



COLONOSCOPY

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Estimated lengths

- Anal canal: 4 cm
- Rectum: 15 cm
- Sigmoid colon: 50 cm
- Descending colon: 10 cm
- Transverse colon: 50 cm
- Ascending colon 10 cm
- Cecum: 5 cm

Indications

- Diagnostic
 - Screening
 - Average risk screening starts at the age of 45 and is performed at least every 10 years
 - history of inflammatory bowel disease
 - family history of colorectal cancer
 - hereditary polyposis (Such as Peutz Jegher syndrome and FAP) and LYNCH
 - surveillance after resection of colorectal cancer
 - first degree relatives diagnosed with colon cancer

Indications

- Diagnostic
 - Elective
 - known or occult gastrointestinal bleeding or stool positive for occult blood
 - unexplained changes in bowel habits patterns
 - iron deficiency anemia
 - weight loss in elderly patients
 - persistent abdominal pain
 - suspected inflammatory or infectious colitis
 - barium enema showing radiographic structural abnormalities

Indications

- Therapeutic
 - excision and ablation of lesions
 - treatment of bleeding lesions
 - dilation of stenosis or strictures
 - foreign body removal
 - decompression of colonic volvulus or megacolon
 - palliative management of known neoplasms

Contraindications

- Fulminant ulcerative colitis
- Acute radiation colitis
- Suspected toxic megacolon
- Suspected perforation
- Acute, severe diverticulitis
- Presence of barium
- Imperforate anus
- Massive Colonic Bleeding
- Shock
- Acute surgical abdomen
- fresh surgical anastomosis
- Severe necrotizing enterocolitis
- Painful anal lesions
- Severe cardiac arrhythmia

Preparation

- success of an appropriate colonoscopy
 - appropriately cleansed colon
 - time to the cecum
 - ileocecal intubation rate
 - withdrawal time

Preparation

- bowel preparation regimen:
 - polyethylene glycol
 - magnesium citrate
 - magnesium hydroxide
 - Bisacodyl
 - sodium picosulfate
- Each physician has their own regimen they have developed
 - found works best for their practice
- patients tolerated the picosulfate/magnesium citrate solution better than the polyethylene glycol and that it provided a better bowel cleanse for adequate visualization during colonoscopy.

Preparation

- To date, there is no ideal cleansing regimen that is without discomfort
- For patients that cannot tolerate a 24-hours cleanse, it is possible
 - a clear liquid diet for up to three days before the procedure
 - a gentle laxative regimen
- Enemas do not provide adequate preparation and will not provide an appropriate bowel cleanse

Preparation

- Incomplete bowel preparations have been reported to be as high as 10% to 20% of reported colonoscopies

Technique

- Performing a colonoscopy requires practice and is a skill that is difficult to master
- While watching an experienced clinician perform a colonoscopy may appear simple, the technique is something that requires time, patience, and a lot of practice

Technique

- Before inserting the scope, it is essential to perform a digital rectal exam (DRE)
 - feeling for any lumps, bulges, rectocele, or masses
 - note of the rectal tone

Technique

- Continuing into the transverse colon
 - diameter increase in size
 - shape of the colon becomes triangular than round.
- Hepatic flexure
 - colon takes on a bluish hue, this is the liver.
- Cecum
 - opening to the appendix
 - opening to the ileocecal valve
 - convergence of the taenia coli into one focal spot known as the Mercedes sign

Technique

- It is important that the endoscopist feels for any tension or difficulty with advancing the colonoscope. The scope should never be progressed if the view is not clear, and the lumen is not visualized.
- clinician find it difficult to advance the scope, they have developed an **Alpha loop**. This occurs more commonly in the sigmoid colon. To remove the loop, suction is applied, the scope is withdrawn while rotating the shaft of the scope clockwise.
- To help complete the colonoscopy and prevent any missed lesions, the endoscopist should try to intubate the ileocecal valve.
- Should a polyp be identified, it should be removed, if possible, at that time.

Technique

- It is recommended that a clinician spend no less than **six to eight** minutes withdrawing from the colon. Removing the scope faster than this has been found to increase the risk of missed polyps and early cancer.
- While withdrawing from the colon, it is vital to aspirate some of the insufflation to provide better patient recovery, less flatulence, and distention discomfort.

Complications

- risks of rectal tears, bleeding, pain, bloating, and infection
- more serious complication
- risk of perforation has been described at around 0.14% (or 1 in 1000 colonoscopies)
- it has been described frequently that the most common site of perforation is in the sigmoid colon.
- Perforation occurs primarily by three different methods
 - Shear injury secondary to push and pull against the colonic wall
 - overdistention from too much insufflation against a weakened colonic wall
 - mechanical polypectomy and electrocautery

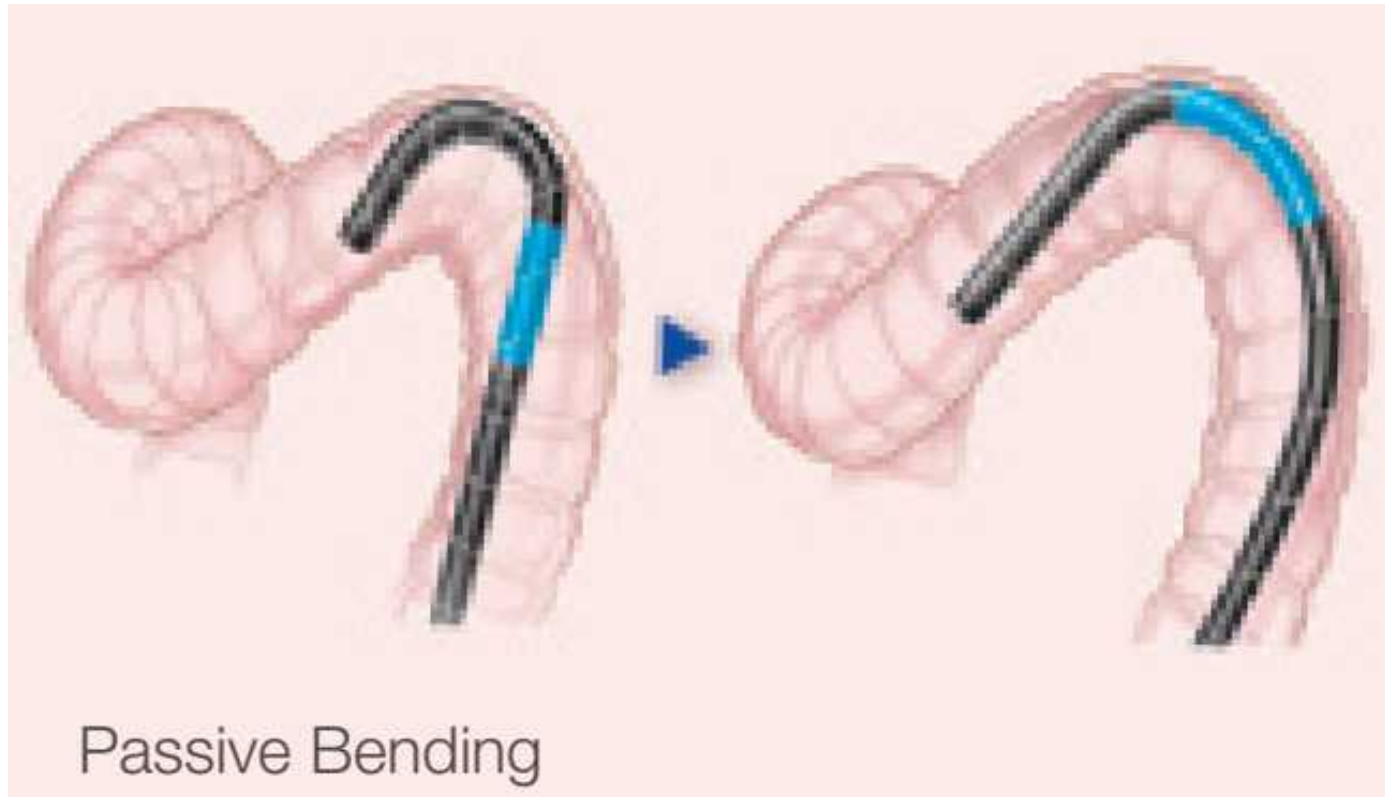
Complications

- Another complication, although rare, post polypectomy electrocoagulation syndrome (PPES). While the risk of transmural burn is low, it can occur if the clinician does not lift the tissue away from the colonic wall while applying electrocautery.
- Patients may present with severe abdominal pain several hours following a colonoscopy in which polypectomy. Labs may demonstrate a leukocytosis with left shift and a CT that shows distended bowel and inflammatory changes, but no signs of pneumoperitoneum.
- It is treated with bowel rest, supportive care, antibiotics, and resolves without any need for surgical intervention.
- To help reduce the chances of developing PPES, the clinician can lift the polyp away from the colonic wall during electrocautery. In addition, normal saline can be injected beneath the polyp to elevate the mucosa away from the colonic wall.

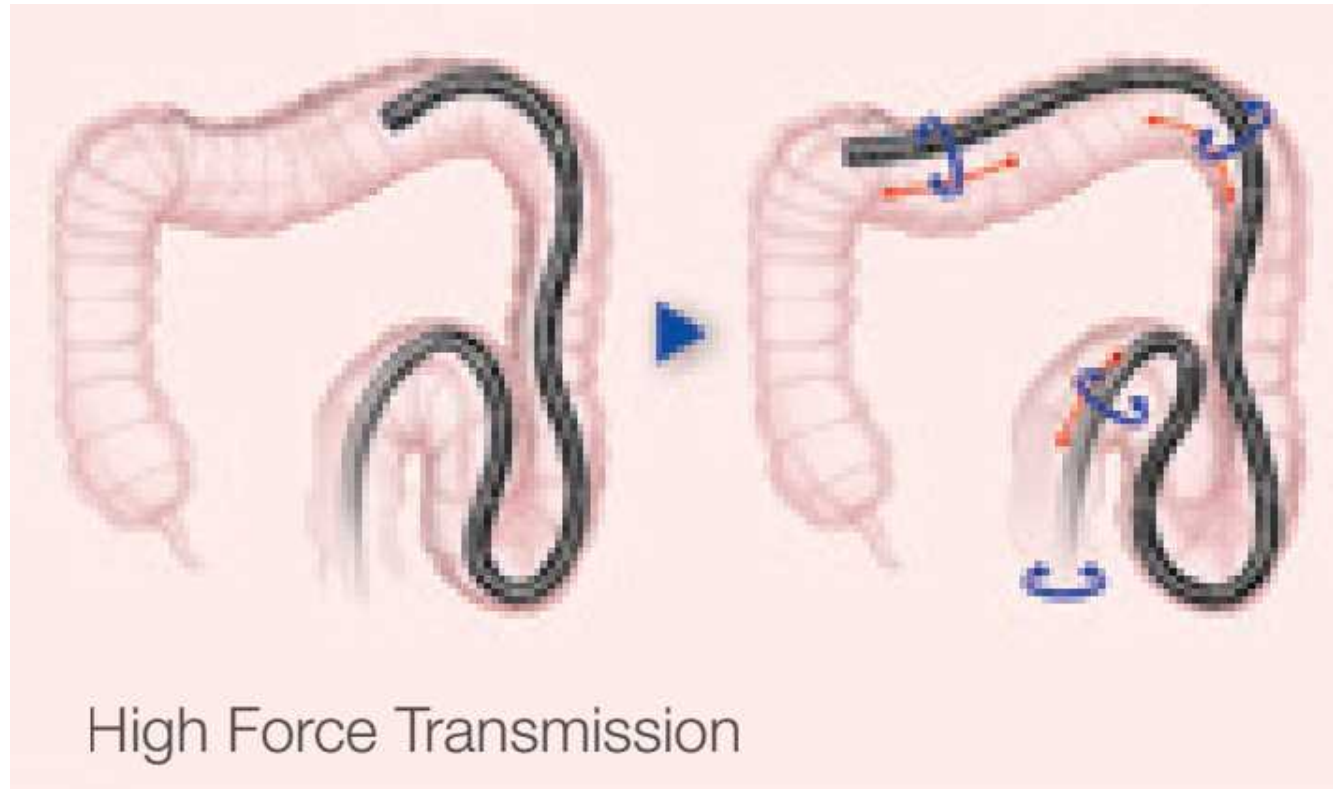
RIT (Responsive Insertion Technology)

- RIT combines three proprietary insertion tube technologies:
 - PB (Passive Bending)
 - HFT (High Force Transmission)
 - variable stiffness
- facilitate complete colonoscopies by improving scope handling, insertability, and ergonomics

PB helps scope move through acute bends



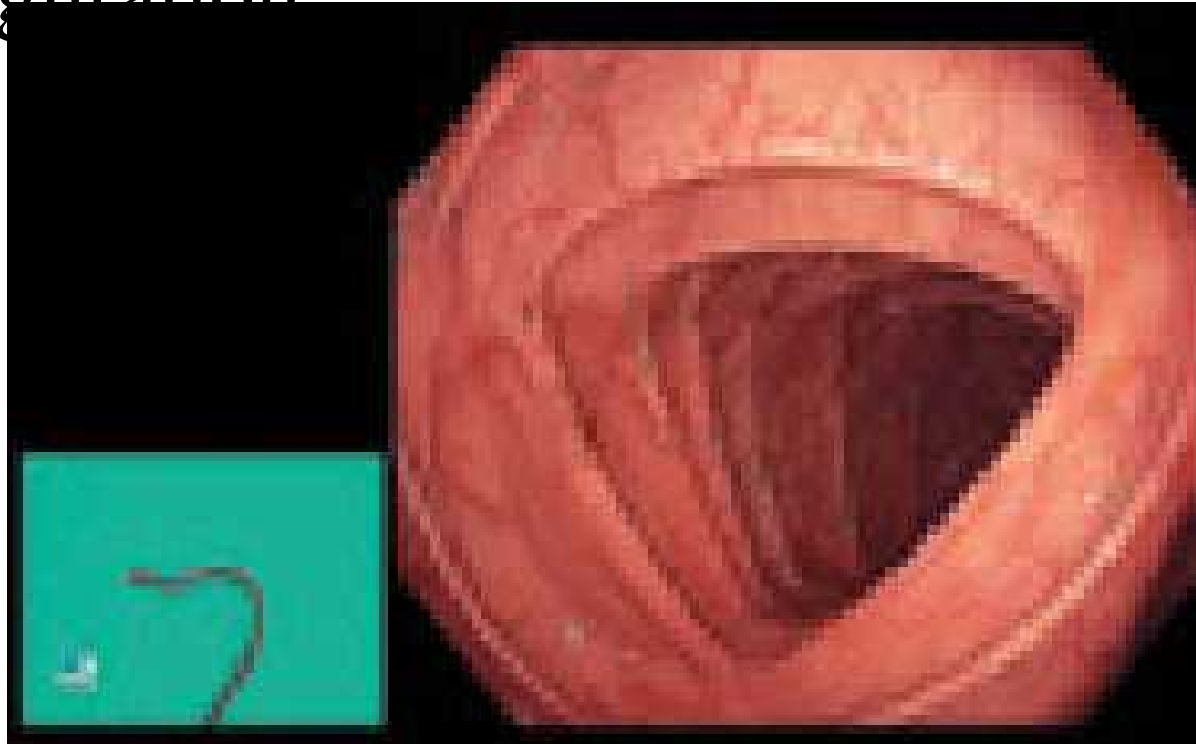
HFT provides improved operator control for both pushing and twisting maneuvers

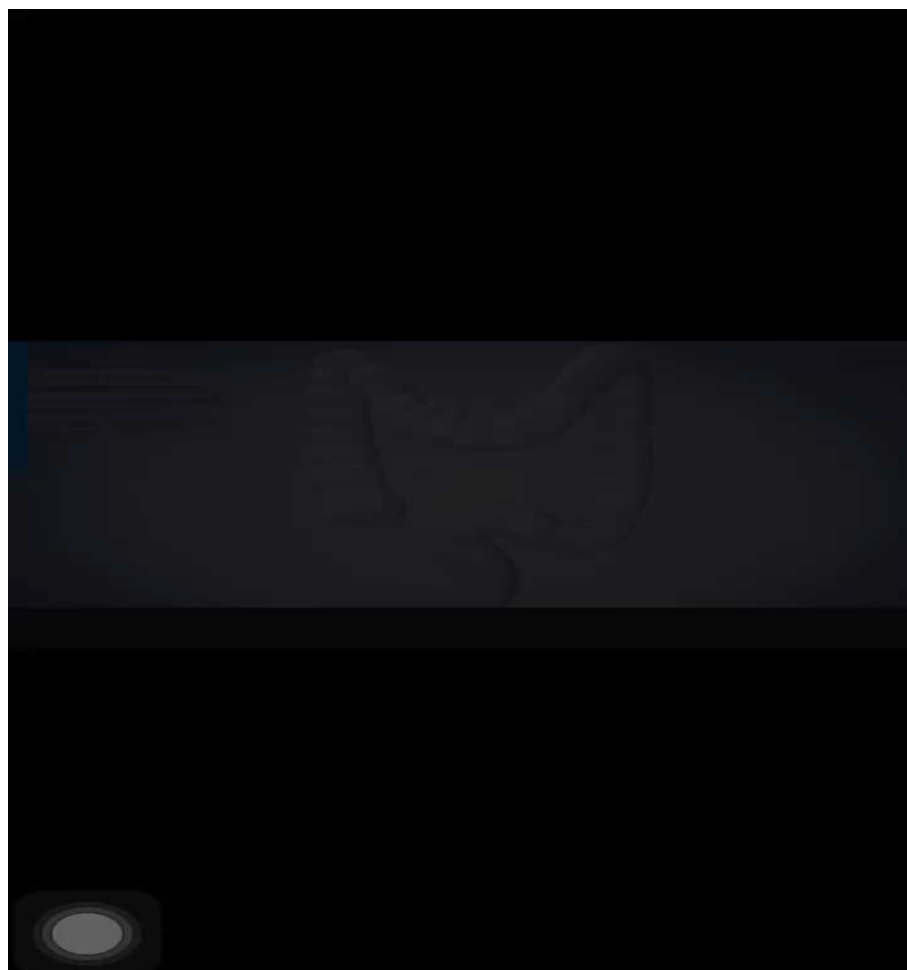


Variable stiffness allows the physician to adjust the rigidity scope as needed



ScopeGuide provides real-time 3D visualization of scope position and configuration







THANK YOU