



About Colorectal Cancer

Overview and Types

If you have been diagnosed with colorectal cancer or are worried about it, you likely have a lot of questions. Learning some basics is a good place to start.

- [What Is Colorectal Cancer?](#)

Research and Statistics

See the latest estimates for new cases of colorectal cancer and deaths in the US and what research is currently being done.

- [Key Statistics for Colorectal Cancer](#)
- [What's New in Colorectal Cancer Research?](#)

What Is Colorectal Cancer?

Colorectal cancer is a cancer that starts in the colon or the rectum. These cancers can also be named colon cancer or rectal cancer, depending on where they start. Colon cancer and rectal cancer are often grouped together because they have many features in common.

Cancer starts when cells in the body begin to grow out of control. Cells in nearly any part of the body can become cancer, and can spread to other areas of the body. To learn more about how cancers start and spread, see [What Is Cancer?](#)

How does colorectal cancer start?

Most colorectal cancers begin as a growth called a *polyp* on the inner lining of the colon

or rectum Some types of polyps can change into cancer over the course of several years, but not all polyps become cancer. The chance of changing into a cancer depends on the kind of polyp. The 2 main types of polyps are:

- **Adenomatous polyps (adenomas):** These polyps sometimes change into cancer. Because of this, adenomas are called a *pre-cancerous condition*.
- **Hyperplastic polyps and inflammatory polyps:** These polyps are more common, but in general they are not pre-cancerous.

Other polyp characteristics that can increase the chances a polyp may contain cancer or increase someone's risk of developing colorectal cancer besides the type include the size (larger than 1cm), the number found (more than two), and if dysplasia is seen in the polyp after it is removed.

Dysplasia, another pre-cancerous condition, is an area in a polyp or in the lining of the colon or rectum where the cells look abnormal (but not like true cancer cells).

For more detailed information on the types of polyps and conditions that can lead to colorectal cancer, see [Understanding Your Pathology Report: Colon Polyps](#).

If cancer forms in a polyp, it can eventually begin to grow into the wall of the colon or rectum.

The wall of the colon and rectum is made up of several layers. Colorectal cancer starts in the innermost layer (the mucosa) and can grow outward through some or all of the other layers. When cancer cells are in the wall, they can then grow into blood vessels or lymph vessels (tiny channels that carry away waste and fluid). From there, they can travel to nearby lymph nodes or to distant parts of the body.

The stage (extent of spread) of a colorectal cancer depends on how deeply it grows into the wall and if it has spread outside the colon or rectum. For more information on staging, see [Colorectal Cancer Stages](#).

The normal colon and rectum

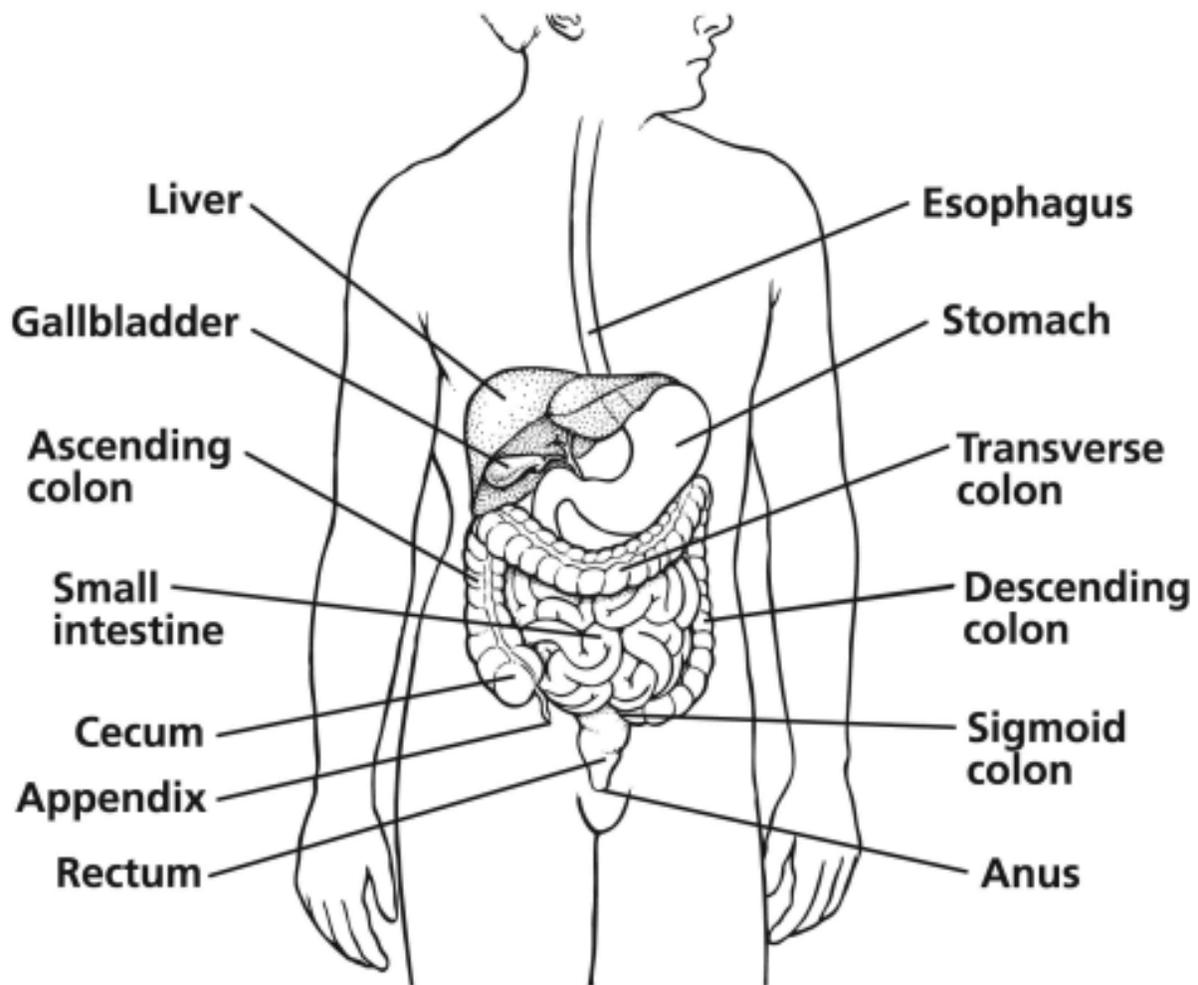
The colon and rectum are parts of the digestive system, which is also called the *gastrointestinal (GI) system* (see illustration). The colon and rectum make up the large intestine (or large bowel).

Most of the large intestine is made up of the colon, a muscular tube about 5 feet long. The parts of the colon are named by which way the food matter is traveling.

- The first section is called the **ascending colon**; it begins with a pouch called the cecum, where undigested food is received from the small intestine, and extends upward on the right side of the abdomen.
- The second section is called the **transverse colon** because it travels across the body from the right to the left side.
- The third section is called the **descending colon** because it descends (travels down) on the left side.
- The fourth section is called the **sigmoid colon** because of its “S” shape; the sigmoid colon joins the rectum, which connects to the anus.

The ascending and transverse sections are collectively referred to as the **proximal colon**, and the descending and sigmoid colon are referred to as the **distal colon**.

The colon absorbs water and salt from the remaining food matter after it goes through the small intestine (small bowel). The waste matter that is left after going through the colon goes into the **rectum**, the final 6 inches of the digestive system, where it is stored until it passes out of the body through the **anus**.



Types of cancer in the colon and rectum

Adenocarcinomas make up more than 95% of colorectal cancers. These cancers start in cells that make mucus to lubricate the inside of the colon and rectum. When doctors talk about colorectal cancer, they are almost always talking about this type. Some subtypes of adenocarcinoma, such as signet ring and mucinous, may have a worse prognosis (outlook).

Other, less common types of tumors can also start in the colon and rectum. These include:

Carcinoid tumors start from specialized hormone-making cells in the intestine. They

are discussed in [Gastrointestinal Carcinoid Tumors](#).

Gastrointestinal stromal tumors (GISTs) start from specialized cells in the wall of the colon called the *interstitial cells of Cajal*. Some are non-cancerous (benign). These tumors can be found anywhere in the digestive tract, but are not common in the colon. They are discussed in [Gastrointestinal Stromal Tumor \(GIST\)](#).

Lymphomas are cancers of immune system cells that typically start in lymph nodes, but they can also start in the colon, rectum, or other organs. Information on lymphomas of the digestive system is included in [Non-Hodgkin Lymphoma](#).

Sarcomas can start in blood vessels, muscle layers, or other connective tissues in the wall of the colon and rectum. Sarcomas of the colon or rectum are rare. They are discussed in [Soft Tissue Sarcoma](#).

- [References](#)

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Key Statistics for Colorectal Cancer

How common is colorectal cancer?

Excluding skin cancers, colorectal cancer is the third most common cancer diagnosed in both men and women in the United States. The American Cancer Society's estimates for the number of colorectal cancer cases in the United States for 2017 are:

- 95,520 new cases of colon cancer
- 39,910 new cases of rectal cancer

Lifetime risk of colorectal cancer

Overall, the lifetime risk of developing colorectal cancer is: about 1 in 21 (4.7%) for men and 1 in 23 (4.4%) for women. This risk is slightly lower in women than in men. A number of other factors (described in [Colorectal Cancer Risk Factors](#)) can also affect your risk for developing colorectal cancer.

Deaths from colorectal cancer

Colorectal cancer is the third leading cause of cancer-related deaths in women in the United States and the second leading cause in men. It is expected to cause about **50,260 deaths during 2017**.

The death rate (the number of deaths per 100,000 people per year) from colorectal cancer has been dropping in both men and women for several decades. There are a number of likely reasons for this. One is that colorectal polyps are now being found more often by [screening](#) and removed before they can develop into cancers or are being found earlier when the disease is easier to treat. In addition, treatment for colorectal cancer has improved over the last few decades. As a result, there are now

more than 1 million survivors of colorectal cancer in the United States.

Statistics related to survival among people with colorectal cancer are discussed in [What Are the Survival Rates for Colorectal Cancer, by Stage?](#)

Visit the [American Cancer Society's Cancer Statistics Center](#) for more key statistics.

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What's New in Colorectal Cancer Research?

Research is always going on in the area of colorectal cancer. Scientists are looking for causes and ways to prevent colorectal cancer, better ways to find it early, and ways to improve treatments. Here are some examples of current research.

Reducing colorectal cancer risk

Many studies are looking to identify the causes of colorectal cancer, in the hopes of using this knowledge to help prevent it.

Other studies are looking to see if certain types of diets, dietary supplements, or medicines can lower a person's risk of colorectal cancer. For example, many studies have shown that aspirin and similar pain relievers might help lower the risk of colorectal cancer, but these drugs can sometimes have serious side effects. Researchers are now trying to determine if there are some groups of people for whom the benefits would outweigh the risks.

Early detection tests

Doctors are looking for better ways to find [colorectal cancer early](#) by studying new types

of screening tests and improving the ones already being used.

Lab tests to help predict cancer recurrence risk

Lab tests (including Oncotype Dx[®] Colon Cancer Assay, ColoPrint[®], and ColDx[™]) have been developed to help predict which patients have a higher risk of their colorectal cancer coming back after treatment. The tests do this by looking at the activity of many different genes inside colorectal cancer cells. So far, though, none of these tests have been shown to help predict which people could benefit from chemo or other treatments.

Treatment

Researchers are constantly looking for better ways to treat colorectal cancer.

Newer surgery techniques

Surgeons are continuing to improve their techniques for operating on colorectal cancers.

Sometimes when colorectal cancer recurs (comes back), it spreads to the peritoneum (the thin lining of the abdominal cavity and of organs in the abdomen). These cancers are often hard to treat. Recently, some surgeons have been studying a procedure called **hyperthermic intraperitoneal chemotherapy (HIPEC)**. First, surgery is done to remove as much of the cancer in the belly as possible. While still in the operating room, the abdominal cavity is bathed in heated chemotherapy drugs. This puts the chemo directly into contact with the cancer cells, and the heat is thought to help the drugs work better.

Some patients are living longer with this type of treatment, but more studies are needed to determine which patients it can help. It also requires well-trained doctors and nurses and specialized equipment, so it is not readily available.

Chemotherapy

[Chemotherapy](#) is an important part of treatment for many people with colorectal cancer, and doctors are constantly trying to make it more effective and safer. Different approaches are being tested in clinical trials, including:

- Testing new chemo drugs (such as trifluridine and tipiracil) or drugs that are already

- used against other cancers (such as cisplatin or gemcitabine).
- Looking for new ways to combine drugs already known to be active against colorectal cancer, such as irinotecan and oxaliplatin, to improve their effectiveness.
 - Studying the best ways to combine chemotherapy with radiation therapy, targeted therapies, and/or immunotherapy.

Targeted therapy

Targeted therapy drugs work differently from standard chemotherapy drugs. They affect specific parts of cancer cells that make them different from normal cells. Several [targeted therapy drugs](#) are already used to treat colorectal cancer. Doctors continue to study the best way to give these drugs to make them more effective, as well as looking at new targeted therapy drugs.

Targeted therapies are currently used to treat advanced colorectal cancers, but newer studies are trying to determine if using them with chemotherapy in earlier-stage cancers as part of adjuvant therapy may further reduce the risk of recurrence.

Immunotherapy

An exciting area of research is the field of [immunotherapy](#), which is treatment that uses the body's own immune system to fight the cancer.

Immune checkpoint inhibitors: An important part of the immune system is its ability to tell between normal cells in the body and those it sees as “foreign.” This lets the immune system attack the foreign cells while leaving the normal cells alone. To do this, it uses “checkpoint” proteins on certain immune cells. These proteins act like switches, needing to be turned on (or off) to start an immune response. Cancer cells sometimes use these checkpoints to avoid being attacked by the immune system.

Newer drugs that target checkpoint proteins such as PD-1 hold a lot of promise as cancer treatments. Colorectal cancer cells that have specific gene changes, such as high levels of microsatellite instability (MSI-H), or changes in one of the mismatch repair (MMR) genes, tend to have a lot of other changes that make them different from normal colorectal cells. This might make them more visible to the immune system. Cancers with these changes may be helped by treatment with anti-PD-1 drugs such as pembrolizumab (Keytruda) or nivolumab (Opdivo).

Cancer vaccines: Researchers are studying several vaccines to try to treat colorectal cancer or prevent it from coming back after treatment. Unlike vaccines that prevent

infectious diseases, these vaccines are meant to boost the person's immune system to fight colorectal cancer more effectively.

Many types of vaccines are being studied. For example, some vaccines are created by removing some of the person's own immune system cells (called *dendritic cells*) from their blood, exposing them in the lab to a substance that will make them attack cancer cells, and then putting them back into the person's body. At this time, these types of vaccines are only available in [clinical trials](#).

- [References](#)

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