

## COLON CANCER SCREENING

Strang recommends that people at average risk for colon cancer start regular screening at age 50 and continue until age 75 as long as their results are negative. People at higher risk of developing colon cancer need to start screening at a younger age and need to be screened more frequently than those at average risk. Colon cancer always includes rectal cancer screening as well.

Guideline-recommended colon cancer screening tests check for blood in stool (high-sensitivity fecal occult blood tests) or use an instrument to look at the lining of the colon and rectum (sigmoidoscopy and colonoscopy). New methods of screening for colon cancer include virtual colonoscopy and tests that analyze human DNA in stool or blood samples; more research is required before these tests become a routine part of screening.

Most colon cancers begin as a polyp, a growth in the lining the colon or rectum. Polyps may be flat, or they may be raised. Raised polyps may grow like mushrooms without a stalk (sessile polyps), or they may grow like a mushroom with a stalk (see image at bottom right).

Polyps are common in people older than 50 years of age, and most are not cancers. However, a certain type of polyp known as an adenoma has a higher risk of becoming a cancer.

Colon cancer is the third most common type of cancer in both men (after prostate and lung and excluding skin) and women after breast and lung cancer. It is the second leading cause of cancer death in the United States after lung cancer. The rates of new colon cancer cases and deaths among adults aged 50 years or older are decreasing in this country. However, the incidence is increasing among younger adults. The American Cancer Society estimates that a total of 132,700 people in the United States in 2015 will be diagnosed with colorectal cancer and 49,700 people will die from it.

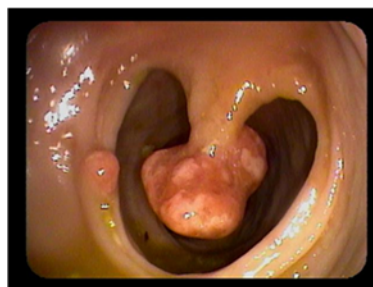
The major risk factor for colon cancer is a family history. Some individuals who have a family history of colorectal cancer or certain inherited conditions such as Lynch Syndrome and familial adenomatous polyposis also have an increased risk of colorectal cancer. In addition being over 50 years old and several other factors have been associated with increased risk.

Other risk factors include excessive alcohol use, obesity, physically inactivity, cigarette smoking and possibly diet. In addition those with a history of inflammatory bowel disease such as ulcerative colitis or Crohn disease have a higher risk of colorectal cancer.

Several screening tests have been developed to detect adenomas and polyps can actually prevent the development of cancer because these tests allow growths that might otherwise become cancer to be detected and removed. Therefore colon cancer screening is a form of cancer prevention, not just early detection. However screening can detect colon cancer that may already be present. People at **age 50 and at average risk** of colon cancer are recommended after discussion with their physician to be **screened by colonoscopy at ten year intervals**. People at increased risk because of a family history of colorectal cancer or polyps or because they have inflammatory bowel disease or certain inherited conditions may be advised to start screening before age 50 and/or have more frequent screening. *For detailed information on the benefits and harms of colonoscopy visit [www.strang.org](http://www.strang.org).*

In some circumstances screening may be conducted by testing for invisible blood in the feces called the Fecal Occult Blood Test (FOBT) and examination of the lower colon and rectum called sigmoidoscopy.

The disadvantage of FOBT and sigmoidoscopy is that majority of the colon is not examined. Other tests such as barium enema and virtual colonoscopy are not recommended.



## COLON CANCER PREVENTION

The risk of developing colon and rectal cancer can be reduced by a number of means. Different ways to prevent cancer are being studied including changing lifestyle or eating habits, avoiding things known to cause cancer and taking medicines to treat a precancerous condition to keep cancer from starting.

**Lifestyle** Colon and rectal cancer are one of the most extensively studied cancers in relation to physical activity, with more than 50 studies examining this association. Many studies in the United States and around the world have consistently found that adults who increase their physical activity, either in intensity, duration, or frequency, can reduce their risk of developing colon cancer by up to 30 to 40 percent relative to those who are sedentary regardless of body mass index (a measure of obesity). The greatest risk reduction is seen among those who are most active. The magnitude of the protective effect appears greatest with high-intensity activity, although the optimal levels and duration of exercise are still difficult to determine due to differences between studies, making comparisons difficult. It is estimated that 30 to 60 minutes of moderate to vigorous physical activity per day is needed to protect against colon cancer. It is not yet clear at this time whether physical activity has a protective effect for rectal cancer or adenomatous polyps.

**Eating Habits** Colon cancer rates are high in populations with high total fat intakes and are lower in those consuming less fat. On average, fat comprises 40% to 45% of total calorie intake in high-incidence Western countries; in low-risk populations, fat accounts for only 10% of dietary calories. In laboratory studies, a high-fat intake increases the incidence of induced colon tumors in experimental models. Many of the studies have produced conflicting results so there is no conclusive data showing whether diets low in fat and red meat will lower colon and rectal cancer risk.

**Dietary Fiber, Vegetables and Fruit** The evidence on whether dietary fiber exerts a protective role in reducing the incidence of colon and rectal cancer is mixed. Most animal and epidemiologic studies show a protective effect of dietary fiber on colon cancer development. The term fiber is used to describe a complex mixture of compounds, including insoluble fiber (typified by wheat bran and cellulose) and soluble fiber (usually dried beans). Ingestion of fiber can modify the processes that lead to cancer. The inverse association between cancer and fiber was observed in 12 of the 13 studies and was similar in magnitude for left-sided and right-sided colon as well as rectal cancers, in men and women, and in different age groups. It has been suggested that the inverse association with fiber may be reflective of some other closely associated dietary constituents, such as the anti-carcinogens found in vegetables, fruits, legumes, nuts, and grains. Other studies have corroborated the effects of dietary fiber. Despite the evidence from case-control studies of a protective effect, results from the large prospective Nurses' Health Study from Harvard found no difference in the risk of colon and rectal cancer between women taking the most fiber and those taking the least fiber.

Many epidemiologic studies have examined the relationship between fruit and vegetable intake and the incidence of colon and/or rectal cancer, with considerable variation in findings. Perhaps the most definitive analysis to date is a prospective study that examined dietary intake data based on food frequency questionnaires from 88,764 women and 47,325 men. The study included a total of 1,743,645 person-years of follow-up, 937 cases of colon cancer, and 244 cases of rectal cancer. On the basis of analyses adjusted for numerous variables, the authors found no association in women or men between overall fruit and vegetable consumption and the risk of colon or rectal cancer.

**Vitamins** In an analysis of 14 randomized trials of supplemental antioxidant vitamins encompassing 170,025 individuals, no evidence of prevention of colorectal adenomas or cancer or other gastrointestinal tumors was found. A systematic review of published observational studies showed that 1000 IU a day of Vitamin D (half the recommended safe maximum dose) was protective there was a protective effect lowering the risk of colon and rectal cancer by 50%. The use of folic acid has been studied with conflicting results and further studies are needed.

**Nonsteroidal Anti-inflammatory Drugs (NSAIDs) other than Aspirin** It is not known if the use of nonsteroidal anti-inflammatory drugs or NSAIDs (such as celecoxib, naproxen, and ibuprofen) lowers the risk of colorectal cancer. A study led by Strang showed that taking the nonsteroidal anti-inflammatory drug celecoxib reduces the risk of colorectal adenomas (benign tumors). The possible harms of NSAIDs include: Kidney problems, bleeding in the stomach, intestines, or brain and heart problems such as heart attack and congestive heart failure. *Continued...*

# COLON CANCER PREVENTION

**Cholesterol Lowering Drugs** Studies have shown that taking cholesterol lowering drugs (statins) does not increase or decrease the risk of colon and rectal cancer.

**Colon and Rectal Cancer Prevention Clinical Trials Currently Underway Testing** Aspirin, vitamin B-6, folic acid, calcium, vitamin D, eflornithine, sulindac, probiotics, green tea, fish oil supplements, eicosapentanoic acid, naproxen, selenium, vegetable intake, flaxseed.

## The Strang Cancer Prevention Cookbook

### Root Vegetable Lasagna

**Reduce Your Risk for Cancer by Eating a Healthy Diet!**

*Serve as a colorful nutritious entrée or a vegetable side dish*

Use a mandolin to produce uniform thin slices of the root vegetables

6 Servings

2 ancho chiles

1 ½ cups vegetable stock or low-sodium canned broth

1 teaspoon olive oil

2 large baking potatoes (about 1 pound), peeled and sliced lengthwise 1/8 inch thick

2 medium sweet potatoes (about 14 ounces), peeled and sliced lengthwise 1/8 inch thick

2 medium parsnips (about ½ pound), peeled and sliced lengthwise 1/8 inch thick

3 medium turnips (about ¾ pound), peeled and sliced 1/8 inch thick

salt

¾ cup diced roasted peppers, drained if jarred

2 cups shredded low-fat cheddar or Monterey Jack-cheese (about ½ pound)



Preheat the oven to 375 F

In a small saucepan, simmer the ancho chilies in the stock for 10 minutes. Turn off heat and let steep while you prepare the lasagna. Rub a casserole or baking pan (about 3-quart) with the olive oil. Arrange the root vegetable slices in the pan starting with a layer of slightly overlapping potatoes, followed by sweet potatoes, parsnip, and turnips; repeat the sequence. Season each layer with salt to taste and sprinkle with diced roasted pepper and shredded cheese, reserving about 1/3 cup of shredded cheese.

Strain the stock, discarding the chiles, and pour evenly over the casserole. Cover with foil and bake for 50 minutes. Remove the foil, sprinkle with the reserved cheese, and bake for 15 more minutes. Let cool for 15 minutes before serving.

High in Fiber-20 percent of the daily requirement

Calories 285

Protein 13 g

Carbohydrates 41g

Fat 8 g

Cholesterol 0 mg

Dietary Fiber 5 g

Saturated Fat 1 g

**Recipe by Laura Pensiero, R.D. Owner Gigi Trattoria, Rinebeck, New York**



**March is National Colon Cancer Awareness Month**

 **Strang Cancer Prevention Institute**

575 Madison Avenue 10th Floor

New York, NY 10022

Tel: (212) 501-2111 [www.strang.org](http://www.strang.org)

**Editor**

**Merle K. Barash MA AEd, MA Psya**

© Strang Cancer Prevention Institute