

The upper gastrointestinal tract consists of the mouth, pharynx, esophagus, and stomach. The mouth contains teeth, tongue, and glands which produce saliva. These are all involved in initiating the process of digestion before food is swallowed through the pharynx. Both food and air pass through the pharynx, which is why it is so important to both the digestive and respiratory system. **THE ESOPHAGUS** is an expandable, hollow tube, around 10 inches long in adults. The function of the esophagus is to transport both solid and liquid foods down from the pharynx to the stomach through a complicated neuromuscular mechanism known as peristalsis. The stomach is another hollow muscular organ which receives food from the esophagus. The main function of the stomach is to continue the digestion action, mainly by secreting acid and pepsin (an enzyme). **THE STOMACH** wall is protected naturally against both acid and pepsin, while the esophagus is not.



As one may logically conclude, the acidic food content of the stomach (the chyme) should not then move back to the esophagus.

An automatic one-way valve-like structure (*Lower Esophageal Sphincter*, LES) is responsible for preventing refluxing stomach contents back up to the esophagus. Sometimes, due to inefficient function of the LES, the acid contents of the stomach may flow backward into the lower part of the esophagus, causing irritation.

Proper LES function relies on healthy anatomical and physiological conditions, including:

- The pressure at the LES function
- The location of the LES
- The effect the diaphragm has on the LES
- Peristalsis
- Delayed emptying of the stomach contents

About 70% of acid reflux episodes occur during relaxations of the LES, mostly after swallowing, which happens spontaneously. The remaining 30% may occur during periods of lower sphincter pressure. Smoking cigarettes, drinking coffee and alcohol, and consuming chocolate may affect the tonicity of the valve, possibly by reducing the pressure, which may promote stomach-to-esophagus acid reflux.

Alterations in diaphragm tonicity can adversely affect LES function. The extreme example of this scenario is a condition known as Hiatal hernia, in which the upper portion of the stomach goes up into the chest cavity region due to a weakening in the diaphragm muscle. Other related considerations include overweight and obesity, pregnancy, eating habits (overeating especially before sleeping), heavy physical activity, etc.

Peristalsis is the involuntary process of pushing the bolus of food down our gastrointestinal (GI) tract so food gets digested. However, while we sleep, this peristalsis process is infrequent, and can possibly lead to prolonged exposure of acids in the esophagus. Certain autoimmune conditions, which cause strictures in the esophagus, will heavily delay esophageal emptying and can lead to more irritation. The stomach must empty properly. If the stomach cannot empty properly, then the contents will back up just like a clogged drain. This will eventually cause irritating stomach contents to shoot upwards as well.

Eating larger portions may cause pressure changes in the stomach, which push the stomach contents back up into the lower part of the esophagus. Avoid overeating in general as well as eating close to bedtime. Splitting the meals into smaller portions may help in emptying the stomach.



excessive COFFEE FATTY FOODS STARCHES

HEARTBURN

The term "heartburn" can be a misnomer since most of the time this condition is not even heart-related. Nevertheless, attention must be paid since acid reflux can usually be described as a burning pain in the middle of the chest. In some people the pain may be sharp or pressure-like rather than burning; this can mimic heart pain. (For heart-related issues, please call your medical doctor or 911 for treatment.)

Making insufficient levels of stomach acid (hypochlorhydria) can also cause heartburn. Insufficient stomach acid creates indigestion and gas in the stomach. This causes the contents of the stomach to reflux into the lower portion of the esophagus, which irritates the lining. Irritated cells create the burning sensation associated with heartburn.

Summary of Important Factors That May Contribute to Having Heartburn:

- Unhealthy eating habits
- Specific foods
- Tobacco
- Lifestyle—wearing too-tight garments, heavy exercise
- Overweight and Obesity
- Delayed emptying of stomach contents
- Pregnancy
- Stress
- Medical conditions such as hiatal hernia
- Drugs

Unhealthy Eating Habits

- Eating large portions at meals
- Eating late at night
- Eating quickly or in a hurry, such as chomping down burgers or tacos in the car

Specific Foods – some foods may induce or aggravate the acid reflux, leading to heartburn:

 Drinking too many caffeinated beverages such as coffee, tea, or colas while eating may create more acid than tolerable.

- Excessive chocolate consumption It contains caffeine and theobromine, another caffeinated substance.
- Eating refined carbohydrates such as sugars, breads, and pastas, especially accompanied by a low-nutrient-fiber diet, may create more acid production than normal.
- Drinking beer or wine, especially at night.
- Other foods have been reported to aggravate heartburn, such as citrus, fatty foods, peppermint, spearmint, onions, tomato, and peppers.
- Other foods may also be recognized, based on individual experience.

Cut out these foods for a month. Reintroduce one food a day and see how you feel. Add them back sparingly into your diet, as long as they do not cause an immediate problem. Avoid them completely if they do!

Severe emotional stress can increase stomach acid secretion. Sometimes health problems related to stress, such as heartburn, may show up within two years of the stressful event. Stress also predisposes individuals to peptic ulcers, since high cortisol levels in response to stress weaken the protective layer in the stomach.

Overweight, pregnancy, tight clothes around the waist, and heavy exercise can exert pressure upward on the stomach.

CORRECTION OF DIET & LIFESTYLE

- Avoid eating large portions at meals
- Avoid eating within 2-3 hours of bedtime (small snacks are okay)
- Avoid above-mentioned foods that may cause heartburn
- Avoid any food that induce heartburn based on your experience
- Avoid/Restrict tomatoes and citrus fruit consumption
- Avoid alcohol (especially at night)
- Avoid/restrict eating refined sugars, such as chocolates
- Avoid smoking
- Avoid heavy exercise
- Avoid drinking ice-cold liquids or more than half a glass of liquid with meals









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• Avoid the chronic use of antacids, since they can make the problem worse. They neutralize stomach acid and cause hypochlorhydria and all related issues, such as interfering with protein absorption and increasing the possibility of microorganism's growth.

RECOMMENDED DIET AND LIFESTYLE:

- Evaluate your eating habits and make appropriate changes. Break down meals into smaller portions throughout the day.
- Identify food allergies
- Add stress-reducing exercises to your daily routine.
- Use HCI supplements (to support digestion) as recommended by your healthcare practitioner.
- Eat more fresh vegetables, organic lean turkey, chicken, and fish.
- Add cultured products or supplements to your diet.
- Use Probiotics as recommended by your healthcare practitioner.



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