

Colorectal cancer risk factor information

This document gives a general overview of risk factors. The document covers:

- About cancer and risk factors
- About colorectal cancer
- Types of colorectal cancer
- Known risk factors
- Possible risk factors
- Other risk factors that have been investigated
- References / more information

About cancer and risk factors

Cancer is not just one disease.

Cancer is a group of over 100 different diseases. Cancer occurs when abnormal cells grow out of control and crowd out the normal cells. It can start anywhere in the body and can spread (“metastasize”) to other parts of the body. Cancer types are named for the original location in the body and the type of cell or tissue. Different types of cancer have different causes and risk factors.

Cancer can take a long time to develop.

The cause of cancer is sometimes related to events that happened many years ago. Most cancer types are thought to take anywhere from 10 to over 50 years to develop. A few types, such as leukemia or lymphoma, are thought to take less than 10 years.

A risk factor is anything that increases your chance of getting cancer.

Some risk factors can be controlled while others cannot. Risk factors can include:

- Hereditary conditions (such as genes passed down from parents)
- Medical conditions or treatments (such as a previous cancer diagnosis)
- Infections (such as human papilloma virus [HPV])
- Lifestyle factors (such as smoking cigarettes)
- Environmental exposures (such as certain air pollutants)

Most risk factors do not directly cause cancer.

A risk factor influences the development of cancer but usually does not directly cause cancer. Instead, a combination of risk factors likely drives cancer development. For example, genetic factors can make individuals more likely to get cancer when they are exposed to a cancer-causing chemical.

Environmental risk factors depend on how, how much, and how long you are exposed.

Your risk from exposure to certain chemicals or radiation depends on the type, extent, and duration of exposure. For example, breathing a certain chemical may increase your risk of getting cancer. However, touching the same chemical may not. In addition, some substances may increase your risk only if you are exposed to high amounts over a long time.

It is difficult to identify the exact causes of cancer.

- Many cancers can develop due to random chance.
- Multiple risk factors can act in combination.
- Risk factors can change over time.
- Cancer might not develop or get diagnosed for a long time after an initiating event (such as exposure or random cell mutation).

Knowing your risk factors can help you make more informed choices.

Discuss your risk factors with your health care provider to make more informed decisions on lifestyle and health care.

About colorectal cancer

Colorectal cancer starts in the colon or the rectum.

Colorectal cancer starts in the colon or rectum, which along with the anus make up the large intestine (sometimes called the large bowel) and are the end parts of the digestive system. Colon cancer and rectal cancer are often grouped together (and referred to as colorectal cancer) because they have many similar features.²

Most colorectal cancers start as a non-cancerous polyp that can be detected with screening.

Polyps grow on the inner lining of the colon or rectum and are common, especially as people age. Some types of polyps can change into cancer over time, but not all polyps will become cancer.³ Most can be found through screening and removed, if necessary, before they turn into cancer.

Screening can also detect colorectal cancer at an early stage before it has spread when it is likely easier to treat.² Since 2018, the American Cancer Society has recommended that colorectal screening start at age 45, though people at higher risk may need to start earlier.^{2,3}

Colorectal cancer is the 3rd most common cancer diagnosed among men and women in the United States.

The American Cancer Society estimates 154,270 people (82,460 men and 71,810 women) in the United States will be diagnosed with colorectal cancer in 2025. In Massachusetts, about 2,770 new diagnoses of colorectal cancer are expected in 2025.¹ Consistent with the national trend, colorectal cancer was the 3rd most common cancer diagnosed among men in Massachusetts during 2016-2020 – but the 4th most common cancer diagnosed among women.⁴

The risk of colorectal cancer increases with age.

The risk of colorectal cancer goes up as you age, particularly after age 50.^{2,3,8} About 77% of people diagnosed with colorectal cancer are older than age 55. It is most frequently diagnosed among people aged 65-74 with a median age at diagnosis of 66.⁷

Trends in the incidence rate (new diagnoses) of colorectal cancer differ by age.

Since the mid-1980s, the incidence of colorectal cancer in the United States decreased, primarily among older adults. This is thought to be due to changing patterns in lifestyle-related risk factors and more widespread screening among adults aged 50 and older. However, a different trend has occurred among adults younger than 50 where the incidence has been rising since the 1990s.^{2,5} In 1995, 11% of colorectal cancers were diagnosed in people age 54 or younger – by 2019, this had increased to 20%.³ The reason for this increase among younger adults is unclear. Incidence rates in Massachusetts are also consistent with these national trends.⁵

American Indian and Alaska Native people have the highest rates in the United States.

In the United States, American Indian and Alaska Native individuals have the highest incidence rates (new diagnoses) of colorectal cancer followed by non-Hispanic Black individuals.^{1,3} Ashkenazi Jews (Jews of Eastern European descent) have one of the highest risks for colorectal cancer of any ethnic group in the world.²

The risk of colorectal cancer is slightly higher in men than women.

During 2015-2019, the incidence rate of colorectal cancer in men was 33% higher than in women, possibly reflecting differences in lifestyle-related risk factors. Because women have a longer life

expectancy than men, the number of new diagnoses of colorectal cancer is similar among men and women age 65 and older.³

Types of colorectal cancer

Most colorectal cancers are adenocarcinomas.

Adenocarcinomas start in cells that make mucus to lubricate the inside of the colon and rectum and make up the vast majority of diagnoses.^{2,8}

Other types of tumors that can start in the colon and rectum and are much less common include carcinoid tumors, gastrointestinal stromal tumors (GISTs), lymphomas, and sarcomas.² The remainder of this risk factor summary will focus on adenocarcinomas of the colon and rectum.

Known risk factors

Hereditary conditions

Family history of colorectal cancer or adenomatous polyps:

Although most individuals diagnosed with colorectal cancer do not have a family history of colorectal cancer, it is estimated that as many as 1 in 3 do have family members who have had the disease.^{2,3,6} People with a parent, sibling, or child diagnosed with colorectal cancer have 2 to 4 times the risk compared to people without this family history.³ Individuals with family members who have had adenomatous polyps are also at an increased risk.² Although the reason is unclear, these associations may be due to shared exposures, such as tobacco smoke, inherited genetic changes, or a combination of factors.⁸

Inherited gene mutations and conditions:

About 5% of individuals who develop colorectal cancer have inherited gene changes (mutations) that increase the risk of colorectal cancer, and at a younger age.² The most common inherited syndromes associated with an increased risk of colorectal cancer risk are:

- Lynch syndrome (also called hereditary non-polyposis colorectal cancer or HNPCC) accounts for about 2 to 4% of all colorectal cancers.^{2,6} It is also linked to endometrial (uterine) cancer and may increase the risk of other cancers.²
- Familial adenomatous polyposis (FAP), which causes hundreds or thousands of polyps to grow in the colon or rectum, accounts for about 1% of all colorectal cancers. It also increases the risk for other cancers, including stomach, pancreas, and liver.^{2,6,8}

Other rare inherited conditions that increase the risk for colorectal cancer include Peutz-Jeghers syndrome, MUTYH-associated polyposis (MAP), and cystic fibrosis.²

Medical conditions and treatment

Type 2 diabetes mellitus:

People with type 2 diabetes have an increased risk of developing colorectal cancer. Excess body weight and physical inactivity are risk factors for both type 2 diabetes and colorectal cancer – but even after considering these factors, people with type 2 diabetes still have an increased risk.²

Previous diagnosis of colorectal cancer:

Individuals with a previous diagnosis of colorectal cancer are at a higher risk of developing another cancer in other parts of the colon and rectum. This is more likely for someone first diagnosed when they were younger.^{2,6}

Adenomatous polyps:

A personal history of adenomatous polyps increases the risk of colorectal cancer, especially if the polyps are large, numerous, or show dysplasia (abnormal, but not cancer cells).²

Radiation treatment to the abdomen or pelvis area:

The risk of colorectal cancer is increased for people who had radiation to their abdomen or pelvis area, especially as a child. Some studies based on men treated with radiation for prostate cancer in the 1980s and 1990s (when radiation treatments were less precise) may have a higher risk of colorectal cancer.²

Cholecystectomy (gallbladder removal):

For reasons that are unclear, individuals who have had their gallbladder removed have a slightly higher risk for colon cancer.²

Inflammatory bowel disease (IBD):

Inflammatory bowel disease (including ulcerative colitis or Crohn's disease) increases the risk of colorectal cancer.^{2,6,8} Note that IBD is not the same as irritable bowel syndrome (IBS), which has not been shown to increase colorectal cancer risk.²

Non-steroidal anti-inflammatory drugs (NSAIDs):

Common NSAIDs include aspirin, ibuprofen, and naproxen. Regular intake of NSAIDs reduces the risk of colorectal cancer and development of polyps.^{2,7,8} However, these drugs can result in serious side effects, like bleeding of the stomach lining.² The American Cancer Society recommends that individuals at average risk for colorectal cancer do not take NSAIDs

as a way to lower their risk.² Individuals should talk with their doctor about the risks and benefits of taking aspirin or other NSAIDs on a regular basis.

Lifestyle factors

In the United States, more than half of all colorectal cancers are related to lifestyle factors that can be changed, such as smoking, alcohol use, physical inactivity, and diet.^{1,2,3}

Excess body weight:

Individuals who have excess body weight (overweight or obesity) have an increased risk of developing colorectal cancer. While excess body weight raises the risk of colorectal cancer in both men and women, the association seems to be stronger in men.^{2,6,8}

Tobacco use:

Smoking tobacco increases the risk of developing colon polyps and long-term smokers are more likely to develop colorectal cancer than non-smokers.^{2,3,6,8} For information about quitting tobacco use, contact the [DPH Tobacco Cessation and Prevention Program](#) at 1-800-QUIT-NOW or 1-800-784-8669.

Alcohol use:

Moderate to heavy alcohol consumption (consuming an average of more than 3 drinks per day) increased the risk of colorectal cancer. Even light to moderate alcohol use is associated with some risk.^{2,3,6,8} While it is best not to drink alcohol, the American Cancer Society recommends that if people do drink alcohol that men should have no more than 2 drinks a day and women should have no more than 1 drink a day.²

Physical inactivity:

Sedentary behavior (such as prolonged sitting) is associated with an increased risk of colorectal cancer. On the other hand, physical activity is linked to a lower risk. While high levels of activity provide the greatest reduction in risk, even moderate levels (such as brisk walking 3-4 hours per week) are associated with substantial protective effects.^{6,8}

Diet high in red meat or processed meat:

A long-term diet high in red meat (such as beef, pork, lamb, or liver) and processed meat (like hot dogs and some lunch meats) increases the risk of developing colorectal cancer.^{2,6,8}

Possible risk factors

Lifestyle factors

Diet:

Cooking meat at very high temperatures (frying, broiling, or grilling) creates chemicals that may also raise the risk of cancer risk, but it is unclear if this is linked to colorectal specifically.² In addition, individuals who eat a diet that is very low in fruits and vegetables may have a higher risk of colorectal cancer. Diets low in calcium, folate, and fiber may also increase risk. Overall, more research is needed on the impact of diet on colorectal cancer.^{2,6,8}

Vitamin D:

Having a low blood level of vitamin D may increase the risk of colorectal cancer.² For most individuals, sunlight is the main source of vitamin D followed by diet and possibly supplements.

Environmental exposures

Polychlorinated biphenyls (PCBs):

A few studies provide some evidence of a link between exposure to PCBs and colorectal cancer, but findings are inconsistent.⁹

Other risk factors that have been investigated

Medical conditions

Irritable bowel syndrome (IBS):

Irritable bowel syndrome (IBS) has not been shown to increase colorectal cancer risk.² Note that IBS is not the same as inflammatory bowel disease (IBD), which does increase the risk as described earlier.^{2,6,8}

References / more information

This information sheet should not be considered exhaustive. For more information on other possible risk factors and health effects being researched, please see the resources below. Much of the information contained in this summary has been taken directly from these sources. This material is provided for informational purposes only and should not be considered as medical advice. Consult your physician if you have questions regarding a specific medical problem or condition.

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