

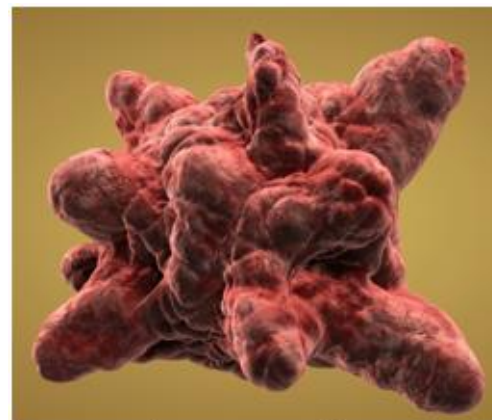
Colorectal Cancer

What is cancer?

Normally, the cells throughout the body multiply by dividing and eventually die in an orderly fashion. If there is excessive cell multiplication or they do not die regularly, an abnormal mass of tissue called a tumor can form. Tumors can be benign or malignant.

A benign tumor is noncancerous. It consists of normal cells. Benign cell clusters that occur in the colon are called polyps. Benign tumors or polyps do not invade adjacent body tissue or spread to other parts of the body.

A malignant tumor is cancerous. It results when cells containing genetic and structural abnormalities multiply in an uncontrolled fashion. These abnormal cancerous cells can invade adjacent normal body tissue and spread to other parts of the body in a process called metastasis.



A cancerous cell

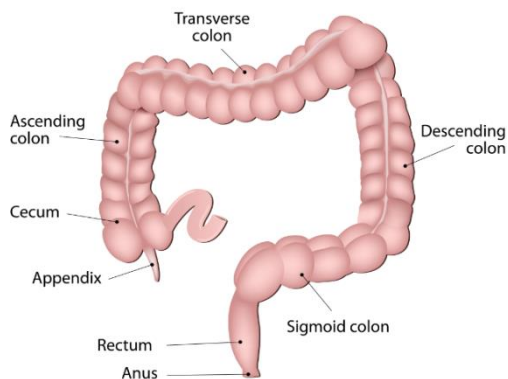
The name “cancer” comes from the Greek word *karkinos* for crab, reflecting how tumors grow by creeping outward.

Colorectal cancer

Colorectal cancer, or cancer of the colon or rectum, is one of the most common cancers, accounting for 15% of cancer deaths in the western world. Colorectal cancer is a major public health problem in North America, Europe, Australia, and New Zealand. Its incidence is much lower in northern and Eastern Europe, and it is relatively rare in South America, Asia, and especially Africa. Typically striking people over 50 years of age, colorectal cancer occurs at approximately equal rates in men and women

In the USA alone, 100,000 new cases of cancer of the colon and 35,000 cases of cancer of the rectum are diagnosed each year. Colon cancer is responsible for 50,000 deaths per year and rectal cancer for 9,000 deaths.

Anatomy of the large intestine



As the last section of the digestive system, the colon and the rectum form a muscular tube called the large intestine or bowels.

The colon measures approximately 5 to 6 feet [1.5 to 1.8 meters] in length and the rectum is about 6 inches [15 centimeters] long. Together, they absorb water and minerals from the intestinal contents and store the undigested waste until it is passed out of the body through the anus.

The colon has four parts, beginning with the ascending colon, transverse colon, descending colon, and finally the sigmoid colon, which drains into the rectum.

Cancer can develop anywhere on the lining of the colon or rectum, but nearly half of all colorectal cancers occur in the sigmoid colon.

Colorectal risk factors

Polyps

More than 95% of colorectal cancers begin as tiny benign tumors or polyps on the intestinal lining. Polyps are common in people over 50 years of age, but their frequency varies. Some people have only a few polyps while others may have hundreds.

Most polyps remain noncancerous, but a polyp has a 15% chance of becoming cancerous. Polyps usually go unnoticed for many years, not causing pain or bleeding. The progression from a benign polyp to cancer takes between 5 and 10 years.

Early detection and removal of precancerous polyps before they have the time to become cancerous is essential in preventing colorectal cancer.

A certain number of risk factors increase the risk of developing colorectal cancer:

- **Age:** Colorectal cancer usually develops in people age 50 or older, and the risk increases with age.
- **Personal or family history** of colorectal polyps or colorectal cancer: There is a hereditary risk factor with the risk doubled if one parent has had a benign polyp or cancer of the colon or rectum. Specific genes are associated with some forms of colon cancer that occur at younger ages than usual.
- **Other diseases:** People with inflammatory bowel diseases (ulcerative colitis or Crohn's disease) and those with a history of ovarian, endometrial, or breast cancer are at increased risk.



Benign polyp observed during a colonoscopy

Preventive measures

A recent study published in the journal *Nature* indicates that up to 90% of cancer risk factors are related to lifestyle choices. You can greatly reduce your risk by following a healthy lifestyle:

- **Low-fat, high-fiber diet:** Colorectal cancer is linked to the regular ingestion of animal fat, typically found in red meat. In countries where the diet is rich in fiber, fruits, and vegetables, the rate of colon cancer is low. Whole-grain



bread and cereals along with fruits and vegetables are good sources of vitamins and nutrients that protect cells from damage, such as folates, vitamins B and C, calcium, and selenium. (However, excessive vitamin and mineral consumption by taking dietary supplements may cause more harm than good.) It is estimated that at least 40% of all cases of colorectal cancer could be avoided by following a healthy diet.

- **Excess weight, drinking alcohol** beyond moderation, and a **sedentary lifestyle** also contribute to an increased risk of colorectal cancer.
- **Tobacco** use is blamed for about 12% of colon cancer deaths in the USA. Studies show that people who smoke for more than 20 years are about 40% more likely to die of colon cancer than nonsmokers. Colorectal cancer death seems to be linked to how much and how long people smoke.



The symptoms of colorectal cancer

The majority of people who develop cancer of the colon or rectum have no symptoms for quite some time. This explains why early screening to detect polyps is vital.

When symptoms of colorectal cancer occur, they usually do not appear until the later stages of the disease and may include

- change in bowel habits lasting more than two weeks (diarrhea, constipation, or stool consistency)
- feeling that the bowel does not empty completely
- blood in the stools or rectal bleeding (hemorrhoids are not always the cause)
- unexplained anemia
- abdominal pain, discomfort, or tenderness.

Other symptoms may include

- intestinal obstruction
- appetite loss and weight loss for no apparent reason
- constant fatigue.



Screening for polyps and cancer

Polyps found and removed while they are still benign cannot evolve into cancerous tumors.

Only about one-third of all cases of colorectal cancer are discovered before the polyp becomes a cancerous tumor and spreads through the muscle of the colon or rectum.

The main problem in screening for colorectal cancer is the reticence of people to discuss their bowel habits and symptoms with their doctors. In addition, some people do not want to experience the temporary discomfort of the medical screening procedures, which in most cases require cleansing the colon so that the intestine does not contain stools.

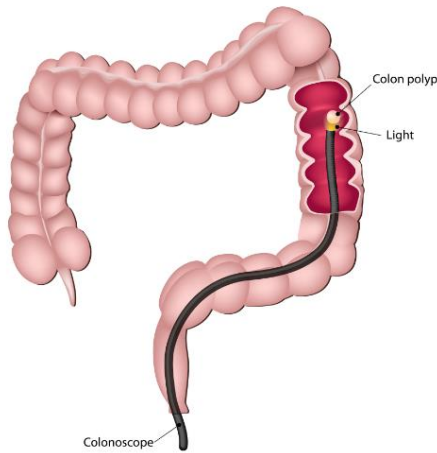
The following screening procedures can, to various degrees, detect polyps or cancer even when a person has no symptoms.

- **Rectal examination by a physician:** Using a gloved finger, the physician searches for the presence of polyps and blood in the rectum. This should be done yearly, during routine physicals. However, only the first few inches or centimeters of the rectum can be checked.
- **Fecal occult blood test:** Done at home or at the doctor's office, this test detects hidden (occult) blood in the stools that cannot be seen with the naked eye. However, not all tumors or polyps bleed, and those that do may not bleed every day. This can cause a false-negative result for the test. Dietary restrictions must be followed before the test because certain foods, such as red meat, can produce a false-positive result.
- **Double contrast barium enema:** An X-ray of the rectum and colon is made after barium and air are administered as an enema. This takes about 20 minutes and causes minor discomfort. This test is good at detecting large tumors and polyps



Double contrast barium enema

- **Flexible sigmoidoscopy and colonoscopy:** A flexible lighted tube is used to view the rectum and sigmoid colon (sigmoidoscopy) or entire colon (colonoscopy) in search of polyps or cancerous tumors. This is the



most sensitive and thorough method for polyp and cancer detection. In addition to discovering polyps and taking biopsies, only this screening procedure can also be used to completely remove most polyps. This technique has a small risk of causing bleeding or perforation of the intestinal wall.

The future of colorectal cancer screening probably resides in **virtual colonoscopy**, a minimally invasive procedure that produces highly detailed computer-generated images of the intestine without the discomfort of the barium enema, sigmoidoscopy, or colonoscopy.

Treatment of colorectal cancer

The treatment of colorectal cancer depends on the stage of diagnosis and the spread of the disease.

Localized polyps can be easily removed, but because colon cancer is not usually detected until it has become well established, more extensive surgical removal of the cancerous area and resection of the colon are usually required.

Additional treatment with chemotherapy or radiation therapy is usually required when the cancerous cells have spread outside the colon and into adjacent organs or lymph nodes. The overall 5-year survival rate for colorectal cancer is 50% after resection.

In conclusion

Colorectal cancer is a common cancer in Europe and North America that can mostly be prevented by following a healthy lifestyle.

A low-fat, high-fiber diet can actively reduce the risk. Eat more fruits, vegetables, grains, and cereals.

Prevention is also based on maintaining an ideal weight, reducing alcohol and tobacco consumption, and exercising regularly.

Colorectal screening by colonoscopy or sigmoidoscopy should be performed every 3 to 5 years, starting at age 50 for people who are in good health and have no particular risk factors.

A fecal occult blood test should be conducted annually to check for hidden blood in the stools.

People with a personal or family history of polyps or colorectal cancer should start screening earlier and do it more often.

The earlier cancer is detected, the higher the survival rate. But a better approach is to identify and remove benign tumors because once they are gone, they cannot develop into cancerous tumors.

Dr. Alex Barbey

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