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Small Intestine 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 small intestine cancer.

- [Risk Factors for Small Intestine Cancer \(Adenocarcinoma\)](#)
- [What Causes Small Intestine Cancer \(Adenocarcinoma\)?](#)

Prevention

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

- [Can Small Intestine Cancer \(Adenocarcinoma\) Be Prevented?](#)

Risk Factors for Small Intestine Cancer (Adenocarcinoma)

(Note: This information is about small intestine cancers called adenocarcinomas. To learn about other types of cancer that can start in the small intestine, see [Gastrointestinal Carcinoid Tumors](#)¹, [Gastrointestinal Stromal Tumors](#)², or [Non-Hodgkin](#)

[Lymphoma](#)³.)

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.

But risk factors don't tell us everything. Having a risk factor, or even several, does not mean that a person will get the disease. And many people who get the disease may have few or no known risk factors.

Because small intestine adenocarcinoma is so uncommon, risk factors for this disease have been hard to study. Some of the known risk factors include:

Sex

Small intestine cancer occurs slightly more often in men than in women.

Age

Cancers of the small intestine tend to occur more often in older people. They are most often found in people in their 60s and 70s.

Race/ethnicity

In the United States, African Americans are affected more often by these cancers than people of other races/ethnicities.

Smoking and alcohol use

Some studies have found an increased risk with either [smoking](#)⁴ or drinking [alcohol](#),⁵ but not all studies have found this.

Diet

Some research has suggested that diets high in red meat and salted or smoked foods might raise the risk of small intestine cancer.

Celiac disease

For people with celiac disease, eating gluten (a protein that is found in wheat and some other types of grain) causes the body's immune system to attack the lining of the intestines. People with celiac disease have an increased risk of a certain kind of lymphoma of the intestine called *enteropathy-associated T-cell lymphoma*. They may also have an increased risk of small intestine cancer.

Colon cancer

People who have had colon cancer have an increased risk of getting cancer of the small intestine. This could be due to shared risk factors.

Crohn's disease

Crohn's disease is a condition in which the immune system attacks the gastrointestinal (GI) tract. This disease can affect any part of the GI tract, but it most often affects the lower part of the small intestine. People with this condition have a much higher risk of small intestine cancer (particularly adenocarcinoma). These cancers are most often seen in the ileum (the last part of the small intestine, near the colon).

Inherited syndromes

People with certain inherited conditions have a higher risk of small intestine cancer (mainly adenocarcinoma).

Familial adenomatous polyposis (FAP)

In this condition, many (often hundreds) of polyps develop in the colon and rectum. If the colon isn't removed, one or more of these polyps will become cancerous. Polyps can also develop in the stomach and the small intestine, and they can lead to cancers in these areas. In FAP, most small intestine cancers are found in the duodenum. This condition is caused by an abnormal change (mutation) in the *APC* gene, and is discussed more in [Colorectal Cancer](#)⁶.

Lynch syndrome (hereditary nonpolyposis colorectal cancer, or HNPCC)

In most cases, this disorder is caused by a defect in one of several mismatch repair (MMR) genes, such as *MLH1*, *MSH2*, *MSH6*, *PMS1*, or *PMS2*. Having an abnormal version of any one of these genes reduces the body's ability to repair damage to its DNA. This results in an increased risk for cancer of the colon and small intestine, as well as a high risk of [endometrial](#)⁷ and [ovarian](#)⁸ cancer. This condition is also discussed

in [Colorectal Cancer](#)⁹.

Peutz-Jeghers syndrome (PJS)

People with this condition develop polyps in the stomach and intestines, as well as in other areas including the nose, the airways of the lungs, and the bladder. They can also have dark freckle-like spots on the lips, inner cheeks and other areas. PJS can increase the risk of many types of cancer, including small intestine adenocarcinoma. This syndrome is caused by mutations in the *STK11 (LKB1)* gene.

MUTYH-associated polyposis

People with this syndrome develop colon polyps which will almost always become cancerous if the colon is not removed. They also can get polyps in the small intestine and have an increased risk of small intestine cancer. People with this syndrome can also get cancers of the skin, ovary (in women), and bladder. This syndrome is caused by mutations in the *MUTYH* gene.

Cystic fibrosis (CF)

People with this condition have severe lung problems. Often, in someone with CF, the pancreas cannot make the enzymes that break food down so that it can be absorbed. People with CF have an increased risk of small intestine cancer. A child must have 2 abnormal copies of the *CFTR* gene (one from each parent) to get this disease.

Hyperlinks

1. www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html
2. www.cancer.org/cancer/gastrointestinal-stromal-tumor.html
3. www.cancer.org/cancer/non-hodgkin-lymphoma.html
4. www.cancer.org/cancer/cancer-causes/tobacco-and-cancer.html
5. www.cancer.org/cancer/cancer-causes/diet-physical-activity/alcohol-use-and-cancer.html
6. www.cancer.org/cancer/colon-rectal-cancer.html
7. www.cancer.org/cancer/endometrial-cancer.html
8. www.cancer.org/cancer/ovarian-cancer.html
9. www.cancer.org/cancer/colon-rectal-cancer.html

References

Chamberlain RS, Krishnaraj M, Shah SA. Chapter 54: Cancer of the Small Bowel. In: DeVita VT, Lawrence TS, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology*. 10th ed. Philadelphia, Pa: Lippincott Williams & Wilkins; 2015.

Chow WH, Linet MS, McLaughlin JK. Risk factors for small intestine cancer. *Cancer Causes Control*. 1993;4(2):163-169.

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Overman MJ, Kunitake H. Epidemiology, clinical features, and types of small bowel neoplasms. UpToDate. Accessed at www.uptodate.com/contents/epidemiology-clinical-features-and-types-of-small-bowel-neoplasms on January 4, 2018.

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What Causes Small Intestine Cancer (Adenocarcinoma)?

(Note: This information is about small intestine cancers called adenocarcinomas. To learn about other types of cancer that can start in the small intestine, see [Gastrointestinal Carcinoid Tumors¹](#), [Gastrointestinal Stromal Tumors²](#), or [Non-Hodgkin Lymphoma³](#).)

While there are several known [risk factors](#) for small intestine adenocarcinoma, not much is known about exactly what causes these cancers. In fact, many experts wonder why it's so rare. The small intestine is the longest part of the gastrointestinal (GI) tract, yet only a very small percentage of GI adenocarcinomas start here.

Scientists have found some DNA changes inside small intestine adenocarcinoma cells that seem to help them grow and spread. DNA is the chemical in each of our cells that makes up our *genes*, which control how our cells function. We usually look like our parents because they are the source of our DNA. But DNA affects more than just how we look.

Some genes control when cells grow and divide into new cells:

- Certain genes that help cells grow and divide are called *oncogenes*.
- Genes that help keep cell division under control, cause cells to die at the right time, or help fix mistakes in DNA are called *tumor suppressor genes*.

Cancers can be caused by DNA changes that turn on oncogenes or turn off tumor suppressor genes.

For example, one cause of these cancers is thought to be problems with the tumor suppressor genes that normally help repair damaged DNA. When one of these genes isn't working, DNA mistakes aren't corrected, so gene mutations are passed on to new cells. If enough changes build up inside the cells, it can lead to cancer.

Many small intestine cancers have specific known gene changes, but often it's not clear what causes these changes. Sometimes they can be inherited from a parent, or they might be caused by things like alcohol or a diet that's high in red meats. But sometimes the gene changes that lead to small intestine cancer seem to occur for no apparent reason. Many of the changes are probably just random events that sometimes happen inside a cell, without having an outside cause.

Gene changes inside cells can build up over a person's lifetime, which might help explain why small intestine cancer largely affects older people.

Hyperlinks

1. www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html
2. www.cancer.org/cancer/gastrointestinal-stromal-tumor.html
3. www.cancer.org/cancer/non-hodgkin-lymphoma.html

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Chamberlain RS, Krishnaraj M, Shah SA. Chapter 54: Cancer of the Small Bowel. In:

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Can Small Intestine Cancer (Adenocarcinoma) Be Prevented?

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At this time, there is no known way to prevent most small intestine adenocarcinomas. There are some [factors that might increase the risk for these cancers](#), such as smoking, drinking alcohol, and eating a diet that's high in red meats, so making healthier choices concerning these risk factors might lower your risk. Small intestine cancers are rare to begin with, but making these types of healthy choices might also lower your risk of some other types of cancer.

For people at high risk

For some people at high risk of small intestine cancer because of certain [inherited syndromes](#), surgery might be an option to lower risk. For example, people with familial adenomatous polyposis (FAP) can have a very high risk of small intestine cancer starting in the duodenum (the first part of the small intestine). If a person has many duodenal polyps (growths), doctors may suggest surgery to remove the duodenum before cancer can develop.

The procedure most often used is called a *pancreaticoduodenectomy* (or *Whipple procedure*). This is a complex operation that removes the duodenum, part of the

pancreas, the gallbladder, the common bile duct, and part of the stomach. It can have major side effects, so it's important to understand the possible pros and cons before having this type of surgery. This procedure is discussed in more detail in [Surgery for Small Intestine Cancer \(Adenocarcinoma\)](#)⁴.

Research is also looking at whether medicines might help lower the risk of small intestine cancer in people with many polyps. Nonsteroidal anti-inflammatory drugs (NSAIDs), such as aspirin, are one type of medicine being studied.

Hyperlinks

1. www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html
2. www.cancer.org/cancer/gastrointestinal-stromal-tumor.html
3. www.cancer.org/cancer/non-hodgkin-lymphoma.html
4. www.cancer.org/cancer/small-intestine-cancer/treating/surgery.html

References

Chamberlain RS, Krishnaraj M, Shah SA. Chapter 54: Cancer of the Small Bowel. In: DeVita VT, Lawrence TS, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology*. 10th ed. Philadelphia, Pa: Lippincott Williams & Wilkins; 2015.

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