

The esophagus is the muscular tube that carries food and liquid from the throat to the stomach. However, it is not a rigid tube. The muscles in the wall of the esophagus automatically contract when a person swallows. This type of contraction, called peristalsis, occurs as a sweeping wave down the esophagus. It literally squeezes the food or liquid along from the mouth to the stomach.

Another important part of the esophagus is the Lower Esophageal Sphincter (LES). It is a strong muscular ring located where the esophagus enters the stomach. This specialized muscle remains tightly closed most of the time. It is supposed to open only to allow food and liquid to enter the stomach. Occasionally the LES opens at the wrong time, allowing caustic stomach acid and bile to splash up into the esophagus. This is called acid reflux. It is reflux that is responsible for the discomfort of heartburn. Almost everyone has experienced heartburn occasionally, and it is nothing to be concerned about. However, when it happens on a regular basis, it can lead to damage and scarring in the esophagus.

pH is a measure of acidity or alkalinity. Most people are familiar with pH tests done on soil or swimming pools. An esophageal pH test measures how often stomach acid flows into the lower esophagus and the degree of acidity during a 12-24 hour period.

### **Equipment**

The equipment for esophageal pH consists of a small, thin probe at the end of tubing. This probe measures acidity. The tubing is gently inserted through the nose, down to the end of the esophagus. It is attached to a portable recorder that is carried at the waist. Over 12 to 24 hours, the acidity in the lower esophagus is recorded on a paper tape. When the patient experiences reflux or other symptoms, he/she presses a button on the recorder. This marks the time so as to see how it relates to the acidity levels measured by the probe. The recording is then analyzed, and a full report is sent back to the physician.

### **Reason for the Exam**

There are a number of symptoms that originate in the esophagus, including heartburn, difficulty swallowing food or liquid, and chest pain. A measurement of esophageal pH is of great importance in evaluating these symptoms and allowing the physician to treat problems of acid reflux. Additionally, measurement of pH may be helpful in determining the success of treatment for acid reflux. So, this exam is often done before and after medical and especially surgical treatment of acid reflux into the esophagus.

X-ray examination (known as upper GI series or barium swallow), and endoscopy are other diagnostic tests often used when these symptoms are present in the esophagus. Endoscopy is a visual examination of the esophagus and stomach with a thin, lighted, flexible tube.