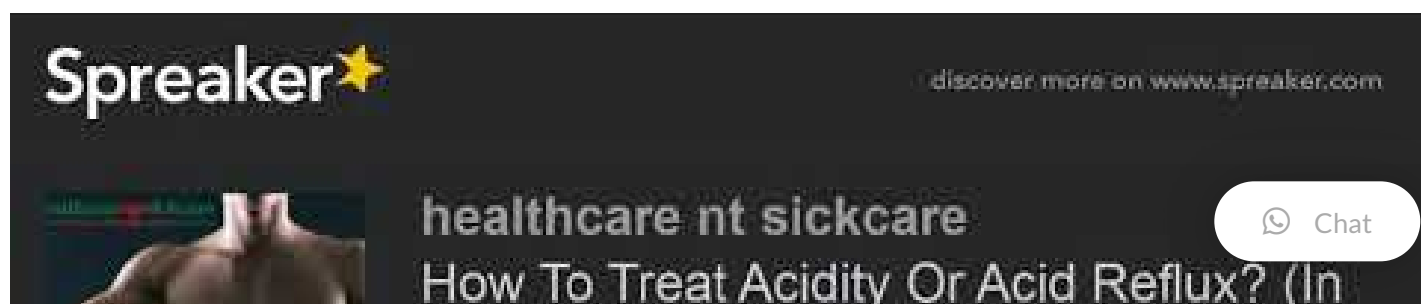
This is also known as Hollander's test. It is mainly done to assess the completeness of vagotomy (vagal resection). Insulin (0.1 unit/kg body weight) is administered intravenously which causes hypoglycemia usually within 30 minute, in normal persons.

If the vagotomy operation is successful, insulin administration does not cause any increase in the acid output, compared to the basal level. This test has to be carefully performed, since hypoglycemia is dangerous.

Tubeless Gastric Analysis

In the traditional methods of gastric analysis, a tube is invariably passed into the stomach to collect the gastric juice. This causes inconvenience to the subject. Recently, some tests involving tubeless gastric analysis have been developed. Such tests, however, are mostly useful for preliminary screening.

The principle of tubeless gastric analysis involves the administration of a cation exchange resin that gets quantitatively exchanged with the H^+ ions of the gastric juice. The resin is then excreted into the urine which can be estimated for an indirect measure of gastric acidity (concentration of H^+ ions).

A dark-themed banner for Spreaker. On the left is the Spreaker logo with a yellow star. In the center is a small image of a person's neck and shoulders. To the right of the image, the text reads "healthcare nt sickcare" in a light grey font, followed by "How To Treat Acidity Or Acid Reflux? (In" in a larger white font. In the top right corner, it says "discover more on www.spreaker.com". In the bottom right corner, there is a white rounded rectangle containing a speech bubble icon and the word "Chat".

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What is a Gastric Emptying Study?

A Gastric Emptying Study is a test to determine the time it takes for a meal to move through a person's stomach. It is typically ordered by physicians for patients with frequent vomiting, gastroparesis, abdominal pain, early satiety, and pre-operative evaluation.

Gastric Emptying Scan

Abnormally high blood glucose (sugar) levels also can slow emptying of the stomach. Therefore, it is important to control blood glucose levels to near normal levels before performing emptying studies in people with diabetes who are prone to develop high blood glucose levels.

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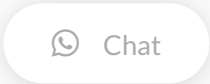
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