



[cancer.org](https://www.cancer.org) | 1.800.227.2345

Esophagus Cancer Causes, Risk Factors, and Prevention

Risk Factors

A risk factor is anything that affects your chance of getting a disease such as cancer. Learn more about the risk factors for esophageal cancer.

- [Esophageal Cancer Risk Factors](#)
- [What Causes Esophageal Cancer?](#)

Prevention

There is no way to completely prevent cancer. But there are things you can do that might lower your risk. Learn more.

- [Can Esophageal Cancer Be Prevented?](#)

Esophageal Cancer Risk Factors

A risk factor is anything that changes your chance of getting a disease such as cancer. Different cancers have different risk factors. Some risk factors, like smoking, can be changed. Others, like a person's age or family history, can't be changed.

Scientists have found several factors that can affect your risk of esophageal cancer.

Some are more likely to increase the risk for adenocarcinoma of the esophagus and others for squamous cell carcinoma of the esophagus.

But having a risk factor, or even many, does not mean that you will get esophageal cancer. And some people who get the disease may not have any known risk factors.

Age

The chance of getting esophageal cancer increases with age. Less than 15% of cases are found in people younger than age 55.

Gender

Men are more likely than women to get esophageal cancer.

Gastroesophageal reflux disease

The stomach normally makes strong acid and enzymes to help digest food. In some people, acid can escape from the stomach up into the lower part of the esophagus. The medical term for this is *gastroesophageal reflux disease* (GERD), or just *reflux*. In many people, reflux causes symptoms such as heartburn or pain that seem to come from the middle of the chest. In some, though, reflux doesn't cause any symptoms at all.

People with GERD have a slightly higher risk of getting adenocarcinoma of the esophagus. This risk seems to be higher in people who have more frequent symptoms. But GERD is very common, and most of the people who have it *do not* go on to develop esophageal cancer. GERD can also cause Barrett's esophagus (discussed below), which is linked to an even higher risk.

Barrett's esophagus

If reflux of stomach acid into the lower esophagus goes on for a long time, it can damage the inner lining of the esophagus. This causes the squamous cells that normally line the esophagus to be replaced with gland cells. These gland cells usually look like the cells that line the stomach and the small intestine, and are more resistant to stomach acid. This condition is known as Barrett's (or Barrett) esophagus.

The longer someone has reflux, the more likely it is that they will develop Barrett's esophagus. Most people with Barrett's esophagus have had symptoms of heartburn, but

many have no symptoms at all. People with Barrett's esophagus are at a much higher risk than people without this condition to develop adenocarcinoma of the esophagus. Still, most people with Barrett's esophagus do not get esophageal cancer.

The gland cells in Barrett's esophagus can become more abnormal over time. This can result in *dysplasia*, a pre-cancerous condition. Dysplasia is graded by how abnormal the cells look under the microscope. Low-grade dysplasia looks more like normal cells, while high-grade dysplasia is more abnormal. High-grade dysplasia is linked to the highest risk of cancer.

Tobacco and alcohol

The use of [tobacco products](#)¹, including cigarettes, cigars, pipes, and chewing tobacco, is a major risk factor for esophageal cancer. The more a person uses tobacco and the longer it is used, the higher the cancer risk. Someone who smokes a pack of cigarettes a day or more has at least twice the chance of getting adenocarcinoma of the esophagus than a nonsmoker, and the risk does not go away if tobacco use stops. The link to squamous cell esophageal cancer is even stronger, but this risk does go down for people who quit tobacco. .

Drinking [alcohol](#)² also increases the risk of esophageal cancer. The more alcohol someone drinks, the higher their chance of getting esophageal cancer. Alcohol affects the risk of the squamous cell type more than the risk of adenocarcinoma.

Combining smoking and drinking alcohol raises the risk of esophageal cancer much more than using either alone.

Obesity

People who are [overweight or obese](#)³ (very overweight) have a higher chance of getting adenocarcinoma of the esophagus. This is in part explained by the fact that people who are obese are more likely to have gastroesophageal reflux.

Diet

Certain substances in the diet may increase esophageal cancer risk. For example, there have been suggestions, as yet not well proven, that a diet high in processed meat may increase the chance of developing esophageal cancer. This may help explain the high rate of this cancer in certain parts of the world.

On the other hand, a diet high in fruits and vegetables is linked to a lower risk of esophageal cancer. The exact reasons for this are not clear, but fruits and vegetables have a number of vitamins and minerals that may help prevent cancer.

Frequently drinking very hot liquids (temperatures of 149° F or 65° C - much hotter than a typical cup of coffee) may increase the risk for the squamous cell type of esophageal cancer. This might be the result of long-term damage to the cells lining the esophagus from the hot liquids.

Achalasia

In this condition, the muscle at the lower end of the esophagus (the lower esophageal sphincter) does not relax properly. Food and liquid that are swallowed have trouble passing into the stomach and tend to collect in the lower esophagus, which becomes stretched out (dilated) over time. The cells lining the esophagus in that area can become irritated from being exposed to foods for longer than normal amounts of time.

People with achalasia have a risk of esophageal cancer that is many times normal. On average, the cancers are found about 15 to 20 years after the achalasia began.

Tylosis

This is a rare, inherited disease that causes excess growth of the top layer of skin on the palms of the hands and soles of the feet. People with this condition also develop small growths (papillomas) in the esophagus and have a very high risk of getting squamous cell cancer of the esophagus.

People with tylosis need to be watched closely to try to find esophageal cancer early. Often this requires regular monitoring with an upper endoscopy (described in [Tests for Esophagus cancer](#)⁴).

Plummer-Vinson syndrome

People with this rare syndrome (also called *Paterson-Kelly syndrome*) have webs in the upper part of the esophagus, typically along with anemia (low red blood cell counts) due to low iron levels, tongue irritation (glossitis), brittle fingernails, and sometimes a large thyroid gland or spleen.

A web is a thin membrane extending out from the inner lining of the esophagus that causes an area of narrowing. Most esophageal webs do not cause any problems, but

larger ones can cause food to get stuck in the esophagus, which can lead to problems swallowing and chronic irritation in that area from the trapped food.

About 1 in 10 people with this syndrome eventually develop squamous cell cancer of the esophagus or cancer in the lower part of the throat (hypopharynx).

Workplace exposures

Exposure to chemical fumes in certain workplaces may lead to an increased risk of esophageal cancer. For example, exposure to some of the solvents used for dry cleaning might lead to a greater risk of esophageal cancer. Some studies have found that dry cleaning workers may have a higher rate of esophageal cancer, but not all studies have found this link.

Injury to the esophagus

Lye is a chemical found in strong industrial and household cleaners such as drain cleaners. Lye is a corrosive agent that can burn and destroy cells. Accidentally drinking from a lye-based cleaner bottle can cause a severe chemical burn in the esophagus. As the injury heals, the scar tissue can cause an area of the esophagus to become very narrow (called a *stricture*). People with these strictures have an increased risk of squamous cell esophageal cancer, which often occurs many years (even decades) later.

History of certain other cancers

People who have had certain other cancers, such as lung cancer, mouth cancer, and throat cancer have a high risk of getting squamous cell carcinoma of the esophagus as well. This may be because these cancers can also be caused by smoking.

Human papilloma virus (HPV) infection

[HPV](#)⁵ is a group of more than 100 related viruses. They are called papilloma viruses because some of them cause a type of growth called a papilloma (or wart). Infection with certain types of HPV is linked to a number of cancers, including throat cancer, anal cancer, and cervical cancer.

Signs of HPV infection have been found in up to one-third of esophagus cancers from patients in parts of Asia and South Africa. But signs of HPV infection have not been

found in esophagus cancers from patients in the other areas, including the US.

Hyperlinks

1. www.cancer.org/cancer/cancer-causes/tobacco-and-cancer.html
2. www.cancer.org/cancer/cancer-causes/diet-physical-activity/alcohol-use-and-cancer.html
3. www.cancer.org/cancer/cancer-causes/diet-physical-activity/body-weight-and-cancer-risk.html
4. www.cancer.org/cancer/esophagus-cancer/detection-diagnosis-staging/how-diagnosed.html
5. www.cancer.org/cancer/cancer-causes/infectious-agents/hpv.html

References

American Cancer Society. *Cancer Facts & Figures 2017*. Atlanta, Ga: American Cancer Society; 2017.

Chak A, Chen Y, Vengoechea J, et al. Variation in age at cancer diagnosis in familial versus nonfamilial Barrett's esophagus. *Cancer Epidemiol Biomarkers Prev*.2012;21:376–383.

Dry Cleaners - (1) (Organic Solvents). Centers for Disease Control and Prevention. <https://www.cdc.gov/niosh/pgms/worknotify/drycleaner1.html>. Published October 1, 2015. Accessed April 12, 2017.

Howlader N, Noone AM, Krapcho M, Miller D, Bishop K, Altekruse SF, Kosary CL, Yu M, Ruhl J, Tatalovich Z, Mariotto A, Lewis DR, Chen HS, Feuer EJ, Cronin KA (eds). SEER Cancer Statistics Review, 1975-2013, National Cancer Institute. Bethesda, MD, http://seer.cancer.gov/csr/1975_2013/, based on November 2015 SEER data submission, posted to the SEER web site, April 2016.

Cancer Stat Facts: Esophageal Cancer. National Cancer Institute Surveillance, Epidemiology, and End Results (SEER) Program Website. <http://seer.cancer.gov/statfacts/html/esoph.html>. Published

Gibson M. Epidemiology, pathobiology, and clinical manifestations of esophageal cancer. *UpToDate* Website. Updated February 10, 2017. Accessed April 08, 2017.

Kleinberg L, Kelly R, Yang S, Wang JS, Forastiere AA. Chapter 74 – Cancer of the Esophagus. In: Niederhuber JE, Armitage JO, Dorshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 5th ed. Philadelphia, Pa. Elsevier: 2014.

Loomis D, Guyton KZ, Grosse Y et al. Carcinogenicity of drinking coffee, mate, and very hot beverages. International Agency for Research on Cancer Monograph Working Group, Lyon, France. *The Lancet Oncology*. 2016; 17(7):877-8.

Posner MC, Minsky B, Ilson DH. Chapter 45: Cancer of the esophagus. In: DeVita VT, Hellman S, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology*. 10th ed. Philadelphia, Pa: Lippincott-Williams & Wilkins; 2015.

Spechler SJ. Achalasia: Pathogenesis, clinical manifestations, and diagnosis. *UpToDate Website*. Updated November 16, 2016. Accessed April 08, 2017.

Last Medical Review: June 14, 2017 Last Revised: June 14, 2017

What Causes Esophageal Cancer?

We do not yet know exactly what causes most esophageal cancers. However, there are certain risk factors that make getting esophageal cancer more likely. (See [Esophageal Cancer Risk Factors](#))

Scientists believe that some risk factors, such as the use of [tobacco](#)¹ or [alcohol](#)², may cause esophageal cancer by damaging the DNA in cells that line the inside of the esophagus. Long-term irritation of the lining of the esophagus, as happens with reflux, Barrett's esophagus, achalasia, Plummer-Vinson syndrome, or scarring from swallowing lye, may also lead to DNA damage.

DNA is the chemical in each of our cells that makes up our *genes* – the instructions for how our cells function. We usually look like our parents because they are the source of our DNA. However, DNA affects more than how we look. Some genes control when cells grow, divide into new cells, and die. Genes that help cells grow, divide, and stay alive are called *oncogenes*. Genes that slow down cell division or make cells die at the

right time are called *tumor suppressor genes*. Cancers can be caused by DNA changes that turn on oncogenes or turn off tumor suppressor genes.

The DNA of esophageal cancer cells often shows changes in many different genes. However, it's not clear if there are specific gene changes that can be found in all (or most) esophageal cancers.

Some people inherit DNA changes (mutations) from their parents that increase their risk for developing certain cancers. But esophageal cancer does not seem to run in families, and inherited gene mutations are not thought to be a major cause of this disease.

Hyperlinks

1. www.cancer.org/cancer/cancer-causes/tobacco-and-cancer.html
2. www.cancer.org/cancer/cancer-causes/diet-physical-activity/alcohol-use-and-cancer.html

References

Kleinberg L, Kelly R, Yang S, Wang JS, Forastiere AA. Chapter 74 – Cancer of the Esophagus. In: Niederhuber JE, Armitage JO, Dorshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 5th ed. Philadelphia, Pa. Elsevier: 2014.

Posner MC, Minsky B, Ilson DH. Chapter 45: Cancer of the esophagus. In: DeVita VT, Hellman S, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology*. 10th ed. Philadelphia, Pa: Lippincott-Williams & Wilkins; 2015.

Last Medical Review: June 14, 2017 Last Revised: June 14, 2017

Can Esophageal Cancer Be Prevented?

Not all esophageal cancers can be prevented, but the risk of developing this disease can be greatly reduced by avoiding certain [risk factors](#).

Avoiding tobacco and alcohol

In the United States, the most important lifestyle risk factors for cancer of the esophagus are the use of [tobacco](#)¹ and [alcohol](#)². Each of these factors alone increases the risk of esophageal cancer many times, and the risk is even greater if they are combined. Avoiding tobacco and alcohol is one of the best ways of limiting your risk of esophageal cancer. If you or someone you know would like to quit tobacco, call us at 1-800-227-2345 or see [Stay Away from Tobacco](#)³.

Watching your diet and body weight

Eating a healthy diet and staying at a healthy weight are also important. A diet rich in fruits and vegetables may help protect against esophageal cancer. [Obesity](#)⁴ has been linked with esophageal cancer, particularly the adenocarcinoma type, so staying at a healthy weight may also help limit the risk of this disease. For more on this, read our [American Cancer Society Guidelines on Nutrition and Physical Activity for Cancer Prevention](#)⁵.

Getting treated for reflux or Barrett's esophagus

Treating people with reflux may help prevent Barrett's esophagus and esophageal cancer. Often, reflux is treated using drugs called proton pump inhibitors (PPIs), such as omeprazole (Prilosec[®]), lansoprazole (Prevacid[®]), or esomeprazole (Nexium[®]). Surgery might also be an option for treating reflux if the reflux is not controlled with medical therapy alone.

People at a higher risk for esophageal cancer, such as those with Barrett's esophagus, are often watched closely by their doctors to look for signs that the cells lining the esophagus have become more abnormal. (See [Can Esophageal Cancer Be Found Early?](#)⁶) If dysplasia (a pre-cancerous condition) is found, the doctor may recommend treatments to keep it from developing into esophageal cancer.

For those who have Barrett's esophagus, daily treatment with a PPI might lower the risk of developing cell changes (dysplasia) that can turn into cancer. If you have chronic heartburn (or reflux), tell your doctor. Treatment can often improve symptoms and might prevent future problems.

Some studies have found that the risk of cancer of the esophagus is lower in people with Barrett's esophagus who take aspirin or other non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen. However, taking these drugs every day can lead to problems, such as kidney damage and bleeding in the stomach. For this reason, most

doctors don't advise that people take NSAIDs to try to prevent cancer. If you are thinking of taking an NSAID regularly, discuss the potential benefits and risks with your doctor first.

Some studies have also found a lower risk of esophageal cancer in people with Barrett's esophagus who take drugs called *statins*, which are used to treat high cholesterol. Examples include atorvastatin (Lipitor[®]) and rosuvastatin (Crestor[®]). While taking one of these drugs might help some patients lower esophageal cancer risk, doctors don't advise taking them just to prevent cancer because they can have serious side effects.

Hyperlinks

1. www.cancer.org/cancer/cancer-causes/tobacco-and-cancer.html
2. www.cancer.org/cancer/cancer-causes/diet-physical-activity/alcohol-use-and-cancer.html
3. www.cancer.org/healthy/stay-away-from-tobacco.html
4. www.cancer.org/cancer/cancer-causes/diet-physical-activity/body-weight-and-cancer-risk.html
5. www.cancer.org/healthy/eat-healthy-get-active/acs-guidelines-nutrition-physical-activity-cancer-prevention.html
6. www.cancer.org/cancer/esophagus-cancer/detection-diagnosis-staging/detection.html

References

Kleinberg L, Kelly R, Yang S, Wang JS, Forastiere AA. Chapter 74 – Cancer of the Esophagus. In: Niederhuber JE, Armitage JO, Dorshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 5th ed. Philadelphia, Pa. Elsevier: 2014.

Posner MC, Minsky B, Ilson DH. Chapter 45: Cancer of the esophagus. In: DeVita VT, Hellman S, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology*. 10th ed. Philadelphia, Pa: Lippincott-Williams & Wilkins; 2015.

Shaheen NJ, Falk GW, Iyer PG, Gerson LB; American College of Gastroenterology. ACG Clinical Guideline: Diagnosis and Management of Barrett's Esophagus. *Am J Gastroenterol*. 2016;111:30-50.

Last Medical Review: June 14, 2017 Last Revised: June 14, 2017

Written by

The American Cancer Society medical and editorial content team
(www.cancer.org/cancer/acs-medical-content-and-news-staff.html)

Our team is made up of doctors and oncology certified nurses with deep knowledge of cancer care as well as journalists, editors, and translators with extensive experience in medical writing.

American Cancer Society medical information is copyrighted material. For reprint requests, please see our Content Usage Policy (www.cancer.org/about-us/policies/content-usage.html).

cancer.org | 1.800.227.2345