

# Screen it! Treat it! Beat it!

## BASIC ANATOMY OF THE GASTROINTESTINAL (GI) SYSTEM

### Some Helpful Facts.....

1. The large intestine is also known as the large bowel and commonly referred to as the colorectum, or just the colon.
2. The colon's main function is to reabsorb large quantities of water and nutrients from undigested food products. If too much water is reabsorbed, **constipation** may result. Not absorbing enough water may result in **diarrhea**.
3. The rectum's main function is to store feces, or waste material, before being expelled from the body.

Cancer of the colon or rectum is collectively known as colorectal cancer. It is a disease in which malignant (cancerous) cells form in the tissues that line the inner colon or rectum. The colon is part of the body's digestive system which removes and processes nutrients (vitamins, minerals, carbohydrates, fats, proteins and water) from foods and helps pass waste material out of the body. The digestive system is made up of the

- esophagus,
- stomach, and the
- small and large intestines

The first 6 feet of the large intestine is called the large bowel or colon. The last 6 inches is comprised of the rectum and the anal canal. The anal canal ends at the anus (the opening of the large intestine to the outside of the body). See image appearing below.

### Human Digestive System

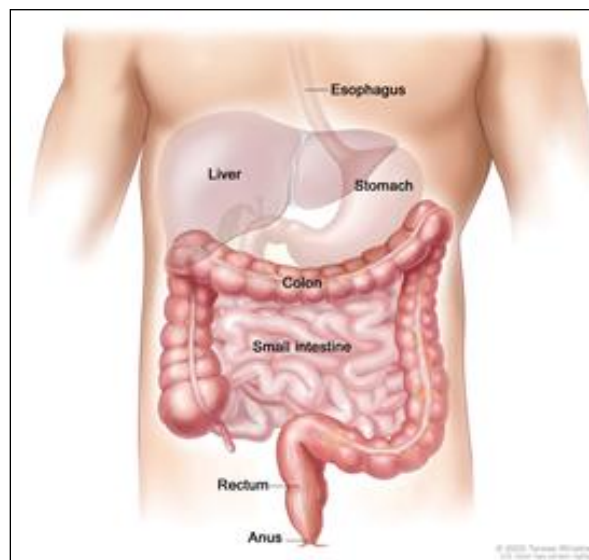


Diagram illustrating anatomy of the lower digestive system, showing the colon and other digestive organs.

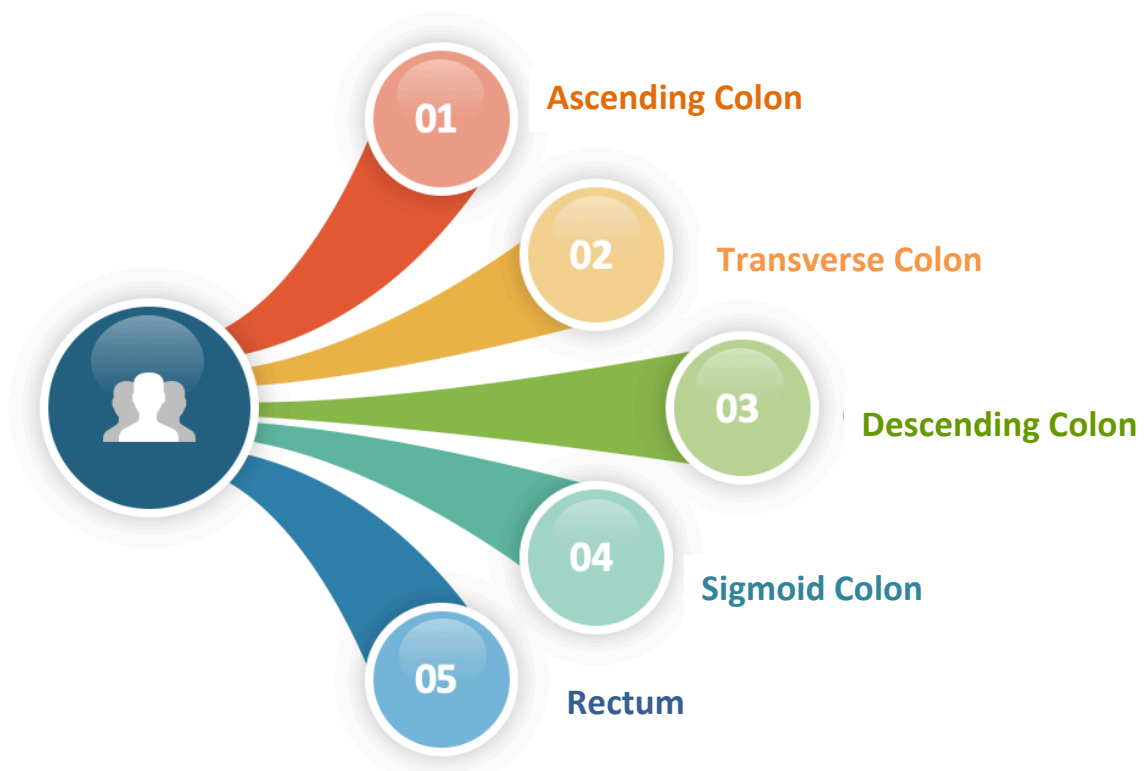
Source: <http://www.cancer.gov/cancertopics/pdq/treatment/colon/Patient>

There are three ways that cancer can spread in the body from the primary tumour:

- Through **tissue**. Cancer invades the surrounding normal tissue.
- Through the **lymphatic system**. Cancer invades the lymph system and travels through the lymph vessels or lymph nodes to other places in the body.
- Through the **blood**. Cancer invades the veins and capillaries and travels through the blood to other places in the body.

The colon itself is divided into different parts (see image appearing below). It extends from the cecum (which is a pouch of approximately two to three inches in length; ileal contents empty into the cecum through the ileocecal valve and the appendix extends from the base of the cecum) to the anus and includes the following five component parts:

## PARTS OF THE HUMAN COLORECTUM



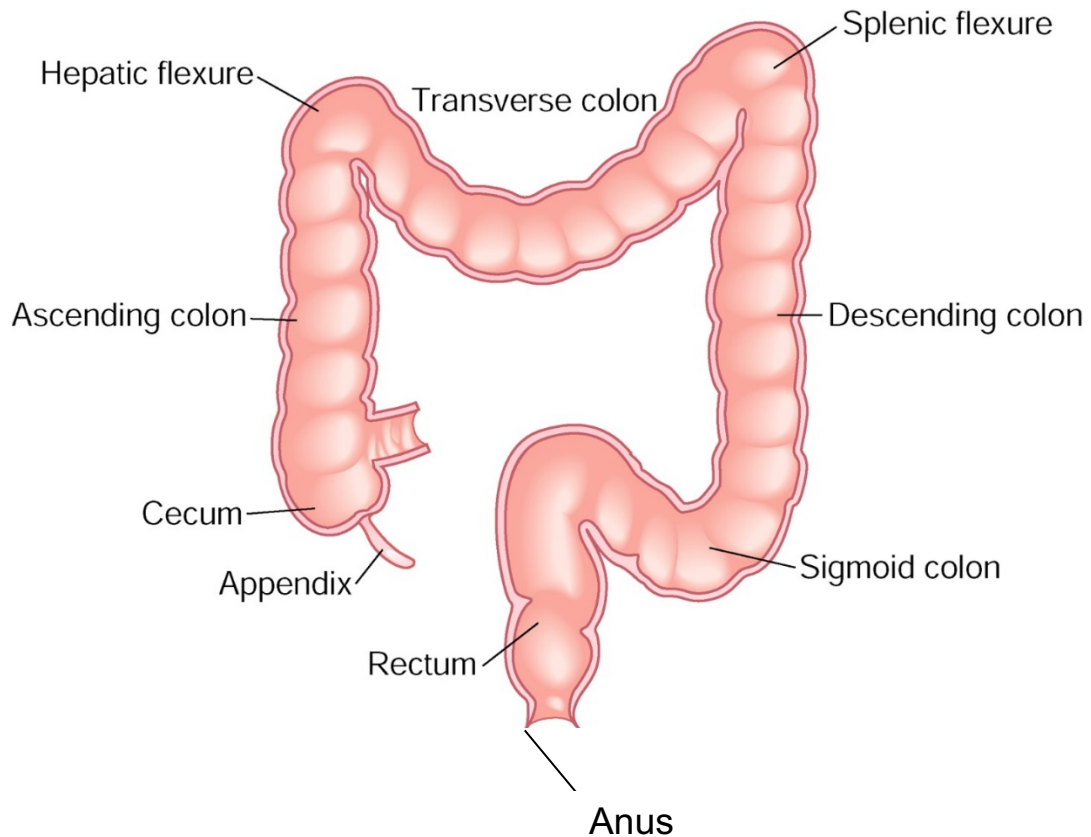
Each part of the colorectum serves a specific function in the elimination of waste. In the digestive process, the colon's main functions are to:

- compact the chyme (liquefied food)
- absorb excess water from the chyme
- receive the B-vitamins that are produced by healthy intestinal bacteria

- move compacted chyme and dead bacteria into the rectum and out of the body

The colon reabsorbs large quantities of water and nutrients from undigested food products as they pass along it. The rectum is at the end of the colon and stores feces (stools, waste material) before being expelled from the body. The diameter of the rectum is larger than that of the colon and serves primarily as a storage reservoir.

## Anatomy of the Colorectum



Cancer begins when normal cells begin to change and grow uncontrollably, forming a mass called a tumor. A tumor can be benign (noncancerous) or malignant (cancerous, meaning it can spread to other parts of the body). Depending upon the size, location and spread of the cancer, different modalities of therapy may be employed to treat the disease. It is important to fully understand the various treatment options available when managing the disease whether the objective involves curative intent or promoting longevity and good quality of life. Colorectal Cancer Canada has designed a Guide to Understanding Colorectal Cancer Therapies, for colorectal cancer patients and caregivers, in an effort to promote as much awareness and education possible in the treatment of colorectal cancer; ultimately resulting in the empowerment of colorectal cancer patients and their families during their cancer journey.

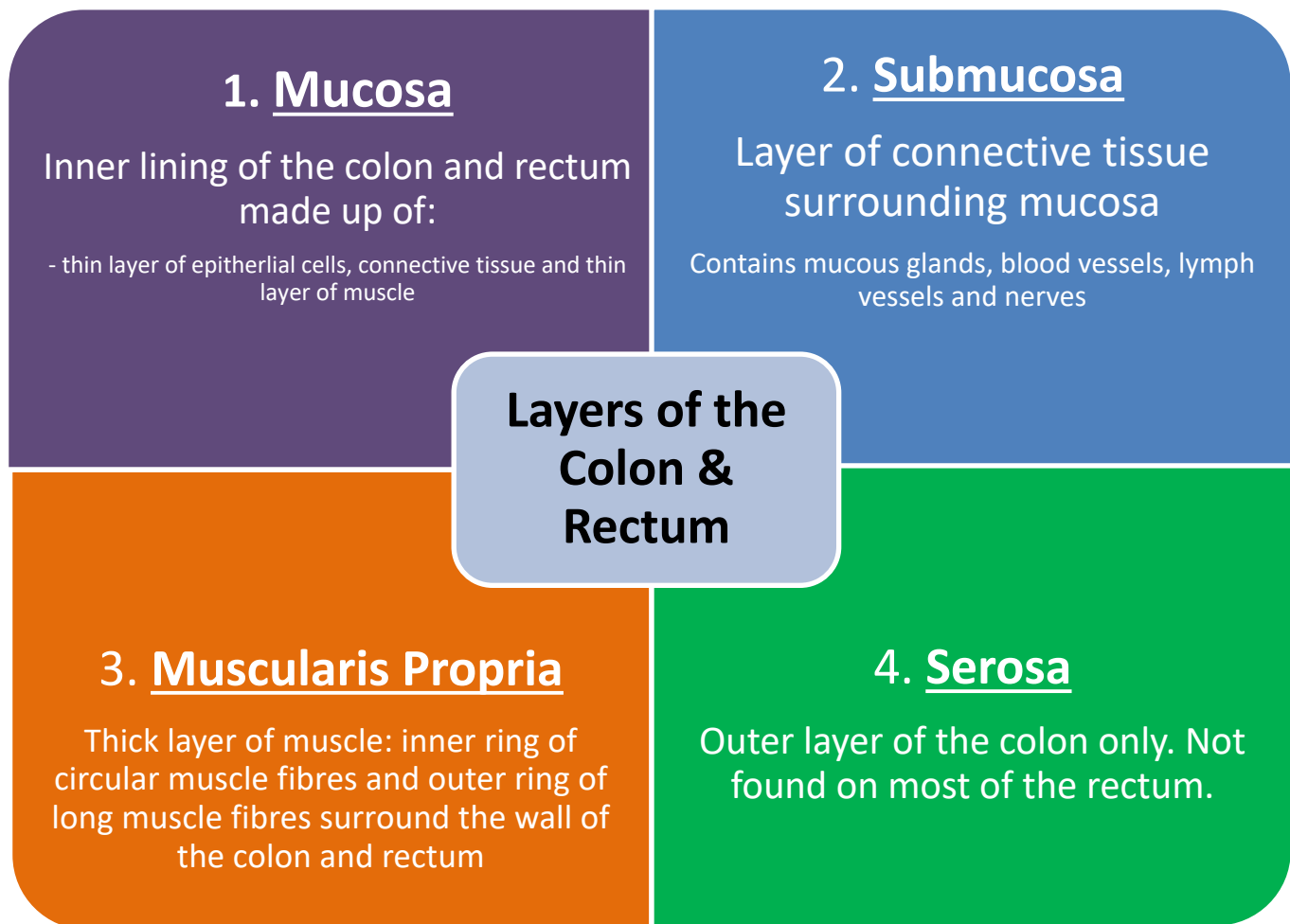
### **What is Mesentery?**

Mesentery is made of fatty connective tissue that contains blood vessels, nerves, lymph nodes and lymph vessels. The mesocolon is a mesentery that attaches the colon to the wall of the abdomen. The rectum is surrounded by a mesentery called the mesorectum.

When part of the colon or rectum is removed to treat cancer, nearby mesentery is also removed. The lymph nodes within the mesentery are examined to see if they contain cancer cells.

### The Layers of the Colon & Rectum

The colon and rectum are made up of different layers of tissues. A polyp will start in the innermost layer (mucosa) of the colorectum and then grow toward the outer layers (one layer at a time).



## Layers of the Colon & Rectum

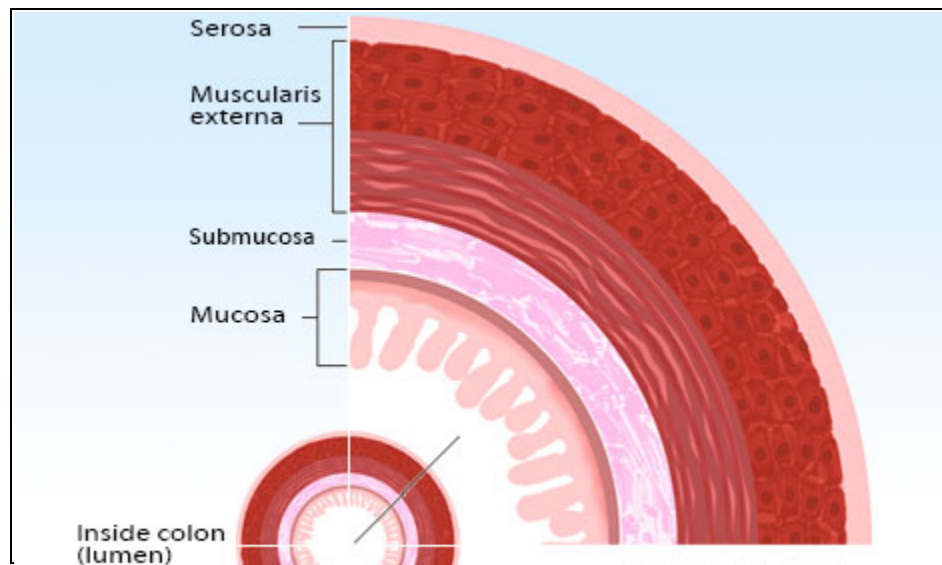


Image Source: [https://www.emedicinehealth.com/image-gallery/colon\\_illustration/images.htm](https://www.emedicinehealth.com/image-gallery/colon_illustration/images.htm)

If a tumour has grown through all layers of the colon or rectum, it may then spread to the nearby lymph nodes or tissue.

### Sources:

#### **American Cancer Society**

<https://www.cancer.org/cancer/colon-rectal-cancer/detection-diagnosis-staging/staged.html>

#### **Canadian Cancer Society**

<http://www.cancer.ca/en/cancer-information/cancer-type/colorectal/colorectal-cancer/the-colon-and-rectum/?region=on>

#### **Johns Hopkins Medicine**

<https://www.hopkinsmedicine.org/health/treatment-tests-and-therapies/sigmoidoscopy>

#### **National Cancer Institute**

<http://www.cancer.gov/cancertopics/pdq/treatment/colon/Patient>