Colon Cancer and Diagnosis Stage

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ABSTRACT

Colorectal cancer grows slowly and does not cause symptoms for a long time. Symptoms depend on the type and location of the cancer and its grade Fatigue and weakness caused by occult bleeding (bleeding that is not visible to the naked eye) may be a person's only symptoms.A tumor in the left (descending) colon is likely to lead to obstruction at an early stage, because the diameter of the left colon is small, and the stool is semi-solid. A person may seek medical treatment because of abdominal cramps, severe pain, or constipation A tumor in the right (ascending) colon does not lead to obstruction until a later stage of the cancer, because the diameter of the ascending colon is larger, and the contents that pass through it are in the form of a liquid, so the tumor in the right colon when discovered may be larger than the tumor in the left colon.Most colon cancers cause bleeding, usually slowly. The stool may have traces of blood or be mixed with blood, but blood often cannot be seen. Bleeding during bowel movements is the most common first symptom of rectal cancer. Doctors should consider the possibility of a diagnosis of colon cancer. Cancer whenever they find bleeding in the rectum, even if it is clear that the person has hemorrhoids or diverticular disease. Pain during bowel movements and a feeling that the rectum has not completely emptied are other symptoms of rectal cancer. Sitting may also be painful, but the person does not feel pain. Usually from the cancer itself unless it has spread to tissue outside the rectum

Keywords: Diagnosis Stage, Colon Cancer, bleeding,

1-1 Introduction

Bowel cancer is cancer that starts in the large bowel (colon) or back passage (rectum) It is also known as colorectal cancer.

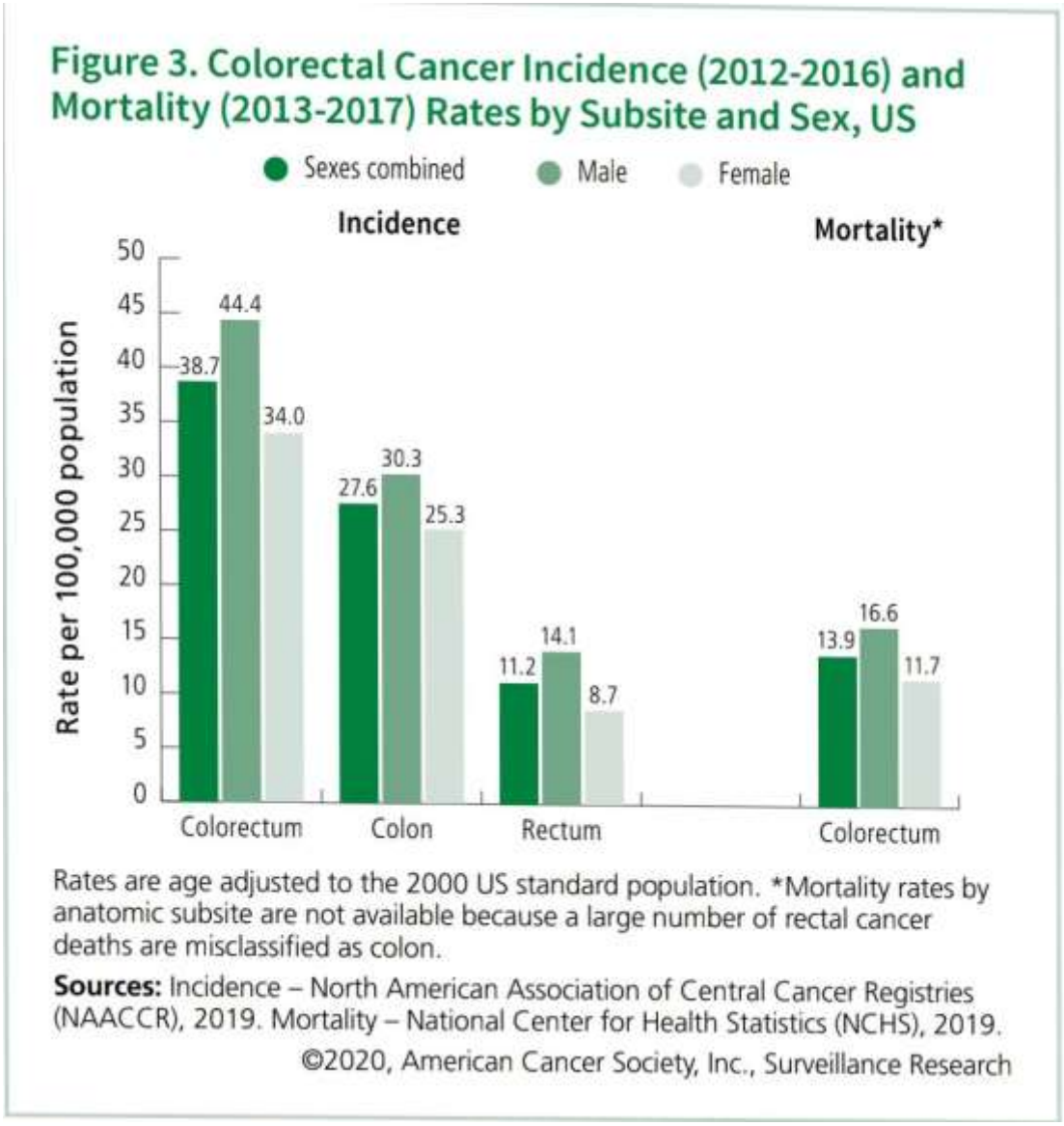
Cancer is when abnormal cells start to divide and grow in an uncontrolled way. The cells can grow into surrounding tissues or organs and may spread to other areas of the body.

There are two main parts to the bowel, the small bowel and the large bowel.

The food we eat ends up in the large bowel where water and some nutrients are absorbed leaving waste, This passes through the bowel before leaving the body.
The most common type of bowel cancer affects thelarge bowel which includes the colon and the back passage, Large bowel cancer is also sometimes called colorectal cancer.
Cancer starts when something goes wrong in a cell and it starts growing uncontrollably to form a tumour.
More than 9 out of 10 people who develop bowel cancer in the UK are over the age of 50.
Your risk of developing bowel cancer may be higher if you have a strong family history of bowel cancer, or you have a genetic conditio or you gave a bowel condition such as colitis.

The good news is that more than half of all bowel cancers could be prevented through lifestyle changes.
These include stopping smoking, being physically active - at least 30 minutes exercise five times a week keeping to a healthy weight eating smaller and fewer portions of red and processed meat choosing wholegrain foods and at least five portions of fruit and veg a day and cutting down on alcohol.

1-2 Where does colon cancer start ?



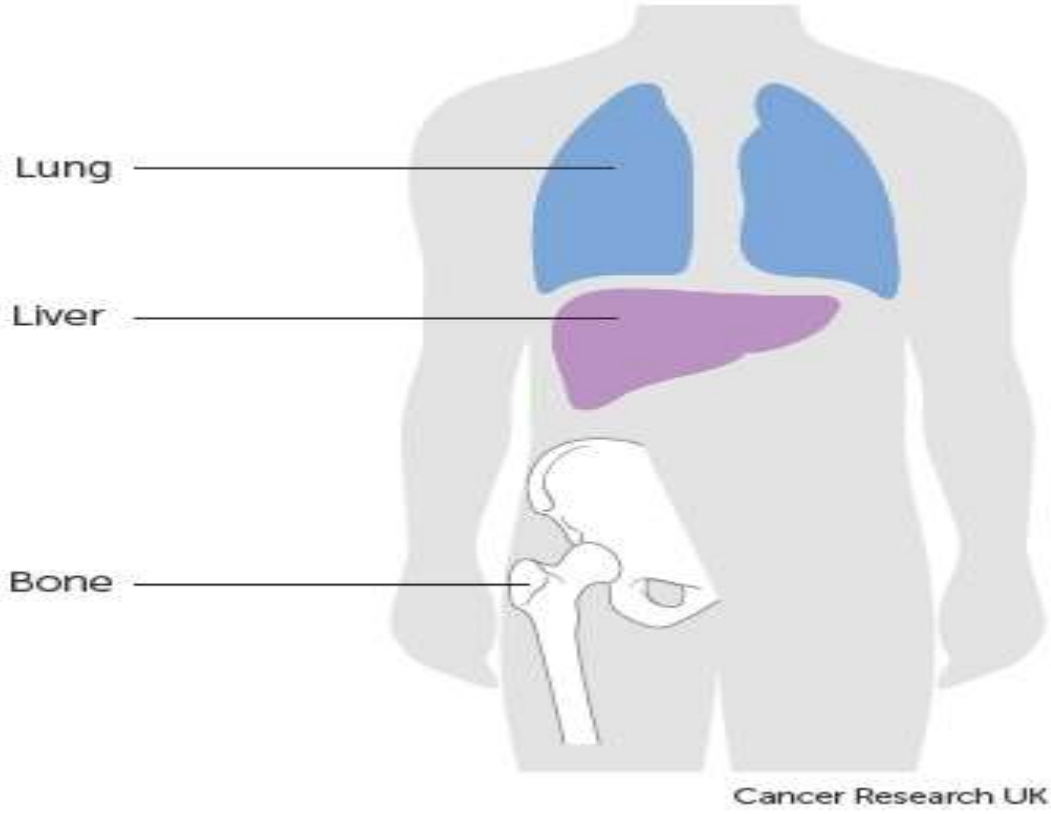
Where your bowel cancer starts will affect the treatment that you might have For example the treatment for colon cancer can be different to the treatment for rectal cancer Rectal cancer Rectal cancer starts in the last part of the large bowel (the back passage)This part of the bowel stores poo (stool) until it is ready to be passed out of the body.

Rectal cancer is also called cancer of the rectum Anal cancer Anal cancer starts in your anus which is the opening at the very end of your large bowel. Poo leaves your body through your anus ,If bowel cancer spreads Bowel cancer can spread to another part of the body through the lymphatic system The lymphatic system is made up of lymph nodes which are part of the body's immune system One of the

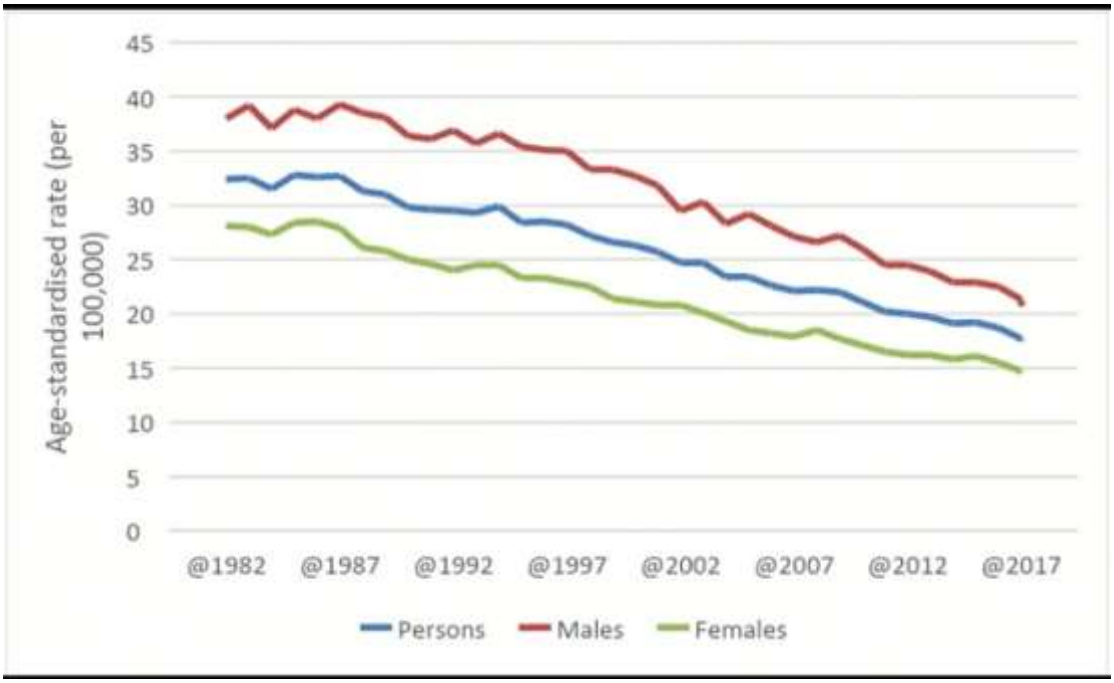
first places bowel cancer spreads is to the lymph nodes in the tummy (abdomen). Bowel cancer can also spread to other parts of the body through the bloodstream The liver is a common place for colorectal cancer to spread because blood flows directly from the bowel to the liver The cancer can also spread into the lung or bone but this is less common.

1-3 Destructive epidemiology

The cumulative risk, at age 0 to 74 years[3], of dying from colon cancer is 0.66% among men and 0.44% among women[3]. The same risk for rectal cancer is 0.46%



among men and 0.26% among women[3]. Age-standardised (world) mortality rates per 100,000 of CRC in both sexes is 8.9



1-4 Etilogy colon cancer

Colon cancer is the most common type of gastrointestinal cancer. It is a multifactorial disease process with etiology encompassing genetic factors environmental exposures (including diet) and inflammatory conditions of the digestive tract

1-5 Type colon Types of Colorectal Cancer

There are many types of colorectal cancer the most common of which is adenocarcinomaOther types include carcinoid tumors gastrointestinal stromal tumors colorectal lymphoma.

Hereditary colorectal cancers[6], meaning that several generations of a family have had colorectal cancer[6], include hereditary nonpolyposis colorectal cancer (HNPCC) and familial adenomatous polyposis (FAP).

Here is an overview of some of the types of cancer in the colon and rectum:

Adenocarcinoma
Gastrointestinal Stromal Tumors (GIST)
Lymphoma
Carcinoids
Turcot Syndrome
Peutz-Jeghers Syndrome (PJS)
Familial Colorectal Cancer (FCC)
Juvenile Polyposis Coli

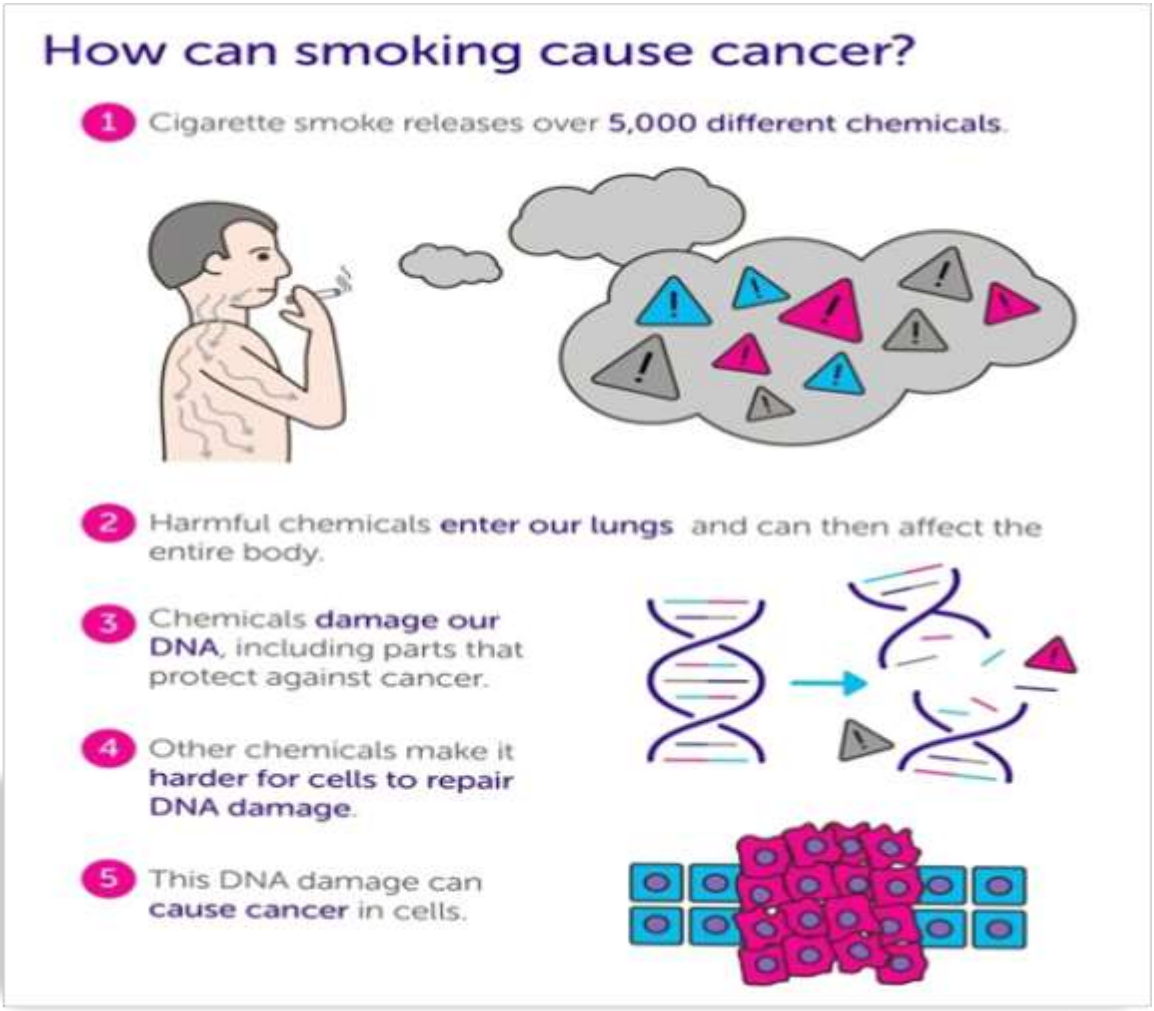
1-6 Risks and causes

The risks and causes of bowel (colorectal) cancer include your age, family history, lifestyle factors and other medical conditions.

1- Being overweight and obese

obesity is a cause of bowel cancer. It is estimated that 11 out of 100 bowel cancers (11%) in the UK are linked to being overweight or obese.
Obesity means being very overweight with a body mass index (BMI) of 30 or higher And being overweight is a BMI of between 25 and 30. The risk of bowel cancer is higher in people who are obese compared to those who have a healthy BMI.
2- Physical activity
Try to keep a healthy weight by being physically active and eating a healthy, balanced diet There is strong evidence which
shows that people who are more physically active have a lower risk of bowel cancer.
3-Smoking causes at least 15 different types of cancer. And tobacco is the biggest cause of cancer in the world.

Tobacco smoke contains many chemicals that damage the DNA in your cells. And it's not just dangerous for your lungs – tobacco damages cells around your entire body.



4-Alcohol

causes 7 types of cancer, including breast, mouth and bowel cancer.

Whatever your drinking habits, cutting down will reduce your risk.

5- Age

Bowel cancer is more common in older people. More than 40 out of 100 bowel cancer cases (more than 40%) in the UK each year are diagnosed in people aged 75 or over.

6- Family history

Your risk of bowel cancer is increased if you have a first degree relative diagnosed with bowel cancer A first degree relative is a parent, brother or sister, son or daughter.

The risk is increased further if you have more than one relative diagnosed with bowel cancer Or you have a first degree relative diagnosed at a young age, for example, under the age of 45 years old.

Talk to your GP if you think you have a family history of bowel cancer They might refer you to a genetics clinic if appropriate. A geneticist carries out a detailed assessment and can confirm whether people need screening or genetic testing.

7 Inherited conditions

There are some rare inherited conditions or syndromes associated with certain gene changes Family members have an increased risk of bowel cancer if they inherit these gene changes.

Familial adenomatous polyposis (FAP) is one of these conditions. FAP is responsible for less than 1 in 100 cases (less than 1%) of all bowel cancers If left untreated, all individuals with this syndrome will almost certainly develop bowel cancer by their 40s.

Specialists recommend that people with FAP have bowel surgery in their 20s. The surgeon usually removes the colon to prevent the development of bowel cancer.

Another condition is Lynch syndrome, or hereditary non polyposis colon cancer (HNPCC). People with this gene fault have a higher risk of getting bowel cancer and other cancers.

People with gene changes that increase bowel cancer risk might need screening more often than the general population.

8- Ulcerative colitis and Crohn's disease

Ulcerative colitis and Crohn's disease are chronic bowel diseases causing inflammation in the bowel. Having either of these diseases for many years increases your risk of bowel cancer.

9- Previous cancer

You have an increased risk of developing another bowel cancer if you have already had a bowel cancer in the past. Your specialist will talk to you about how often you may need screening.

You might have a slightly increased risk of getting bowel cancer if you have had another type of cancer in the past This might be due to genetic changes or an effect of the treatment for the first cancer. In some cases, it may be due to shared risk factors such as smoking or being overweight.

10- Medical conditions

Diabetes

If you have diabetes, your pancreas doesn't make enough of a hormone called insulin. People with diabetes may have an increased risk of bowel cancer. We don't know why this is and scientists are looking into it.

Gallstones

11.Diet

It is very difficult to research the link between diet and cancer. Scientists need to carry out very large studies to see which specific foods might reduce the risk of cancer, and which could raise the risk.

The role of some parts of our diet remains unknown or uncertain. But we do know that some foods can definitely affect the risk of bowel cancer.

Eating too much red and processed meat

Many studies have shown that eating lots of red and processed meat increases the risk of bowel cancer. It is estimated that around 13 out of 100 bowel cancer cases (around 13%) in the UK are linked to eating these meats.
Processed meat is any meat that has been treated to preserve it and/or add flavour - for example, bacon, salami, sausages, canned meat, or chicken nuggets. And a portion is about 2 sausages or 3 slices of ham.
The government recommends that people eating more than 90g of red and processed meat a day should reduce it to 70g or less. 70g is the cooked weight. This is about the same as 2 sausages.
It might help to swap red meat for chicken or fish. Or use beans and pulses in meals instead of meat.
Eating too little fibre Eating lots of fibre reduces your risk of bowel cancer. Eating too little fibre causes around 30 in 100 bowel cancer cases (around 30%) in the UK.
You can boost the fibre in your diet by choosing wholegrain versions of foods. To get more fibre in your diet try:
swapping to brown rice, pasta or bread
swapping your snack to low calorie popcorn rather than crisps
choosing wholegrain breakfast cereals
eating more fruit and vegetables high in fibre, such as peas and raspberries
explain the table
Modifiable risk factors include diet, physical activity, weight, cigarette-smoking,

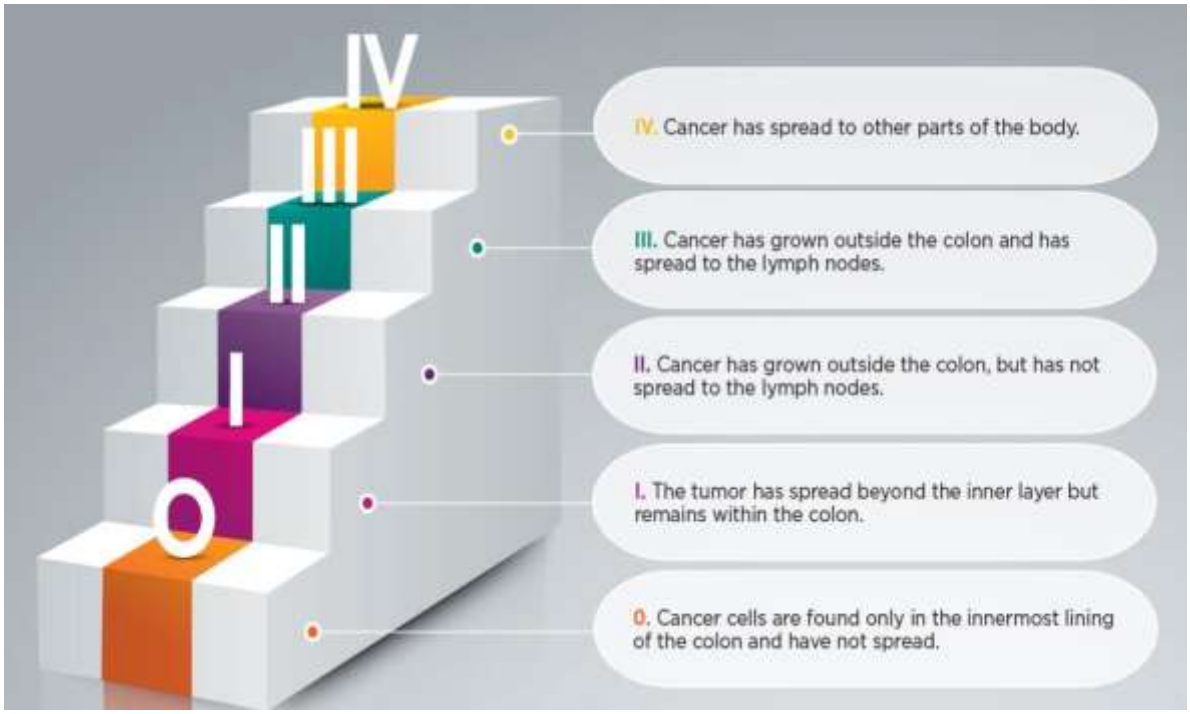
Modifiable Risk Factors	Nonmodifiable Risk Factors
Diet Physical activity Body weight Social behaviors (i.e., alcohol and cigarette smoking)	Age (≥50 years old) Personal history of adenomatous colonic polyps Family history of colorectal cancer Hereditary polyposis conditions Personal history of inflammatory bowel disease (IBD)

and alcohol intake. Other modifiable risk factors include low calcium content, low selenium content, and very low salt intake. Occupational hazards, such as asbestos-exposure, have been linked to increased risk of colorectal cancer when compared to the rest of the general population.

Socioeconomic factors, along with access to (and use of) health care services, are also important contributing risk factors. In fact, there is a disproportionately high incidence of colorectal cancers in low socioeconomic status populations.
Nonmodifiable risk factors associated with higher risk of colorectal cancer include increasing age, personal history of adenomatous polyps, personal history of inflammatory bowel disease, genetic inheritance, race/ethnicity, and gender. Unlike modifiable risk factors that could theoretically have been avoided, these risk factors are not considered part of the "environmental nature" of this disease. Thus, they are not controllable. They do, however, play an important role in screening and identifying susceptible patients.

1-6 diagonstic colon cancer

colon cancer
If your signs and symptoms indicate that you could have colon cancer, your doctor may recommend one or more tests and procedures, including .
Using a scope to examine the inside of your colon (colonoscopy)[8]. Colonoscopy uses a long, flexible and slender tube attached to a video camera and monitor to view your entire colon and rectum[8]. If any suspicious areas are found, your doctor can pass surgical tools through the tube to take tissue samples (biopsies) for analysis and remove polyps.
Blood tests. No blood test can tell you if you have colon cancer. But your doctor may test your blood for clues about your overall health, such as kidney and liver function tests.
Your doctor may also test your blood for a chemical sometimes produced by colon cancers (carcinoembryonic antigen, or CEA). Tracked over time, the level of CEA in your blood may help your doctor understand your prognosis and whether your cancer is responding to treatment.
Determining the extent of the cancer
If you've been diagnosed with colon cancer, your doctor may recommend tests to determine the extent (stage) of your cancer. Staging helps determine what treatments are most appropriate for you.
Staging tests may include imaging procedures such as abdominal, pelvic and chest CT scans. In many cases, the stage of your cancer may not be fully determined until after colon cancer surgery.
The stages of colon cancer are indicated by Roman numerals that range from 0 to IV, with the lowest stages indicating cancer that is limited to the lining of the inside of the colon By stage IV, the cancer is considered advanced and has spread (metastasized) to other areas of the body .



1-7 Lab tests for colorectal cancer

Several stool tests may be used to determine whether the stool shows signs of blood or genetic markers, which may be a sign of cancer or pre-cancerous polyps. These tests include:

Stool DNA test: This test requires a prescription and is sold under the brand name Cologuard®,It is approved by the U.S. Food and Drug Administration to detect mutated DNA in the stool The stool sample is collected at home and mailed to a lab. The test does not require special preparation or medication restrictions. A stool DNA test may be an acceptable alternative to a colonoscopy for some low-risk patients, but is not recommended for patients who have had polyps, a family history of colorectal cancer or other risk factors.

Fecal immunochemical test (FIT): This analysis uses antibodies to detect blood in the stool. This test may also be performed at home[10]. Test kits include a brush or stick used to wipe the stool sample onto a test card. Some test kits offer results in minutes; others are mailed to a lab. The FIT test does not require special preparation or medication restrictions.

Fecal occult blood test (FOBT): This test uses the chemical guaiac to detect blood in the stool. Like the FIT test, a sample is wiped onto a test card[10]. Results may be provided immediately or after the samples are sent to a lab. This test may also be performed at home and may require some dietary and medication restrictions. All test results should be discussed with a doctor to determine the next steps in the diagnostic or staging process or to discuss whether treatment is required.

In addition to stool tests, other lab tests may be recommende to help doctors diagnose and stage colorectal cancer and/or follow the progress of your treatment.

These include:

Genomic tumor assessment: Genomic testing is used to analyze a tumor on a molecular level to identify DNA alterations that may be driving the cancer's growth. By identifying the mutations in a cancer cell's genome, doctors may better understand what caused the tumor and tailor treatment based on these findings, Learn more about genomic tumor assessment.

CBC test: Complete blood count (CBC) tests may be used to measure different types of cells in the blood A CBC test may be particularly helpful in determining whether you have too few red blood cells, which causes anemia. This may be a concern for colorectal cancer patients, because it may indicate that they have a tumor that's been bleeding for some time.

Liver function tests: These blood tests may be performed to assess the function of the liver and determine whether colorectal cancer has spread to that organ.

Tumor marker tests: This blood test may be used in addition to other tests for patients who are being treated for colorectal cancer[10]. Tumor marker tests are used to check for two substances in the blood that colorectal cancer may produce: carcinoembryonic antigen (CEA) and CA 19-9 The tests may help determine an appropriate course of treatment and, sometimes, whether the disease is likely to recur.

Nutrition panel: This test may be used to evaluate patients for nutrient deficiency, such as low vitamin D and iron.[10] The test helps identify the nutrients patients may need replaced or boosted to support their quality of life.[10]

Cumulative risk of colon cancer up to age 70 years by risk factor status using data

The authors developed a comprehensive model of colon cancer incidence that allows for nonproportional hazards and accounts for the temporal nature of risk factors They estimated relative risk based on cumulative incidence of colon cancer by age 70 years Using multivariate, nonlinear Poisson regression, they determined colon cancer risk among 83,767 participants in the Nurses' Health Study The

	ADULT WOMAN	ADULT MAN
RED BLOOD CELLS	3.9 to 5.6 (3.9 to 5.6 million per cubic millimetre of blood)	4.5 to 6.5 x 10^{12}/L (4.5 to 6.5 million per cubic millimetre of blood)
HAEMOGLOBIN (Hb)	115 to 160 grams per litre of blood (11.5 to 16.0 grams per 100ml of blood)	130 to 180 grams per litre of blood (13 to 18 grams per 100ml of blood
WHITE BLOOD CELLS	4 to 11 x 10^{9}/L (4,000 to 11,000 per cubic milimetre of blood)	As for women
NEUTROPHILS	2.0 to 7.5 x 10^{9}/L (2,000 to 7,500 per cubic millimetre of blood)	As for women
LYMPHOCYTES	1.0 to 4.5 x 10^{9}/L (1,000 to 4,500 per cubic millimetre of blood)	As for women
PLATELETS	150 to 400 x 10^{9}/L (150,000 to 400,000 per cubic millimetre of blood)	As for women

authors observed 701 cases of colon cancer between 1980 and June 1, 2004 There was increased risk for a positive family history of colon or rectal cancer (55%), 10 or more pack-years of cigarette smoking before age 30 years (16%), and tallness (67 inches (170 cm) vs. 61 inches (155 cm): 19%). [11]Reduced risk was observed for current postmenopausal hormone use (−23%), being physically active (21 metabolic equivalent (MET)-hours/week vs[11]. 2 MET-hours/week: −49%), taking aspirin (7 tablets/week vs. none: −29%), and being screened (−24%).[11] Women who smoked, had a consistently high relative weight, had a low physical activity level, consumed red or processed meat daily, were never screened, and consumed low daily amounts of folate had almost a 4-fold higher cumulative risk of colon cancer by age 70 years For women with a high risk factor profile, adopting a healthier lifestyle could dramatically reduce colon cancer risk.

Refrences

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