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Pancreatic 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 pancreatic cancer.

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

Prevention

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

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

Pancreatic Cancer Risk Factors

A risk factor is anything that increases 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.

In some cases, there might be a factor that may decrease your risk of developing

cancer or has an unclear effect. That is not considered a risk factor, but you may see them noted clearly on this page as well.

Having a risk factor, or even many, does not mean that you will get cancer. And some people who get cancer may have few or no known risk factors.

Here are some of the risk factors known to increase your risk for pancreatic cancer.

Risk factors that can be changed

Tobacco use

[Smoking](#)¹ is one of the most important risk factors for pancreatic cancer. The risk of getting pancreatic cancer is about twice as high among people who smoke compared to those who have never smoked. About 25% of pancreatic cancers are thought to be caused by cigarette smoking. Cigar smoking and the use of smokeless tobacco products also increase the risk. However, the risk of pancreatic cancer starts to drop once a person stops smoking . See [Can Pancreatic Cancer Be Prevented?](#)

Being overweight

[Being very overweight \(obese\)](#)² is a risk factor for pancreatic cancer. Obese people (body mass index [BMI] of 30 or more) are about 20% more likely to develop pancreatic cancer. Gaining weight as an adult can also increase risk.

Carrying extra weight around the waistline may be a risk factor even in people who are not very overweight.

Diabetes

Pancreatic cancer is more common in people with diabetes. The reason for this is not known. Most of the risk is found in people with type 2 diabetes. This type of diabetes is increasing in children and adolescents as obesity in these age groups also rises. Type 2 diabetes in adults is also often related to being overweight or obese. It's not clear if people with type 1 (juvenile) diabetes have a higher risk.

Chronic pancreatitis

Chronic pancreatitis, a long-term inflammation of the pancreas, is linked with an increased risk of pancreatic cancer. Chronic pancreatitis is often seen with heavy

alcohol use and smoking.

Workplace exposure to certain chemicals

Heavy exposure at work to certain chemicals used in the dry cleaning and metal working industries may raise a person's risk of pancreatic cancer.

Risk factors that can't be changed

Age

The risk of developing pancreatic cancer goes up as people age. Almost all patients are older than 45. About two-thirds are at least 65 years old. The average age at the time of diagnosis is 70.

Gender

Men are slightly more likely to develop pancreatic cancer than women. This may be due, at least in part, to higher tobacco use in men, which raises pancreatic cancer risk (see above).

Race

African Americans are slightly more likely to develop pancreatic cancer than whites. The reasons for this aren't clear, but it may be due in part to having higher rates of some other risk factors for pancreatic cancer, such as diabetes, smoking, and being overweight.

Family history

Pancreatic cancer seems to run in some families. In some of these families, the high risk is due to an inherited syndrome (explained below). In other families, the gene causing the increased risk is not known. Although family history is a risk factor, most people who get pancreatic cancer do not have a family history of it.

Inherited genetic syndromes

Inherited gene changes (mutations) can be passed from parent to child. These gene changes may cause as many as 10% of pancreatic cancers. Sometimes these changes result in syndromes that include increased risks of other cancers (or other health

problems). Examples of [genetic syndromes](#)³ that can cause pancreatic cancer include:

- **Hereditary breast and ovarian cancer syndrome**, caused by mutations in the *BRCA1* or *BRCA2* genes
- **Hereditary breast cancer**, caused by mutations in the *PALB2* gene
- **Familial atypical multiple mole melanoma (FAMMM) syndrome**, caused by mutations in the *p16/CDKN2A* gene and associated with skin and eye melanomas
- **Familial pancreatitis**, usually caused by mutations in the *PRSS1* gene
- **Lynch syndrome**, also known as *hereditary non-polyposis colorectal cancer* (HNPCC), most often caused by a defect in the *MLH1* or *MSH2* genes
- **Peutz-Jeghers syndrome**, caused by defects in the *STK11* gene. This syndrome is also linked with polyps in the digestive tract and several other cancers.

Changes in the genes that cause some of these syndromes can be found by genetic testing. For more information on genetic testing, see [Can Pancreatic Cancer Be Found Early?](#)⁴

Chronic pancreatitis (due to a gene change)

Chronic pancreatitis is sometimes due to an [inherited gene mutation](#)⁵. People with this inherited (familial) form of pancreatitis have a high lifetime risk of pancreatic cancer.

Factors with an unclear effect on risk

Diet

[Diets](#)⁶ with red and processed meats (such as sausage and bacon) and saturated fats may increase the risk of pancreatic cancer. Sugary drinks may also increase this risk. More research is needed in this area.

Physical inactivity

Some research has suggested that [lack of physical activity](#)⁷ might increase pancreatic cancer risk. But not all studies have found this. Regular physical activity may help reduce the risk of pancreatic cancer.

Coffee

Some older studies have suggested that drinking coffee might increase the risk of pancreatic cancer, but more recent studies have not confirmed this.

Alcohol

Some studies have shown a link between [heavy alcohol use](#)⁸ and pancreatic cancer. Heavy alcohol use can also lead to conditions such as chronic pancreatitis, which is known to increase pancreatic cancer risk.

Infections

Some research suggests that infection of the stomach with the ulcer-causing bacteria *Helicobacter pylori* (H. pylori) or infection with Hepatitis B may increase the risk of getting pancreatic cancer. More studies are needed.

Hyperlinks

1. www.cancer.org/cancer/cancer-causes/tobacco-and-cancer.html
2. www.cancer.org/healthy/eat-healthy-get-active/acs-guidelines-nutrition-physical-activity-cancer-prevention.html
3. www.cancer.org/cancer/cancer-causes/genetics/family-cancer-syndromes.html
4. www.cancer.org/cancer/pancreatic-cancer/detection-diagnosis-staging/detection.html
5. www.cancer.org/cancer/cancer-causes/genetics.html
6. www.cancer.org/cancer/cancer-causes/diet-physical-activity.html
7. www.cancer.org/cancer/cancer-causes/diet-physical-activity/diet-and-physical-activity.html
8. www.cancer.org/cancer/cancer-causes/diet-physical-activity/alcohol-use-and-cancer.html

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Winter JM, Brody JR, Abrams RA, Posey JA, Yeo CJ. Chapter 55: Cancer of the Pancreas. In: DeVita VT, Lawrence TS, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology*. 11th ed. Philadelphia, Pa: Lippincott Williams & Wilkins; 2019.

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What Causes Pancreatic Cancer?

We don't know what causes pancreatic cancer. But we do know many of the risk factors for this cancer (see [Pancreatic Cancer Risk Factors](#)) and how some of them cause cells to become cancerous.

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 help keep cell division under control or cause cells to 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.

Inherited gene mutations

Some people [inherit gene changes](#)¹ from their parents that raise their risk of pancreatic cancer. Sometimes these gene changes are part of syndromes that include increased risks of other health problems as well. These syndromes, which cause a small portion of all pancreatic cancers, are discussed in [Risk Factors for Pancreatic Cancer](#).

Acquired gene mutations

Most gene mutations related to cancers of the pancreas occur after a person is born, rather than having been inherited. These *acquired* gene mutations sometimes result from exposure to cancer-causing chemicals (like those found in [tobacco smoke](#)²). But often what causes these changes is not known. Many gene changes are probably just random events that sometimes happen inside a cell, without having an outside cause.

Some of the DNA changes often seen in sporadic (non-inherited) cases of pancreatic cancer are the same as those seen in inherited cases, while others are different. For example, many sporadic cases of pancreatic cancer have changes in the *p16* and *TP53* genes, which can also be seen in some genetic syndromes. But many pancreatic cancers also have changes in genes such as *KRAS*, *BRAF*, and *DPC4 (SMAD4)*, which are not part of inherited syndromes. Other gene changes can also be found in pancreatic cancers, although often it's not clear what has caused these changes.

Hyperlinks

1. www.cancer.org/cancer/cancer-causes/genetics.html
2. www.cancer.org/cancer/cancer-causes/tobacco-and-cancer/carcinogens-found-in-tobacco-products.html

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Beavers TB, Brown PH, Maresso KC, Hawk ET. Chapter 23: Cancer Prevention, Screening, and Early Detection. In: Niederhuber JE, Armitage JO, Dorshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 5th ed. Philadelphia, Pa. Elsevier: 2014.

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Can Pancreatic Cancer Be Prevented?

There is no sure way to prevent pancreatic cancer. Some [risk factors](#) such as age, gender, race, and family history can't be controlled. But there are things you can do that might lower your risk.

Don't smoke

Smoking is the most important avoidable risk factor for pancreatic cancer. [Quitting smoking](#)¹ helps lower risk. If you smoke and want help quitting, please talk to your health care provider or call us at 1-800-227-2345.

Watch your diet, body weight, and physical activity

Getting to and staying at a [healthy weight](#)² might help lower your risk. Getting regular [physical activity](#)³ can help you stay at a healthy weight and may also reduce your risk of pancreatic cancer risk.

Processed and red meats and sugary drinks may also increase the risk of pancreatic cancer.

The American Cancer Society recommends following a healthy eating pattern that includes plenty of fruits, vegetables, and whole grains, and that limits or avoids red and processed meats, sugary drinks, and highly processed foods. For more, see the [American Cancer Society Guidelines for Diet and Physical Activity for Cancer Prevention](#)⁴.

Avoid alcohol use

Heavy alcohol use has been tied to pancreatic cancer in some studies. Heavy alcohol use can also lead to conditions such as chronic pancreatitis, which is known to increase pancreatic cancer risk. It's best not to drink [alcohol](#)⁵. [If you do drink, you should have no more than 1 drink per day for women or 2 drinks per day for men](#)⁶.

Limit exposure to certain chemicals in the workplace

Avoiding workplace exposure to certain [chemicals](#)⁷ may reduce your risk for pancreatic cancer.

Hyperlinks

1. www.cancer.org/healthy/stay-away-from-tobacco.html
2. www.cancer.org/healthy/eat-healthy-get-active.html
3. www.cancer.org/healthy/eat-healthy-get-active.html
4. www.cancer.org/healthy/eat-healthy-get-active/acs-guidelines-nutrition-physical-activity-cancer-prevention.html
5. www.cancer.org/cancer/cancer-causes/diet-physical-activity/alcohol-use-and-

[cancer.html](#)

6. www.cancer.org/healthy/eat-healthy-get-active/acs-guidelines-nutrition-physical-activity-cancer-prevention.html
7. www.cancer.org/cancer/cancer-causes/general-info/known-and-probable-human-carcinogens.html

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