



Penn Medicine

Colorectal Cancer Screening

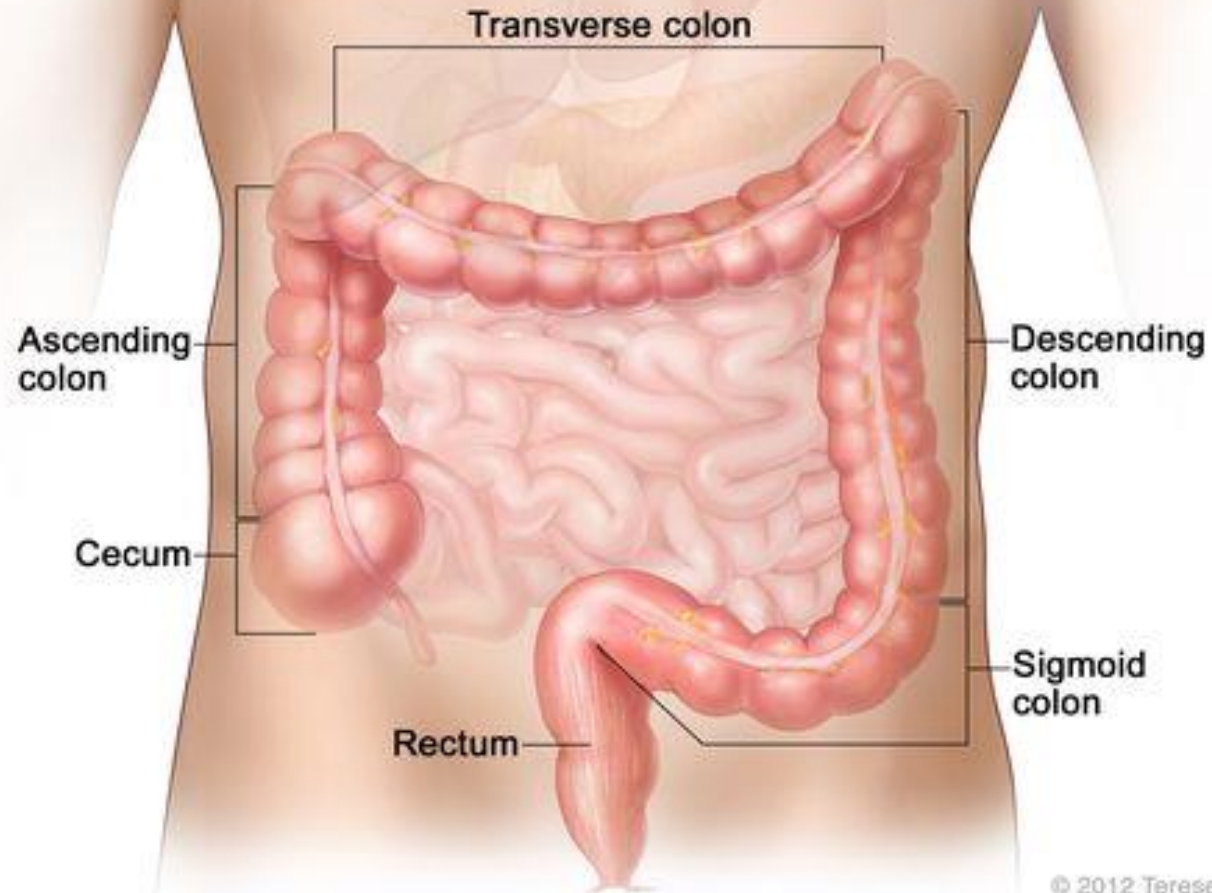
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Parts of the Colon



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Colon Cancer Facts

- ◆ **Colon cancer is a common and lethal disease**
 - over 150,000 new cases each year in the U.S.
 - Approximately 50,000 Americans die of colon cancer annually
- ◆ **Lifetime risk among average risk Americans is 4%**
 - More common in males, African Americans and patients with inherited conditions
 - The U.S has one of the highest survival rates from colorectal cancer
- ◆ **Colorectal cancer screening recommendations are modified for some**
 - a hereditary risk of developing CRC
 - inflammatory bowel disease
 - those exposed to abdominal radiation therapy
- ◆ **Colorectal cancer is increasing in the < 50 year old age group by 2% per year since 1995**
 - Due to genetic, environmental and life style exposures
 - Higher risk in those with a first degree relative (RR 4.21), hyperlipidemia (RR 1.62), Obesity (RR 1.54), Alcohol consumption (RR 1.71)
 - Don't assume rectal bleeding is due to a benign cause

Risk Factor for Developing Colorectal Cancer

◆ Age

- The American Cancer Society and US Preventive Services Task Force have lowered the recommended screening age to 45

◆ Obesity

- Weight gain between early adulthood and midlife is associated with an increased risk of CRC
- Obesity also increases the likelihood of dying from CRC
- Bariatric surgery: 5 years after, CRC rates are the same as the general population

◆ Diabetes and Insulin Resistance

- May be due to hyperinsulinemia? (Growth factor for colonic mucosa)

◆ Red and processed meat

- Inconsistent data

◆ Tobacco use

- Increase in both incidence and mortality
- Increased polyp formation

◆ Alcohol Consumption

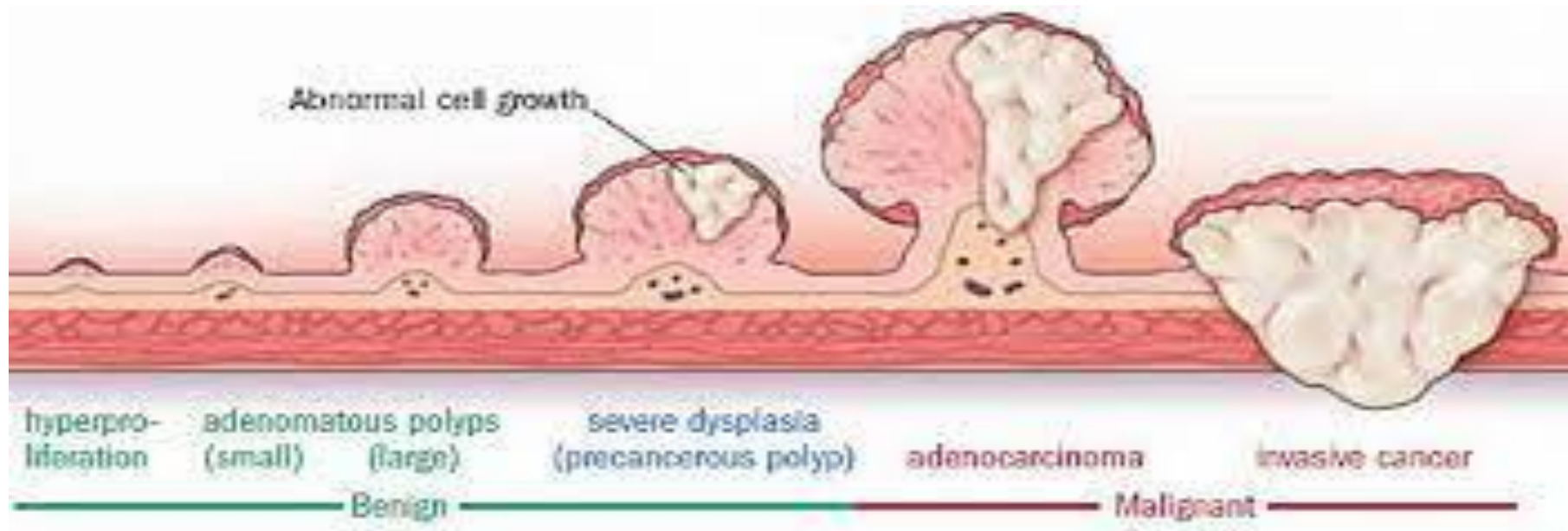
- 2-3 drinks per day (RR 1.21); 4 or more drinks per day (RR 1.52)

Protective Factors

- ◆ **Physical Activity**
 - Increase transit time of food in the bowel
- ◆ **Diet**
 - High in fruits and vegetables
 - Vegetarian diet, pesco-vegetarians
- ◆ **Fiber**
- ◆ **Vitamin B6 (pyridoxine)**
- ◆ **Calcium**
- ◆ **Magnesium**
- ◆ **Garlic**
- ◆ **Fish consumption**
- ◆ **Aspirin and NSAIDs**
- ◆ **Hormone therapy**

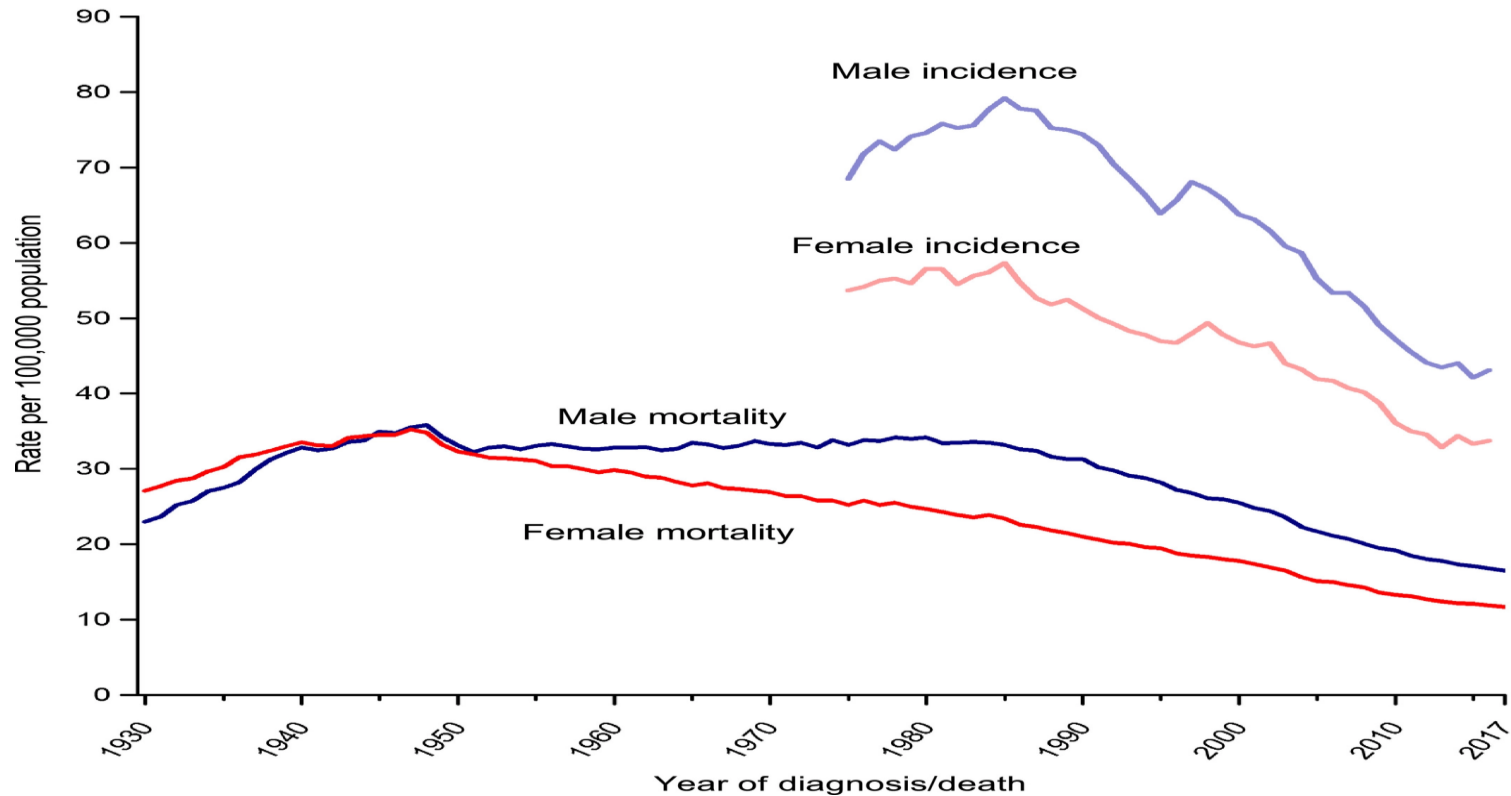
Rationale for Screening

- ◆ Most Colorectal Cancers arise from colon polyps
- ◆ Polyps occur in about 30% of men and 20% of women
- ◆ Progression from adenoma to carcinoma is believed to take an average of at least 10 years
- ◆ Screening can identify premalignant lesions and remove them before they turn into cancer



Benefits of Screening

- ◆ Average Risk patients should start screening at age 45
- ◆ Colon cancer incidence and mortality rates have been declining in the US likely due to increased screening



What Makes a Good Screening Test?

- ◆ **Common Disease**
- ◆ **Disease with serious consequences**
- ◆ **Detects disease before symptoms occur**
- ◆ **Inexpensive**
- ◆ **Easy to administer**
- ◆ **Minimal discomfort to patient**
- ◆ **Reliable**

Choosing a Screening Test

- ◆ **Stool Testing**
- ◆ **Imaging studies (Xrays)**
- ◆ **Visualization of the colon endoscopically**
 - Colonoscopy is the GOLD STANDARD



Stool Tests

GUAIAAC-BASED FECAL OCCULT BLOOD TEST (gFOBT)

- ◆ 3 consecutive tests. Repeat annually
- ◆ Uses a chemical indicator that shows a color change in the presence of blood

FECAL IMMUNOCHEMICAL TESTING (FIT)

- ◆ 1 test recommended annually
- ◆ Uses an antibody to human hemoglobin to detect blood in the colon
- ◆ If the FIT test is positive, then prompt colonoscopy is recommended
- ◆ FIT has similar detection rates for cancer compared to colonoscopy, but is less likely to detect advanced adenomas

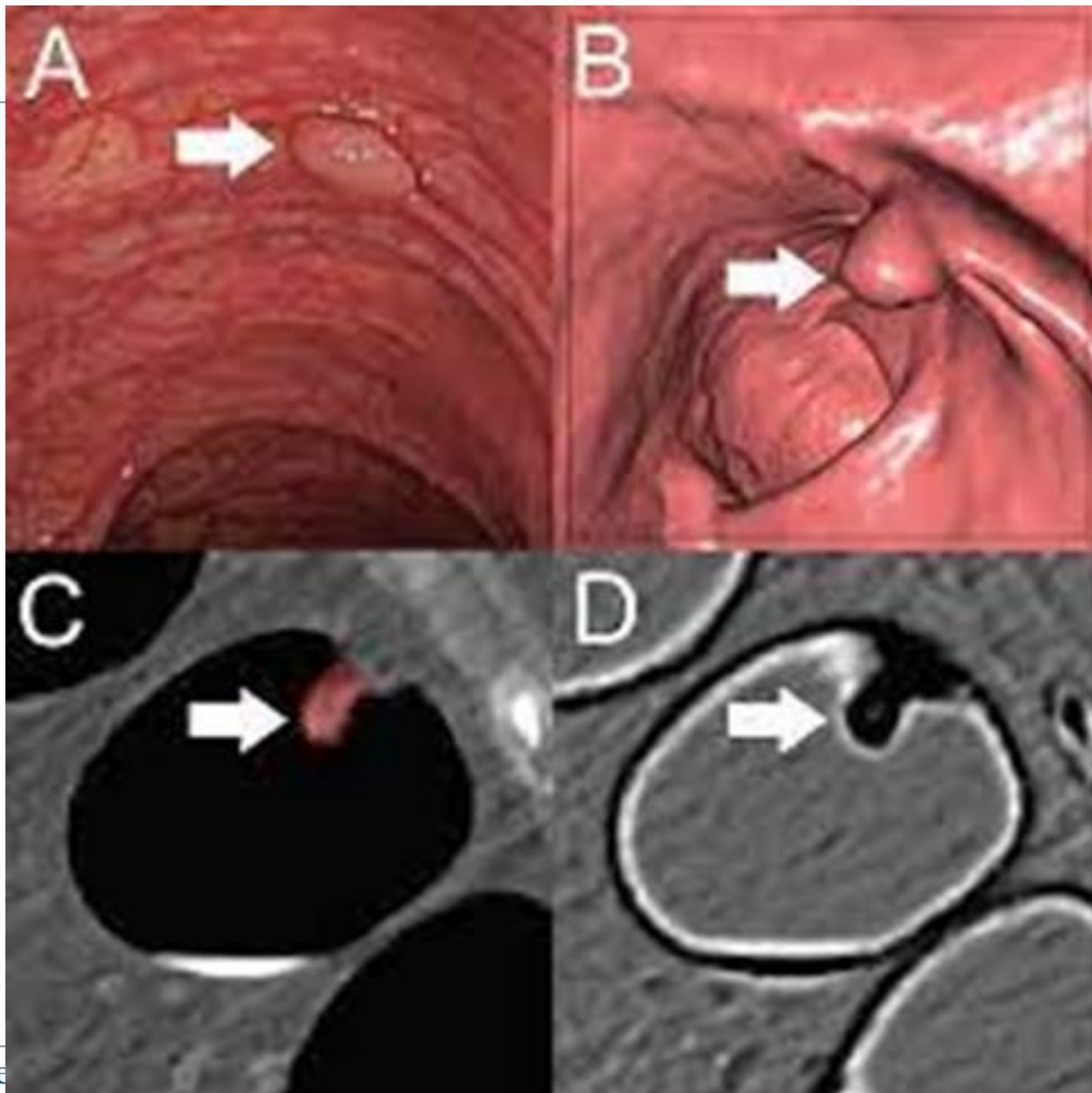
MULTITARGET STOOL DNA TESTING (FIT-DNA or Cologuard)

- ◆ Tests for blood (hemoglobin) AND DNA mutations associated with colon cancer
- ◆ 1 test recommended every 1 - 3 years
- ◆ Better at detecting advanced precancerous lesions compared to FIT

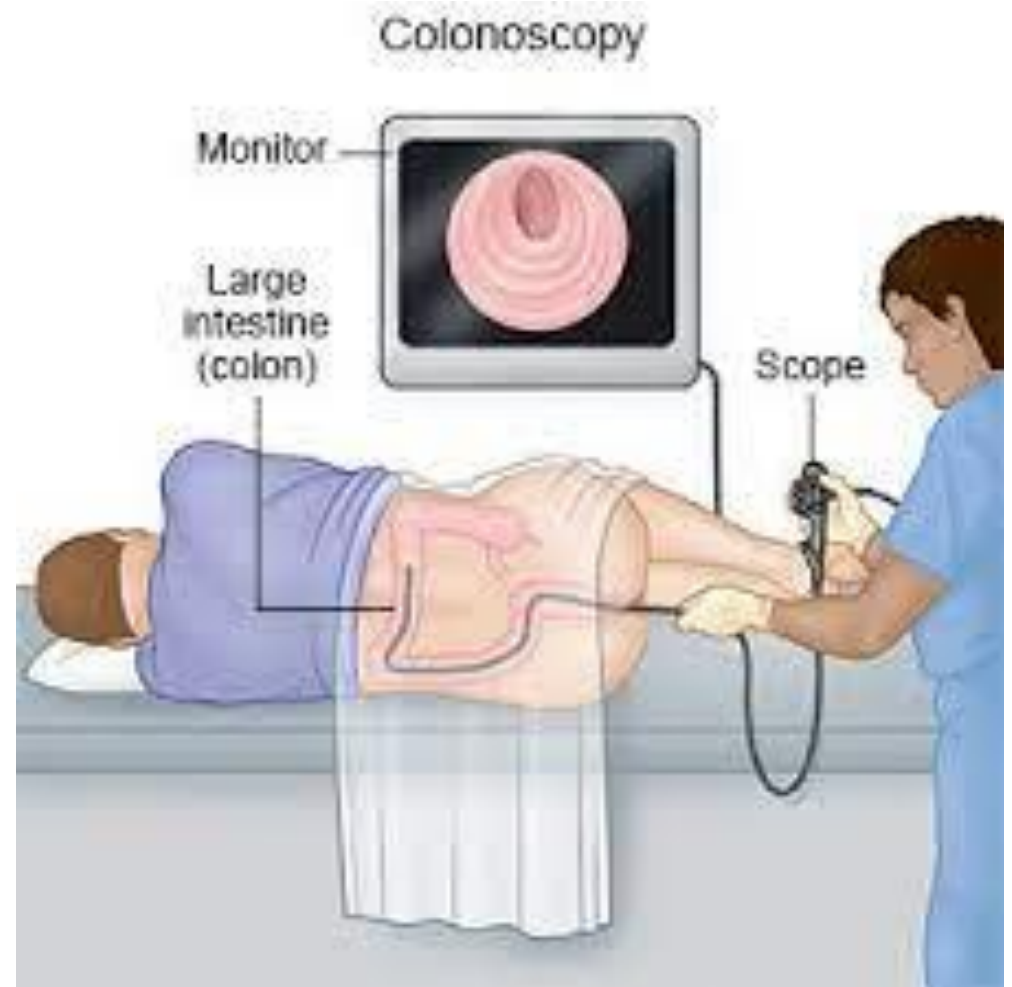
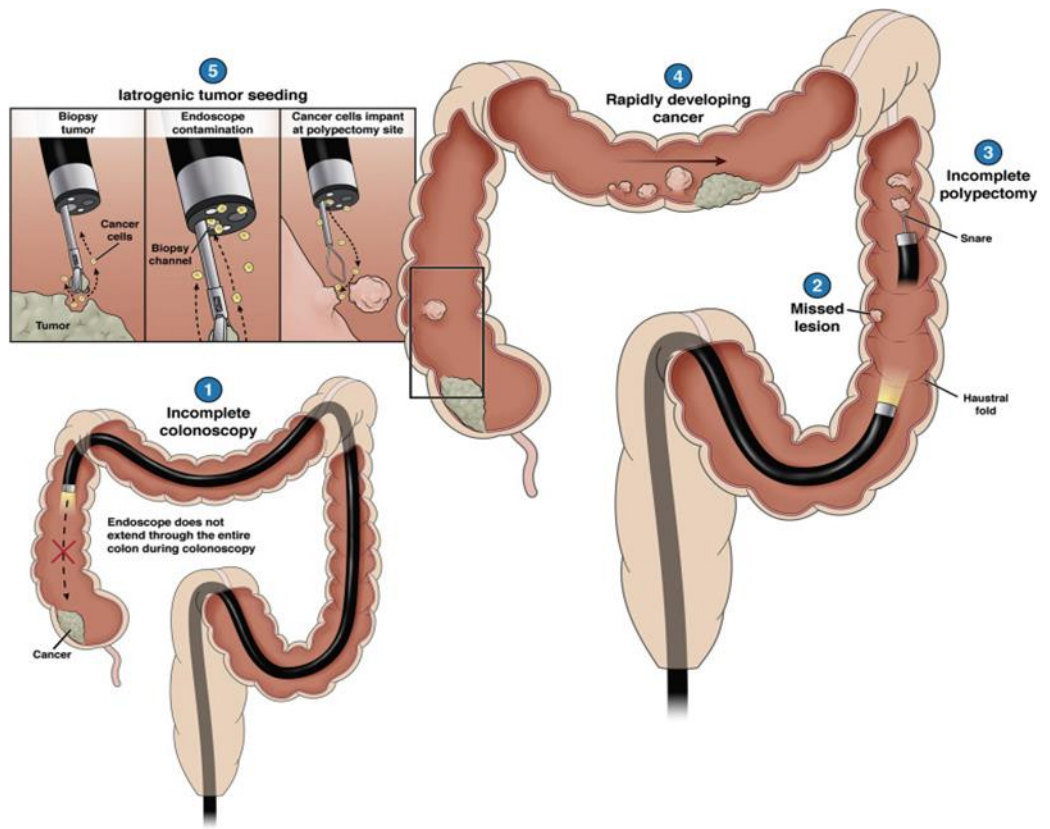


CT COLONOGRAPHY (aka Virtual colonoscopy)

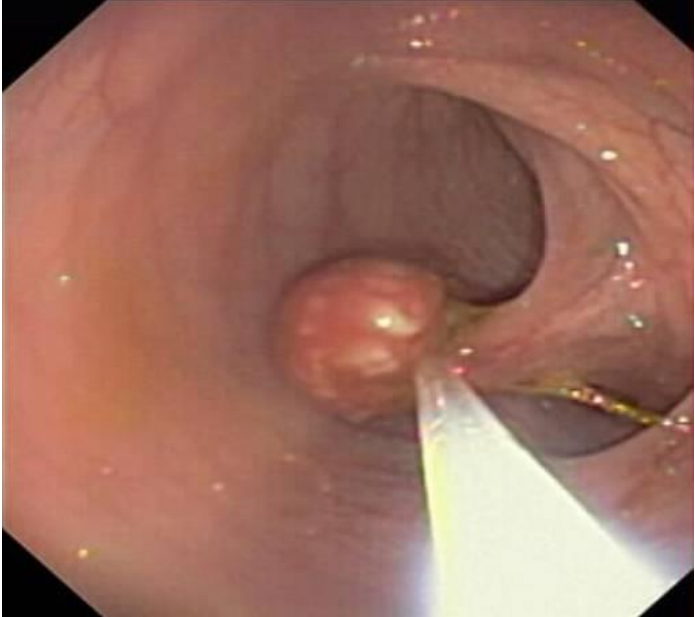
- ◆ Better at detecting polyps compared to FIT or FIT-DNA
- ◆ Needs bowel prep
- ◆ Also need to drink contrast and have tube inserted into rectum to inflate colon
- ◆ If polyp detected, then colonoscopy needed to remove polyp
- ◆ Recommended every 5 years
- ◆ May be advised for older patients to avoid risks associated with colonoscopy



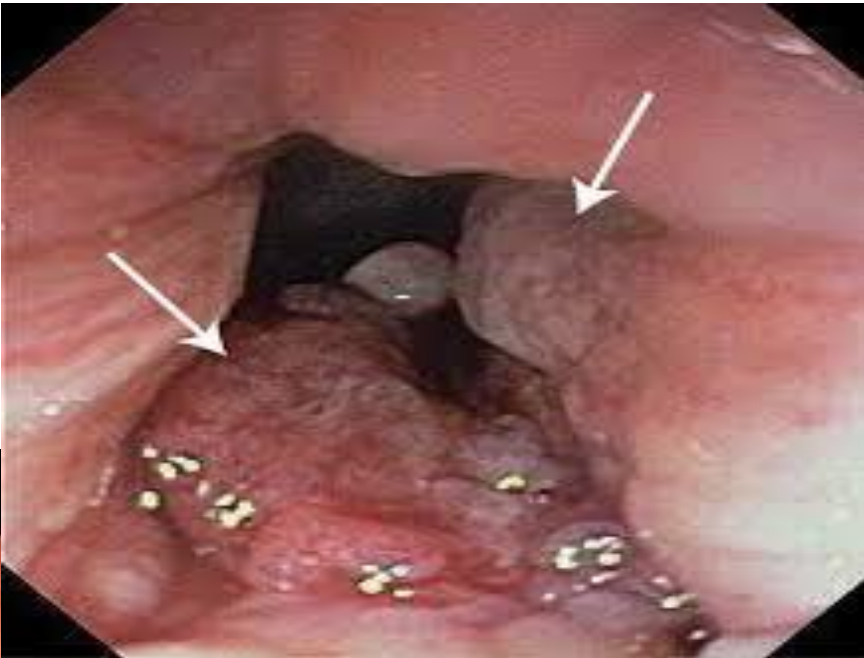
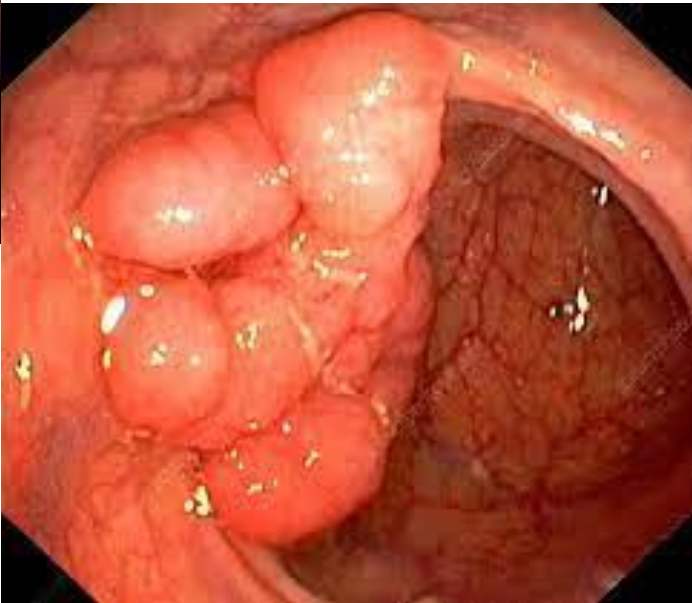
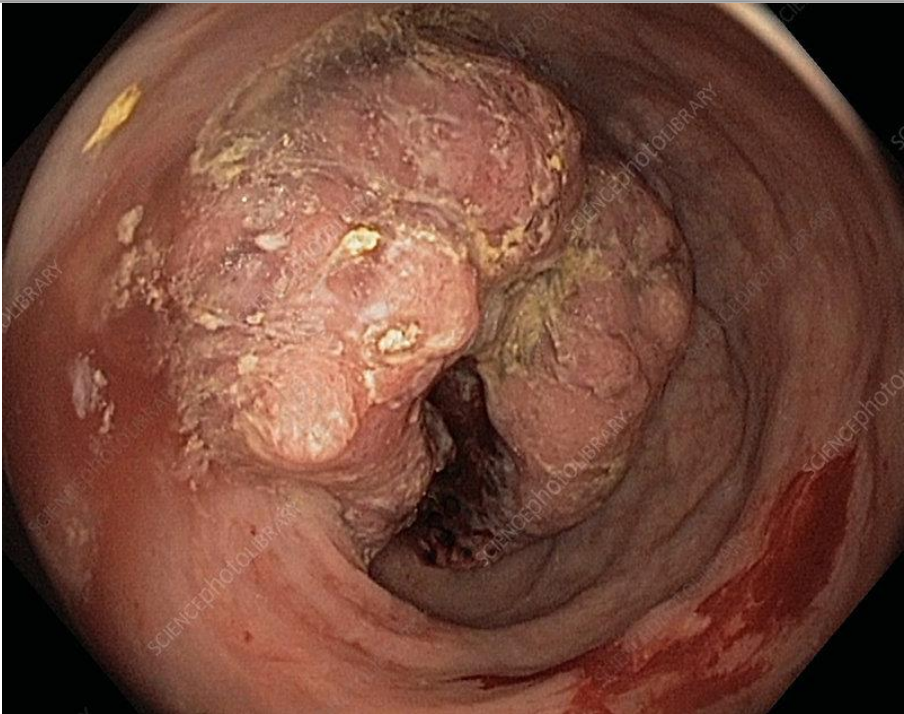
Colonoscopy – The only test that DETECTS and PREVENTS cancer



Colon Polyps



Cancerous Tumors in the Colon



Colonoscopy Procedure

<https://www.youtube.com/watch?v=ewClqAAJGPg>



"The colonoscopy isn't your eternal punishment...the prep is."