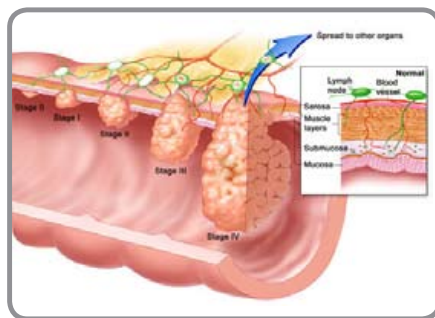


Colon Cancer Screening

Robert H. Fletcher, MD, MSC; Kenneth K. Tanabe, MD; Leah K. Moynihan, RNC, MSN; H. Nancy Sokol, MD.

Colon Cancer Screening Colorectal cancer is a cancer that develops in the large intestine [colon] or rectum. The primary goal of colon cancer screening is to prevent deaths from colon cancer. Screening tests can help identify cancers at an early and potentially treatable stage. Some tests can also prevent the development of colorectal cancer by identifying precancerous abnormal growths called adenomatous polyps; these polyps can be removed before they become malignant.

All adults should undergo colon cancer screening beginning at age 50 or earlier, depending upon the person's risk of developing colorectal cancer. Several tests are currently available, each of which has advantages and disadvantages. The optimal screening test depends upon a person's preferences and his or her risk of developing colon cancer.



Stages of
Colon Cancer

Small increases in risk — Several characteristics increase the risk of colorectal cancer. While each individual risk factor adds some risk, risk is substantially increased if several are present together.

- **Family history of colorectal cancer** — Having colorectal cancer in a family member increases an individual's risk of cancer, especially if the family member is a first degree relative (a parent, brother or sister, or child), if several family members are affected, or if the cancers have occurred at an early age (e.g., before age 55 years). People with a second-degree relative (grandparent, aunt, or uncle) or third-degree relative (great-grandparent or cousin) with colorectal cancer are considered to have an average risk of colorectal cancer.
- **Prior colorectal cancer or polyps** — People who have previously had colorectal cancer have an increased risk of developing a new colorectal cancer. People who have had adenomatous polyps before the age of 60 years are also at increased risk for developing colorectal cancer. Screening recommendations for these groups are discussed separately.
- **Increasing age** — Although the average person has a 5 percent lifetime risk of developing colorectal cancer, 90 percent of these cancers occur in people older than 50 years of age. Risk increases with age throughout life.

Effectiveness Of Colon Cancer Screening

Most colorectal cancers develop from precancerous adenomatous polyps. A small percentage of these polyps become cancerous and spread to other areas. This progression takes at least 10 years in most people.

Colon cancer screening tests work by detecting polyps or by finding early stage cancers. Regular screening for and removal of polyps can reduce a person's risk of developing colorectal cancer by up to 90 percent. Early detection of cancers that are already present in the colon increases the chances of successful treatment and decreases the chance of dying as a result of the cancer.

Colon Cancer Risk Factors

Several factors increase an individual's risk of developing colorectal cancer. Having one or more of these factors will determine the age at which screening should begin, the frequency of screening, and the screening tests that are most appropriate.

- Lifestyle factors — Several lifestyle factors increase the risk of colorectal cancer, including:
 - > A diet high in fat and red meat and low in fiber
 - > A sedentary lifestyle
 - > Cigarette smoking

Factors that decrease risk — Factors that may decrease risk include:

- A high calcium diet —1000 mg of calcium daily, either through diet or by taking a calcium supplement.

Large increase in risk — Some conditions greatly increase the risk of colorectal cancer. These include:

- Familial adenomatous polyposis
- Hereditary nonpolyposis colon cancer
- Inflammatory bowel disease

Colon Cancer Screening Tests

Several tests are available for colorectal cancer screening.

- **Colonoscopy** — Colonoscopy allows a physician to see the lining of the rectum and the entire colon.
- **Procedure** — Colonoscopy requires that the patient prepare by cleaning out the entire colon and rectum. This usually involves consuming a liquid medication that causes diarrhea temporarily. The patient is given a mild sedative drug before the procedure. During colonoscopy, a thin, lighted tube is used to directly view the lining of the rectum and the entire colon. Polyps and some cancers can be removed during this procedure.
- **Effectiveness** — Colonoscopy detects most small polyps and almost all large polyps and cancers.
- **Risks and disadvantages** — The risks of colonoscopy are greater than those of other screening tests. Colonoscopy leads to serious bleeding or a tear of the intestinal wall in about 1 in 1,000 people. Because the procedure usually requires sedation, the person must be accompanied home after the procedure and the person should not return to work or other activities on the same day.

CT colonography — Computed tomography colonography (CTC) is a test that uses a CT scanner to take images of the entire bowel. These images are in two- and three-dimensions, and are reconstructed with other enhancements to allow a radiologist to determine if polyps or cancers are present. The major advantages of CTC are that it does not require sedation,

it is non-invasive, the entire bowel can be examined, and abnormal areas (adenomas) can be detected about as well as with traditional (optical) colonoscopy.

There are several disadvantages of CTC. Like traditional colonoscopy, CTC requires a bowel prep to clean out the colon and air is introduced into the rectum during the procedure. If an abnormal area is found with CTC, a traditional colonoscopy will be needed to see the area and take a tissue sample (biopsy). This technology is also not geared toward detecting small or flat polyps. CTC may detect abnormalities other than polyps and colorectal cancer. Many of these incidental findings will have no clinical significance, although most will require further testing. This test may not be covered by health insurance plans in the United States.

Double contrast barium enema — A barium enema test provides a detailed x-ray picture of the rectum and the entire colon. This test has largely been replaced by other options.

Stool tests — Colorectal cancers often bleed, releasing microscopic amounts of blood and abnormal DNA into the stool. Stool tests can detect blood or abnormal DNA makers.

Risks and disadvantages — Because polyps seldom bleed, guaiac testing is less likely to detect polyps than other screening tests. In addition, only 2 to 5 percent of people with a positive stool test actually have colorectal cancer.

Colon Cancer Screening Plans

The recommended colon cancer screening plan depends upon a person's risk of colorectal cancer.

Average risk of colorectal cancer — People with an average risk of colorectal cancer should begin screening at age 50. The following screening strategies are recommended.

- Colonoscopy every 10 years
- Computed tomographic (CT) colonography every 5 years
- Flexible sigmoidoscopy every five years
- Double contrast barium enema every five years

Stool testing is an alternative option and is recommended once per year (for guaiac and immunologic tests, less frequently for DNA-based tests). Testing should begin at age 50.