



# Colorectal Cancer

**SANFORD**  
CANCER CENTER



# Colorectal Cancer Starts In the Colon or Rectum

## Key Points to Learn In This Section

- About the digestive system
- Signs of colon or rectal cancer
- Risk factors for developing colon and rectal cancer
- Tests that look at the colon and rectum

## Digestive System

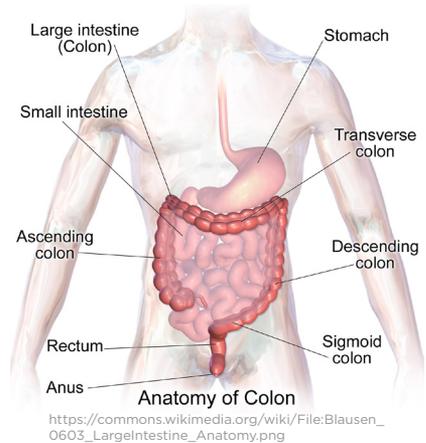
The colon and rectum are part of the body's digestive system. The digestive system removes and processes nutrients (vitamins, minerals, carbohydrates, fats, proteins, and water) from foods and helps pass waste material out of the body.

The digestive system is made up of the esophagus, stomach, and the small and large intestines.

The colon (large bowel) is the first part of the large intestine and is about 5 feet long.

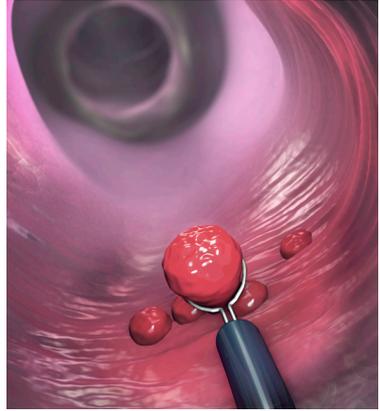
Together, the rectum and anal canal make up the last part of the large intestine and are about 6 to 8 inches long.

The anal canal ends at the anus (the opening of the large intestine to the outside of the body).



## Polyps

Most colorectal cancers are adenocarcinomas (add-en-oh-car-sin-oh-mas). These cancers begin in cells that make and release mucus and other fluids. Colorectal cancer often begins as a growth called a polyp, which may form on the inner wall of the colon or rectum. Some polyps become cancer over time. Finding and removing polyps can prevent colorectal cancer.



## Signs of Colon or Rectal Cancer

These and other signs and symptoms may be caused by colon or rectal cancer or by other conditions. Check with your doctor if you have any of the following:

- A change in bowel habits
- Blood (either bright red or very dark) in the stool
- Diarrhea, constipation, or feeling that the bowel does not empty all the way
- Stools that are narrower or a different shape than usual
- Frequent gas pains, bloating, fullness, or cramps
- Weight loss for no known reason
- Feeling very tired
- Change in appetite or vomiting
- Rectal pain

## What Affects the Risk of Developing Colon and Rectal Cancer?

Anything that increases your chance of getting a disease is called a risk factor. Having a risk factor does not mean that you will get cancer. Risk factors for colorectal cancer include personal and family health history, lifestyle choices, as well as other things.

## Health History

- Having a family history of colon or rectal cancer in a parent, sibling, or child
- Having a personal history of certain other cancers
- Having a personal history of high-risk polyps
- Having inherited changes in certain genes that increase the risk of familial adenomatous polyposis (FAP) or Lynch syndrome
- Having a personal history of chronic ulcerative colitis or Crohn's disease for 8 years or more

## Lifestyle Choices

- Having 3 or more alcoholic drinks per day
- Smoking cigarettes
- Being overweight or obese
- Inactive lifestyle

## Other Risks

- Getting older, especially after age 50
- Racial or ethnic background
- Type 2 Diabetes
- African Americans have higher rates than other racial groups in the United States

## Tests That May Be Used to Find and Diagnose Colorectal Cancer

Not every person needs every test.

### **Physical exam and history.**

**Digital rectal exam:** An exam of the rectum. A gloved finger is inserted into the rectum to feel for lumps or anything else that seems unusual.

**Fecal occult blood test (FOBT):** A test to check stool (solid waste) for blood that can only be seen with a microscope. There are two types of FOBTs:

- **Guaiaac (gwi-ak) FOBT:** A sample of stool is placed on a card. It is tested with a chemical that detects blood
- **Immunochemical FOBT:** Also called fecal immunochemical test or FIT; it can be done with or without DNA

**Colonoscopy:** A thin tube inserted through the rectum into the colon looking for abnormal areas, polyps, or cancer. Polyps or tissue samples may be removed and checked under a microscope for signs of cancer.

**Virtual colonoscopy:** Using a CT scan, pictures are put together to create detailed images. The images may show polyps and anything else that seems unusual on the inside surface of the colon. This test is also called colonography or CT colonography.

**Barium enema:** A liquid that contains barium (a silver-white metallic compound) is put into the rectum. The barium coats the lower GI tract and x-rays are taken. This procedure is also called a lower GI series.

**Sigmoidoscopy:** A sigmoidoscope is a thin tube inserted through the rectum into the lower colon looking for abnormal areas, polyps, or cancer. Polyps or tissue samples may be removed and checked under a microscope for signs of cancer.

**Biopsy:** The removal of cells or tissues so they can be viewed under a microscope to check for cancer cells. Tissue may be tested for genetics or other factors. These results may be used to learn more and plan treatment. The biopsy could be taken of the main tumor or other areas such as the liver or the lung.

## Factors Affecting Recovery (Prognosis) and Treatment Options

Many things can affect the treatment options and how you recover, including:

- The stage of the cancer
- Whether the cancer has blocked or made a hole in the colon
- Whether there are any cancer cells left after surgery
- Whether the cancer has come back after treatment (recurred)
- Your general health

# Colorectal Cancer Testing

## Key Points to Learn In This Section

- How cancer spreads
- Common tests that may be done to find out if cancer cells have spread within the area or to other parts of the body

## How Cancer Spreads

Cancer may spread from where it began to other parts of the body. After cancer has been diagnosed, tests are done to find out if cancer cells have spread within the area or to other parts of the body.

There are 3 ways that cancer spreads in the body. Cancer can spread through tissue, the lymph system, and the blood:

- **Tissue:** The cancer spreads from where it began by growing into nearby areas.
- **Lymph system:** The cancer spreads from where it began by getting into the lymph system. The cancer travels through the lymph vessels to other parts of the body.
- **Blood:** The cancer spreads from where it began by getting into the blood. The cancer travels through the blood vessels to other parts of the body.

The process used to find out if cancer has spread within the colon or rectum or to other parts of the body is called staging. It is important to know the stage in order to plan treatment. Not every person needs every test.

## Tests and Procedures for Staging

The following tests and procedures may be used to find cancer and assess your health status.

**CT scan (computed tomography):** A series of detailed pictures of areas inside the body are taken from different angles. The pictures are made by a computer linked to an x-ray machine. A dye may be given into a vein or swallowed to help the organs or tissues show up more clearly.

**MRI (magnetic resonance imaging):** A magnet, radio waves, and a computer are used to make a series of detailed pictures of areas the inside of the colon. A substance called gadolinium is injected through a vein. The gadolinium collects around the cancer cells so they show up brighter in the picture.

**PET scan (positron emission tomography scan):** A small amount of radioactive glucose (sugar) is injected into a vein. The PET scanner rotates around the body and makes a picture of where glucose is being used in the body. Cancer cells show up brighter in the picture because they are more active and take up more glucose than normal cells do.

**Endorectal ultrasound (EUS):** An ultrasound transducer (probe) is inserted into the rectum and used to bounce high-energy sound waves (ultrasound) off internal tissues or organs and make echoes. The echoes form a picture of body tissues called a sonogram.

**Surgery:** Removal of the tumor or a tissue sample. The surgeon will also look and see how far the cancer has spread through the colon.

**Complete blood count (CBC):** A sample of blood is drawn and checked for the following:

- The measure of red blood cells, white blood cells, and platelets.
- The amount of hemoglobin (the protein that carries oxygen) in the red blood cells.

**Carcinoembryonic antigen (CEA) assay:** A test that measures the level of CEA in the blood. CEA is released into the bloodstream from both cancer cells and normal cells. A higher than normal amount may be a sign of colorectal cancer or other health problems. This test is considered non-specific. Some people who have colorectal cancer do not ever have a high CEA. Sometimes it can help show a return of the disease.

# Colorectal Cancer Stages

## Key Points to Learn In This Section

- The TNM system is part of staging cancer
- Colorectal cancer stages are described as 0 (zero) to IV (4)

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## TNM Staging System

Your doctor may use these words as part of your pathology report.

**T is for Tumor.** This describes the size and spread of the main tumor.

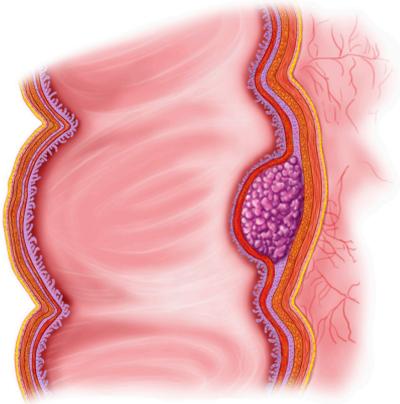
**N is for Nodes.** This describes if cancer has spread to nearby lymph nodes.

**M is for Metastases.** This explains the location of spread to other organs or to distant lymph nodes.

The overall stage of your cancer helps to determine treatment options as well as which clinical trials may be offered to you.

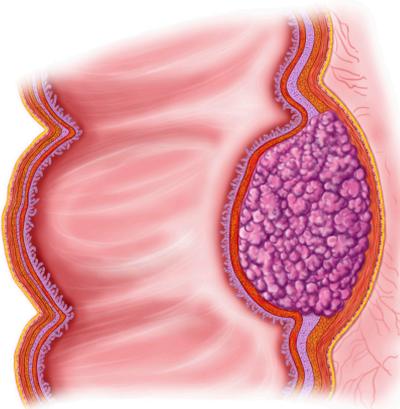
### Stage 0 (Zero) (Carcinoma in Situ)

In stage 0, abnormal cells are found in the mucosa (innermost layer) of the colon or rectum wall. These abnormal cells (pre-cancer) may become cancer and spread.



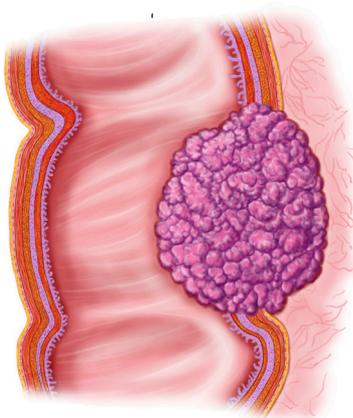
### Stage I

In stage I, cancer has formed in the mucosa (innermost layer) of the colon or rectum wall and has spread to the submucosa (layer of tissue under the mucosa). Cancer may have spread to the muscle layer of the colon or rectum wall.



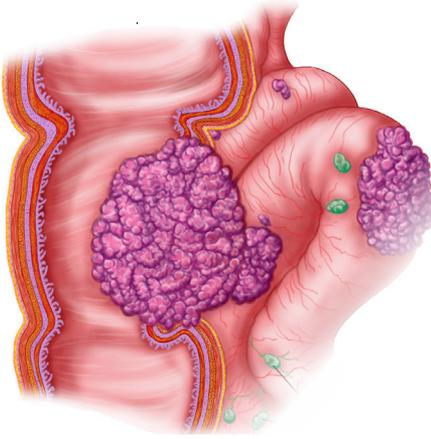
### Stage II (2)

Stage II colon or rectal cancer is divided into stage IIA, stage IIB, and stage IIC. Stage II colon or rectal cancer spreads through the muscle layer.



### Stage III (3)

Stage III colon or rectal cancer is divided into stage IIIA, stage IIIB, and stage IIIC. Stage III colon or rectal cancer spreads to nearby lymph nodes, tissues, or organs.



## Stage IV (4)

When cancer spreads to another part of the body, it is called metastasis (meh-tas-tah-sis). Cancer cells break away from where they began (the primary tumor) and spread to another part of the body. For example, if colon cancer spreads to the lung, the cancer cells in the lung are actually colon cancer cells. Stage IV colon or rectal cancer is divided into stages IVA, IVB, or IVC.

## Recurrent Colorectal Cancer

Recurrent colon cancer is cancer that comes back after it has been treated. The cancer may come back in the colon or in other parts of the body, such as the liver, lungs, or both.

# Treatment Option Overview

## Key Points to Learn In This Section

There are different types of treatment.

### Standard treatments used:

- Surgery
- Drug Therapy
- Radiation therapy

### Clinical trials:

- You can enter clinical trials before, during, or after starting your cancer treatment.

## Types of Treatments

You will work with your doctor to learn about available treatments. Options will be discussed with you based on your cancer type, stage, and health. Ask if a clinical trial is right for you.

### Surgery

Surgery (removing the cancer in an operation) is the most common treatment for all stages of colon and rectal cancer. A doctor may remove the cancer using one of the following types of surgery:

- **Polypectomy:** If the cancer is found in a polyp (a small piece of bulging tissue), the polyp is often removed during a colonoscopy.
- **Local excision:** If the cancer is found at a very early stage, the doctor may remove the cancer and a small amount of surrounding healthy tissue.

**Surgery with reconnection (anastomosis):** If the cancer is larger, the doctor will do a partial colectomy (removing the cancer and some amount of healthy tissue around it). The doctor may then sew the healthy parts of the colon together (anastomosis). The doctor will also usually remove lymph nodes near the colon and look at them under a microscope to see whether they contain cancer cells.

**Surgery with outside opening (ostomy):** If the doctor is not able to sew the 2 ends back together, a stoma (an opening) is made on the outside of the body for waste to pass through. A bag is placed over the stoma to collect the waste. Sometimes the ostomy is needed only until healed, and then it can be reversed. If the doctor needs to remove the rectum and anus, however, the ostomy may be permanent.

**Surgery with other organ removal:** If the cancer has spread to other organs near the colon or rectum, a more extensive surgery may be done. This involves removal of organs that are affected by the cancer so they are not able to work properly. Artificial openings (stoma) may be needed for urine and stool to flow from the body to a collection bag.

## Drug Therapy

Even if the doctor removes all the cancer that can be seen at the time of the operation, some people may be given more treatment.

- **Adjuvant therapy** is given after another treatment such as surgery.
- **Neoadjuvant therapy** is given before another treatment to shrink the cancer. An example is chemotherapy before surgery.

**Chemotherapy** is a cancer treatment that uses drugs to stop the growth of cancer cells, either by killing the cells or by stopping them from dividing. The way the chemotherapy is given depends on the type and stage of the cancer being treated.

**Targeted therapy** is a type of treatment that uses drugs or other substances to identify and attack specific cancer cells. Targeted therapies can carry drugs, toxins, or radioactive material. The body's immune system can be used to stop cancer growth. Some targeted treatments stop new blood vessels tumors need to grow. Based on your tumor type, some therapies you may hear about include:

- Biotherapy or biologic response modifier (BRM)
  - Immunotherapy
  - Monoclonal antibodies

## Radiation Therapy

Radiation therapy is a cancer treatment that uses high-energy x-rays or other types of radiation to kill cancer cells or keep them from growing. Radiation therapy can be used to cure cancer or control symptoms (palliation). The way the radiation therapy is given depends on the type and stage of the cancer being treated.

- External radiation therapy uses a machine outside the body to send radiation through the skin toward the cancer.
  - Neoadjuvant Therapy Radiation may be given to shrink the tumor before surgery.
  - Adjuvant Therapy Radiation may be given after surgery.
- Internal radiation therapy uses a radioactive substance that is placed directly into or near the cancer.

## Other Procedures

**Chemoembolization** of the hepatic artery may be used to treat cancer that has spread to the liver. This involves blocking the hepatic artery (the main artery that supplies blood to the liver) and injecting anticancer drugs between the blockage and the liver.

**Radiofrequency ablation** is the use of a special probe with tiny electrodes that kill cancer cells.

**Cryosurgery or cryotherapy** uses an instrument to freeze and destroy abnormal tissue.

**Radioembolization** uses tiny radioactive beads that are injected into blood vessels to target a tumor growing in the liver.

**Stereotactic radiosurgery** is focused radiation that targets metastatic tumors.

## Clinical Trials

Clinical trials are done to find out if new cancer treatments are safe and effective or better than the standard treatment.

People who take part in a clinical trial may receive:

- The standard treatment alone or
- The standard treatment plus the new treatment being studied

Taking part in a clinical trial helps improve the way cancer will be treated in the future. Even when clinical trials do not lead to effective new treatments, they often answer important questions and help move research forward.

Some clinical trials only include people who have not yet received treatment. Other trials test treatments for those whose cancer has not gotten better. There are also clinical trials that test new ways to stop cancer from coming back or reduce the side effects of cancer treatment.

Many of today's standard treatments for cancer are based on earlier clinical trials.

**Ask if there is a clinical trial right for you.**

## After Treatment

Some tests may be repeated to see how well your treatment is working. Decisions about whether to continue, change, or stop treatment may be based on the results of these tests.

A plan for your long term care will be discussed with your treatment team and shared with your primary care provider.

# Learn More About Colon Cancer

- **American Cancer Society**  
<https://www.cancer.org/>
- **National Cancer Institute**  
<https://www.cancer.gov/>
- **National Comprehensive Cancer Network Guidelines for Patients**  
<https://www.nccn.org/patients/guidelines/cancers.aspx>
- **MedlinePlus**  
<https://medlineplus.gov/>

## Common Questions

What does my pathology report tell me?

What is the stage of my cancer?

What are my goals for treatment?

What are my treatment choices?

What kind of support services are available for me about finances, emotions, spiritual questions, etc.?

My Healthcare Team	Contact Information
Gastroenterologist:	
Navigator:	
Medical Oncologist:	
Pharmacy:	
Radiation Oncologist:	
Dietitian/Nutritionist:	
Surgeon:	
Primary Care Doctor:	
Counselor/Therapist:	
Other:	



