



COLORECTAL CANCER: RISK FACTORS

What are the Risk Factors for Colorectal Cancer?

A risk factor is something that increases a person's chances of developing a disease such as colorectal cancer. Not all cancers have the same risk factors associated with them. For example, exposing the skin to the sun is a risk factor for skin cancer and smoking is a risk factor for cancer of the lungs.

The exact causes of colorectal cancer are not known. However, studies show that the following risk factors increase a person's chances of developing colorectal cancer and they have been divided into two main categories: those risk factors that you cannot change and those that are lifestyle-related and, therefore, subject to change/alteration. A third category at the end lists those risk factors that have yet to be substantiated by medical research and are somewhat controversial, but have been included for the purpose of promoting awareness.

Risk Factors You Cannot Change

- **Age**

The risk of developing colorectal cancer increases as one ages. The disease is more common in people over the age of 50, and the chance of developing colorectal cancer increases with each decade. However, colorectal cancer has also been known to develop in younger people as well. (Patel, 2009; Gairdiello, 2008)

Canadian doctors have observed a "rapid increase" in the number of patients under the age of 50 with colorectal cancer. Young adults diagnosed with colorectal have unique issues due to both the cancer and cancer treatments. This is why **Colorectal Cancer Canada** (CCC) is part of a global initiative, [Never Too Young \(N2Y\)](#), dedicated to bringing awareness to this rapid increase in colorectal cancer among young Canadians. CCC is also proud to have partnered with a team of experts at Sunnybrook Odette Cancer Centre's one of a kind [Young Adult Colorectal Cancer Clinic](#) to support young adults diagnosed with colorectal cancer. Contact us to learn more about our N2Y Program and how you can become involved!



- **Type II Diabetes**

People with type 2 (usually non-insulin dependent) diabetes may have an increased risk of developing colorectal cancer. Both type 2 diabetes and colorectal cancer share some of the same risk factors (such as excess weight). But even after taking these into account, people with type 2 diabetes continue to have an increased risk. (Liu et al., 2008)

- **Personal History of Colorectal Polyps/Cancer**

Polyps are non-cancerous growths on the inner wall of the colon or rectum. While they are fairly common in people over 50, one type of polyp, referred to as an adenoma, increases the risk of developing colorectal cancer. Adenomas are non-cancerous polyps that are considered precursors, or the first step toward colon and rectal cancer.

Also, a person who already has had colorectal cancer may develop the disease a second time in other areas of the colon or rectum. The chances of this happening are greater if you had your first colorectal cancer when you were younger than age 50. (Eide et al, 2006)

- **Personal History of Inflammatory Bowel Disease (IBD)**

Long standing inflammatory diseases of the colon, such as **Ulcerative Colitis** and **Crohn's Disease**, can increase your risk of colorectal cancer. Both ulcerative colitis and Crohn's are conditions in which the cells in the lining of the colon or rectum become inflamed over a long period of time. This is referred to as "dysplasia". The cells may look abnormal but are not true cancer cells. They can, however, change into cancer over time. Your risk of developing colorectal cancer, therefore, increases, as does your need to be screened for the disease on a more frequent basis. (S. Itzkowitz et al, 2004)

Inflammatory Bowel Disease is different from Irritable Bowel Syndrome (IBS), which does not increase your risk.

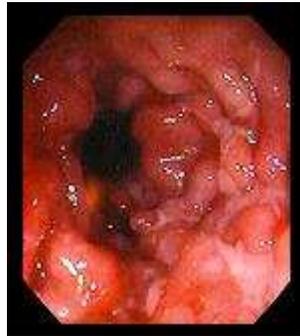


Photo of Ulcerative Colitis

(www.google.com/photos/ulcerativecolitis)



Photo of Crohn's Disease

(www.goldbamboo.com/pictures-t122.html)

- **Family History of Colorectal Cancer or Adenomatous Polyps**

First degree relatives (parents, siblings, and children) of a person who has had colorectal cancer are somewhat more likely to develop this type of cancer themselves, especially if the relative had the cancer at a young age. If many family members have had colorectal cancer, the chances increase even more. In some cases, the connection may not be hereditary or genetic. Instead, cancers within the same family may result from shared exposure to an environmental carcinogen (cancer-causing agent) or from diet or lifestyle factors. (J. Olsen et al. 2004)

Having first degree family members who have had adenomatous polyps is also linked to a higher risk of colorectal cancer. Adenomatous polyps are the kind of polyps that can become cancerous over time if not removed.



- **Inherited Syndromes**

Genetic syndromes passed through generations of one's family can increase one's risk of developing colorectal cancer. These syndromes cause only approximately 5% of all colon cancers. The two most commonly inherited syndromes linked with colorectal cancers are:

Familial adenomatous polyposis (FAP) and **hereditary non-polyposis colorectal cancer (HNPCC)**.

Familial Adenomatous Polyposis (FAP): FAP is caused by changes (mutations) in the APC gene that a person inherits from his/her parents. It is a rare disorder that causes you to develop hundreds to thousands of polyps in the lining of your colon and rectum, usually in your teens or by early adulthood. People with untreated FAP have a greater than 90% chance of developing colorectal cancer in one of those polyps by age 45 and accounts for 1% of all colorectal cancers. The development of colorectal cancer can be avoided by employing preventive surgery (removal of the colon). (A. Kinney et al., 2007)

There are two subtypes of disorder:

- **Attenuated FAP:** Patients have fewer polyps (less than 100) and colorectal cancer may occur at a later age.
- **Gardner Syndrome:** Patients also have non-cancerous tumours of the skin, soft tissue and bones.



polyps in their digestive tracts. They are at greatly increased risk for colorectal cancer; as well as several other cancers, which usually appear at a younger than normal age. (L. Boardman et al., 1998)

Turcot Syndrome: This is a rare inherited condition in which people have a higher risk of adenomatous polyps and colorectal cancer, as well as brain tumours. There are two types of Turcot Syndrome:

- One is caused by gene changes similar to those seen in FAP, in which case the brain tumours are medulloblastomas.
- The second is caused by gene changes similar to those seen in Lynch Syndrome, in which case the brain tumours are glioblastomas.

MUTYH-Associated Polyposis: People with this syndrome develop colorectal polyps that will almost always become cancerous if the colon is not watched closely with regular colonoscopies. These people also have an increased risk of cancers of the small intestine, skin, ovary and bladder. This syndrome is caused by mutations in the MUTYH gene and often leads to cancer at a younger age.

- **Racial & Ethnic Background**

African Americans have the highest colorectal cancer incidence and mortality rates of all racial groups, especially in the U.S. The reason for this is not yet understood. (E. Mitchell, et al., 2009)

Jews of Eastern European descent (Ashkenazi Jews) have one of the highest colorectal cancer risks of any ethnic group in the world. Several gene mutations leading to an increased risk of colorectal cancer have been found in this group. (I. Shapira et al., 2002; DS. Weinberg et al., 2006)



- **Personal History of Other Cancers**

Research shows that women who have a history of ovarian, uterine, endometrial or breast cancer have a somewhat increased risk of developing colorectal cancer. Therefore, it is imperative that special screening guidelines be adhered to for this subgroup of patients. (M. Manuel et al., 2007)

Lifestyle-Related Risk Factors That Can Be Altered

- **Diet**

Colorectal cancer appears to be associated with diets that are high in fat and calories, red and processed meats and low in fiber, vegetables and fruits. Researchers have also suggested that methods of cooking meats at very high temperatures (frying, broiling or grilling) create chemicals that might increase cancer risk. For a more thorough discussion of preventing colorectal cancer through a healthy lifestyle, please visit the [Healthy Lifestyles & Foods That Fight Cancer](#) Section of our website. (Kouskik, 2008; Langman 2002; Vinikoor 2008)

- **Sedentary Lifestyle/Physical Inactivity**

If you are inactive, you are more likely to develop colorectal cancer. This may be because when you are inactive, waste (fecal material) has a tendency to stay in your colon longer. Obtaining regular physical activity may reduce your risk by stimulating the movement of your colon and the passage of waste through the colon. (Salz et al., 2006; Giovannucci et al., 2006)



- **Obesity**

People who are obese have an increased risk of colorectal cancer and an increased risk of dying of colorectal cancer when compared with people considered normal weight. (Pasche et al., 2008)

- **Smoking**

Long-term smokers are more likely than non-smokers to develop and die from colorectal cancer. While smoking is a well-known cause of lung cancer, some of the cancer-causing substances are swallowed and can cause digestive system cancers, such as colorectal cancer. (Botteri et al., 2008)

- **Alcoholic Consumption**

Colorectal cancer has been linked to the heavy use of alcohol. At least some of this may be due to the fact that heavy alcohol users tend to have low levels of folic acid in the body. Evidence also shows that the ethanol (a cancer-causing agent) contained in the alcoholic beverage appears to be the most important factor in raising cancer risk. According to the World Cancer Research Fund, alcohol use should be limited to no more than 2 drinks per day for men and 1 drink per day for women. Please visit our [Healthy Lifestyles Section](#) for additional information on helping to prevent colorectal cancer. (Bongaerts et al., 2008)

Factors with Uncertain, Controversial, or Unproven Effects on Colorectal Cancer

- **Night Shift Work**

Results of a few studies suggest working a night shift at least 3 nights a month for at least 15 years may increase the risk of colorectal cancer in women and men. The study authors suggested this might be due to changes in levels of melatonin (a hormone that responds to changes in light) in the body. More research is needed to confirm or refute these findings.



- **Previous Radiation Therapy for Certain Cancers**

Radiation therapy directed at the abdomen to treat previous cancers may increase the risk of colon cancer. Some studies, for example, have found that men who survive testicular cancer seem to have a higher rate of colorectal cancer and some other cancers. This might be due to the treatments they have received. Some early studies suggested that men who received radiation therapy to treat prostate cancer might have a higher risk of rectal cancer, as the rectum receives some radiation during treatment.

Research has led to significant progress against this increasingly treatable disease, with a lower chance of death and an improved quality of life for the people who have it. Whatever your risk factors may be, leading a generally healthy lifestyle, as advocated in Colorectal Cancer Canada's *Healthy Lifestyle Section*, and seeking regular screening will be among the best preventive actions you can take to reduce your chances of being affected by colorectal cancer.

Sources:

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Oncolink

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