

Pill-on-a-Thread Could Help Monitor Esophageal Cancer Risk

Capsule sponge tests may replace invasive endoscopies for some people with acid reflux, a risk factor for esophageal cancer.

July 2, 2025 By Laura Schmidt

A “pill-on-a-thread” could revolutionize tests that screen for [esophageal cancer](#), claims a study by University of Cambridge researchers, according to a [news release](#). Specifically, the new method could replace invasive [endoscopies](#), when a flexible tube with a camera is inserted down the throat.

Esophageal cancer affects the esophagus, the swallowing tube that connects the throat to the stomach, or the gastroesophageal junction, where the esophagus meets the stomach. Around 22,070 people in the United States will be diagnosed with esophageal cancer and about 16,250 will die from it this year, according to the [American Cancer Society](#).

People with a condition known as Barrett’s esophagus, in which [acid reflux](#) damages cells in the lining of the esophagus, are at high risk for esophageal cancer; as a result, they undergo [regular testing](#) using an endoscope to look for dysplasia, or early cancer. During these exams, a small tissue sample may be removed to examine in a laboratory.

With the pill-on-a-thread capsule sponge test, which was developed as an alternative to the endoscope, patients swallow a capsule that releases a small sponge that scrapes cell samples as it is drawn back up the throat.

For the study, published in [The Lancet](#), researchers looked at whether it was possible to use the capsule to sort those with Barrett’s esophagus according to their risk and to determine how they ought to be monitored. Those at highest risk would be seen urgently to determine whether they need treatment and those at moderate risk would continue to receive endoscopies. Those at lowest risk would continue to be monitored without needing another endoscopy.

Of the 910 people with Barrett's esophagus involved in the study, about half could use the pill-on-a-thread test rather than an endoscopy to monitor their condition. What's more, the pill-on-a-thread was much faster, easier and cheaper compared with an endoscopy.

"It's extremely important to monitor patients so that we can catch the dysplasia and prevent it developing to cancer—and if someone is unfortunate enough to develop cancer, we can catch it early and treat it," said senior researcher Rebecca Fitzgerald, director of the Early Cancer Institute at the University of Cambridge, in the release.

Esophageal cancer makes up about 1% of all cancers in the United States, but it is more common in other parts of the world. It is also difficult to treat, with fewer than one in five patients surviving five or more years after diagnosis.

"What we need is an alternative surveillance method that's less invasive, easier to administer and more reliable," Fitzgerald said.

To learn more, click [#Esophageal Cancer](#) or read Cancer Health's [Basics on Esophageal Cancer](#). It reads in part:

What are the risk factors for esophageal cancer?

Risk factors for esophageal cancer include smoking or chewing tobacco and drinking alcohol. Some evidence suggests that eating a lot of processed meat may increase the risk of esophageal cancer, while a diet high in fruits and vegetables appears to be protective, as it has been linked to a lower risk. Drinking very hot liquids can increase the risk of squamous cell cancer.

People with certain conditions affecting the esophagus have a greater risk of developing esophageal cancer. These include gastroesophageal reflux disease, or GERD (stomach acid splashing up into the esophagus), Barrett's esophagus (glandular cells replacing squamous cells due to long-term GERD) and achalasia (when food does not pass into the stomach properly). People with obesity have a higher risk of esophageal cancer because obesity increases the likelihood of GERD. Some esophageal cancers appear to be associated with human papillomavirus (HPV) infection, which causes oral cancer.

What are the symptoms of esophageal cancer?

Esophageal cancer often does not cause symptoms until it has reached a more advanced stage—when it is harder to treat—or it may cause nonspecific symptoms similar to those of other conditions. Signs and symptoms of esophageal cancer may include:

- Difficulty swallowing (dysphagia);
- The feeling of having a lump or food stuck in the throat;
- Indigestion or heartburn;
- Increased production of saliva or mucus;
- Pain or pressure in the middle of the chest;
- Unexplained weight loss;
- Chronic cough or hoarseness;
- Bleeding in the esophagus, which can result in dark, tarry stools.