PROCEDURE

Virtual colonoscopy

Virtual colonoscopy uses CT scans to create detailed images of the colon and rectum.

PURPOSE
Find colorectal polyps, cancer, or other colon abnormalities

PROCEDURE TYPE
Diagnostic, minimally invasive CT imaging

WHERE IT IS DONE
Outpatient radiology or CT department

ANAESTHESIA
None

HOW LONG IT TAKES
About 10 to 20 minutes

PREPARATION
Bowel prep, clear liquids, and fasting as instructed

RECOVERY
Same day; no routine driving restriction

MAIN RISKS
Discomfort, radiation exposure, perforation, incidental findings

RESULTS
Usually within days after radiologist review

Overview

Virtual colonoscopy, also called CT colonography, uses computed tomography (CT) scans to examine your colon and rectum. Computer software turns the scans into detailed two-dimensional and three-dimensional images.

Unlike a standard colonoscopy, virtual colonoscopy does not pass a long camera through your entire colon. A short, flexible tube is placed just inside the rectum so that carbon dioxide or air can gently expand the colon. This makes the bowel wall easier to see.

The procedure usually does not require sedation or pain medicine. However, it still requires bowel preparation.

Virtual colonoscopy can find growths called polyps, which may become cancerous over time. It can also show possible cancers and other abnormalities. It cannot take a tissue sample or

remove a polyp. If something important is found, you may need a standard colonoscopy.

Why the procedure is performed

Virtual colonoscopy is mainly used to look for colorectal cancer and polyps in people without symptoms who are eligible for screening.

It may also be offered when:

Although virtual colonoscopy can show the inside of the colon, it does not provide treatment. Any suspicious growth usually needs to be examined or removed during a standard colonoscopy.

- A standard colonoscopy could not examine the entire colon
- A medical condition makes sedation or standard colonoscopy less suitable
- You do not wish to have a standard colonoscopy after discussing the trade-offs
- Your healthcare team needs to examine the colon for a specific symptom or imaging finding

Who should and should not have it

Virtual colonoscopy may be reasonable if you need colorectal cancer screening and prefer a test that does not usually involve sedation. It can also be useful after an incomplete colonoscopy.

A standard colonoscopy may be a better first choice if you have a high chance of needing a biopsy or polyp removal. This may include people with a previous high-risk polyp, certain inherited cancer syndromes, or concerning symptoms. Your personal and family history help determine which test is appropriate.

Virtual colonoscopy is generally avoided during pregnancy because it uses X-rays. It may also be avoided or delayed if expanding the colon could be unsafe, such as with:

Tell the imaging team if you have severe abdominal symptoms, inflammatory bowel disease, a possible bowel blockage, or recent colorectal treatment. Difficulty changing position or holding your breath may reduce image quality but does not always prevent the test.

- Suspected bowel perforation
- Severe active inflammation of the colon

- Acute diverticulitis
- A severely swollen colon
- Recent colon surgery, biopsy, or polyp removal

How to prepare

Your treating facility's own instructions take priority because bowel preparations and imaging methods differ.

You will usually need to empty your colon with a laxative preparation. You may be asked to follow a clear-liquid diet and stop eating or drinking for a set period before the scan. Poor preparation can hide a polyp or make stool look like one.

Some facilities provide a "tagging" liquid containing iodine or barium. It mixes with remaining stool and fluid so the radiologist can distinguish them from abnormal tissue.

Tell the facility about all medicines and supplements you take. Do not stop prescription medicines, including blood thinners or diabetes medicines, unless your healthcare team instructs you to do so. Blood thinners like warfarin or apixaban often do not need to be stopped because virtual colonoscopy does not take biopsies, but your own instructions still apply.

Also tell the team if you:

Arrange access to a toilet while taking the laxative. Drink the permitted fluids as instructed to reduce dehydration.

- Could be pregnant
- Have kidney, heart, or bowel disease
- Have allergies to contrast materials
- Have recently had colon surgery or a colonoscopy
- Are having difficulty completing the bowel preparation

What happens during the procedure

You will change into a gown and lie on the CT table, usually on your side at first.

A healthcare professional places a small, lubricated tube a short distance into your rectum. Carbon dioxide or air is then introduced through the tube to open the colon. You may feel fullness, pressure, or an urge to pass gas.

You will usually be scanned while lying on your back and then on your stomach or side. The table moves through the CT scanner, which is shaped like a large ring rather than an enclosed tunnel. You may be asked to hold your breath for several seconds.

The scan itself is painless, but expanding the colon can cause temporary cramping. The team can pause or adjust the gas if you are very uncomfortable.

Intravenous contrast dye is not usually needed for routine screening CT colonography. It may be used when the scan is being performed for another medical reason.

Recovery and what to expect afterward

Mild cramping, bloating, or gas is common for a short time. Walking and passing gas usually help. Significant or worsening pain is not expected.

You can normally eat and drink after the scan unless your facility gives different instructions. Replacing fluids may help after the bowel preparation.

Most people can return to normal activities immediately. There is usually no need for physical restrictions.

Because sedation is not normally used, you can usually drive yourself home. Do not drive if you received a sedating medicine or feel faint, unwell, or unable to concentrate.

Most people can return to work the same day. You may prefer to take the day off because of the bowel preparation, travel, or temporary bloating.

Risks and possible complications

Virtual colonoscopy is generally well tolerated, but it has limitations and risks.

Expanding the colon may cause cramping, pressure, or bloating. The rectal tube can also cause minor irritation.

A tear or hole in the colon, called a perforation, is possible but uncommon. The risk may be higher when the bowel wall is already inflamed, weakened, or recently treated.

CT scanning exposes you to a low dose of ionizing radiation. The clinical value of the scan is weighed against this exposure, especially if you have repeated imaging.

The bowel preparation can cause nausea, dehydration, or changes in body salts. People with kidney, heart, or other medical conditions may need a modified preparation.

Virtual colonoscopy can miss some polyps and cancers or identify something that is not truly

abnormal. It may also show findings outside the colon, such as changes in another abdominal organ. Some findings are helpful, while others lead to additional tests without causing health problems.

Results and follow up

A radiologist reviews the images and sends a report to the healthcare professional who requested the test. Results are usually available within several days rather than during the scan.

The report may describe whether the colon was fully examined and whether the bowel preparation was adequate. It may also describe the number and size of any polyps or other findings.

If a significant polyp, mass, or uncertain area is found, you will usually be offered a standard colonoscopy. This allows the area to be examined directly, removed, or biopsied. A biopsy takes a small tissue sample for laboratory testing.

Very small polyps may sometimes be monitored rather than removed immediately. The appropriate follow-up is based on their size, number, your risk factors, and local practice.

If the scan is normal, your healthcare team will tell you when another screening test is due. Findings outside the colon may require no action, follow-up imaging, or another type of assessment.

Alternatives

A standard colonoscopy examines the colon with a flexible camera. It can remove polyps and take biopsies during the same procedure. It usually involves sedation, requires someone to drive you home, and has risks such as bleeding or perforation.

A fecal immunochemical test, or FIT, checks a stool sample for hidden blood. It is completed at home and does not require bowel preparation. It can miss polyps and cancers that are not bleeding, and a positive result requires colonoscopy.

A stool DNA test looks for blood and abnormal DNA in stool. It is non-invasive but may produce more false-positive results than FIT. It also cannot remove polyps, and an abnormal result requires colonoscopy.

Flexible sigmoidoscopy uses a camera to examine only the rectum and lower colon. It may require less preparation, but it does not inspect the entire colon.

Colon capsule endoscopy uses a swallowed camera capsule. Availability is limited, bowel preparation is still needed, and abnormalities cannot be biopsied or removed during the test.

Choosing no screening avoids the immediate burdens of testing but gives up the chance to find colorectal cancer or precancerous polyps before they cause problems.

When to call your healthcare team

Contact your healthcare team promptly if you develop persistent or worsening abdominal pain, fever, repeated vomiting, marked abdominal swelling, or more than a small amount of rectal bleeding.

Seek emergency care for severe abdominal pain with fainting, weakness, trouble breathing, confusion, or a hard and rapidly swelling abdomen.

Mild gas, bloating, and brief cramps usually improve without treatment. Routine questions about your report, future screening, or follow-up colonoscopy can wait for normal office hours.

Common questions

Will I be asleep?

Usually not. Virtual colonoscopy does not normally require sedation or anaesthesia. You remain awake and can speak with the imaging team.

Can I drive myself home?

Usually, yes. Because sedation is not normally used, there is no routine driving restriction. Follow different instructions if you received a sedating medicine or feel unwell.

How painful is virtual colonoscopy?

The CT scan does not hurt. The gas used to expand the colon can cause pressure, bloating, or cramps, but these usually improve soon after the procedure.

Why do I still need bowel preparation?

Stool can hide a polyp or look like an abnormal growth. Emptying and tagging the bowel helps the radiologist interpret the images accurately.

What happens if a polyp is found?

You may need a standard colonoscopy to remove or biopsy it. Virtual colonoscopy cannot perform treatment.

When will I know the results?

A radiologist must review the images, so results are usually available within several days. Urgent findings may be communicated sooner.

Sources

- National Institute of Diabetes and Digestive and Kidney Diseases: Virtual Colonoscopy
- RadiologyInfo.org: CT Colonography
- US Preventive Services Task Force: Screening for Colorectal Cancer
- American College of Radiology: ACR Appropriateness Criteria - Colorectal Cancer Screening
- Spada C, Hassan C, Bellini D, et al. Imaging alternatives to colonoscopy: CT colonography and colon capsule. European Society of Gastrointestinal Endoscopy and European Society of Gastrointestinal and Abdominal Radiology guideline, update 2020. Endoscopy . 2020;52(12):1127-1141.