TEST

Bowel transit time

A bowel transit time test measures how quickly swallowed markers move through your digestive tract.

WHAT IT MEASURES
How quickly swallowed markers move through your colon

SAMPLE
None; X-rays or scans track swallowed markers

FASTING NEEDED?
Sometimes, for scintigraphy or a wireless capsule

HOW LONG IT TAKES
Brief visits spread across about five to seven days

RESULTS IN
Usually days after final imaging; varies by laboratory or centre

USED FOR
Diagnosis of suspected slow movement through the bowel

MAIN LIMITATION
Medicines, laxatives, and protocol differences can mislead results

Overview

A bowel transit time test measures how long material takes to move through your digestive tract. It is most often used to assess movement through the colon, also called the large bowel.

The commonest version is a radiopaque marker study. You swallow a capsule containing small markers that show up on an X-ray. One or more abdominal X-rays are then taken over several days to see how many markers remain and where they are.

Other methods include scintigraphy, which follows a small amount of radioactive material with a special camera. A wireless motility capsule can measure movement, pressure, temperature, and acidity as it travels through the digestive tract, although it is not available everywhere.

The methods are not interchangeable. Preparation, timing, and interpretation depend on which test your clinic uses.

Why the test is ordered

This test may help investigate ongoing constipation when the cause is unclear or initial treatment has not helped. It can show whether material moves slowly through most of the colon or collects mainly near the rectum.

Your clinician may use the result to help distinguish:

The test does not identify every cause of constipation. In particular, it cannot by itself confirm a pelvic floor or defecation disorder. These problems involve difficulty coordinating the muscles used to pass stool and are assessed with tests such as anorectal manometry or a balloon expulsion test.

- Normal movement through the colon despite constipation symptoms
- Slow movement throughout the colon, called slow-transit constipation
- A pattern suggesting difficulty emptying stool from the rectum

Who should have the test

A bowel transit study may be considered if you have persistent constipation and the result would affect further testing or treatment. It is usually part of a wider assessment that includes your symptoms, medicines, diet, physical examination, and previous treatment.

It is not usually needed for a brief episode of constipation with an obvious cause.

Tell the imaging team if you are pregnant or could be pregnant. Most bowel transit methods use X-rays or a small amount of radioactive material, so the team may postpone the test or consider another approach.

Also mention swallowing problems, known narrowing of the digestive tract, previous bowel surgery, or a possible blockage. These details are particularly important if a wireless capsule is being considered.

How to prepare

Follow the instructions from your testing centre because protocols differ. A standard radiopaque marker study often does not require fasting, but scintigraphy and wireless capsule testing usually involve a fasting period.

Ask which medicines and supplements to take during the study. Products that change bowel movement may need to be paused. These can include laxatives, enemas, fibre supplements, opioid pain medicines, medicines with anticholinergic effects, and medicines intended to speed up digestion.

Do not stop a prescribed medicine unless the clinician arranging the test tells you to do so. In some cases, the purpose of testing is to see how well treatment works, so you may be asked to continue it.

Unless instructed otherwise, keep your usual diet and activity level. You may be asked to record meals, bowel movements, symptoms, and medicines during the test.

What happens during the test

For a radiopaque marker study, you swallow one or more capsules containing small plastic markers. The capsule dissolves, leaving the markers to travel through your bowel.

You then attend for abdominal X-rays at set times. Some protocols use one X-ray several days after the capsule. Others use capsules or images on multiple days. Each X-ray appointment is usually brief.

The markers leave your body in your stool. You will not usually notice them passing.

During scintigraphy, you eat a prepared meal containing a very small amount of radioactive tracer. A special camera takes images at scheduled times to follow the meal through your digestive tract.

A wireless motility capsule is swallowed and sends measurements to a recorder you wear. You return the equipment after the capsule has passed or after the recording period ends. Availability is limited, and this method is not suitable for everyone.

Understanding your results

The report considers how many markers remain, where they are located, and how much time has passed since you swallowed them.

Markers that have mostly left the colon by the scheduled image suggest movement within the expected range for that protocol. Markers spread throughout the colon may suggest generally slow movement. Markers clustered near the rectum may raise the possibility of difficulty emptying stool.

There is no single reference range that applies to every bowel transit study. Thresholds vary with the marker system, imaging schedule, laboratory or imaging centre, age, sex, pregnancy status, medicines, previous surgery, and clinical context.

A result described as delayed does not explain why movement is slow. Similarly, a result within the expected range does not mean your symptoms are unimportant. Constipation can occur

with normal transit, including when stool consistency, rectal sensation, or pelvic floor coordination is the main issue.

What affects the results

Several factors can alter bowel movement without anything being wrong with the X-ray equipment or laboratory.

Laxatives, enemas, and medicines that speed up digestion can make transit appear faster. Opioid pain medicines and medicines with anticholinergic effects can slow the bowel. Some antidepressants like sertraline or fluoxetine , iron supplements, and other medicines may also contribute to constipation.

Other important influences include:

Day-to-day bowel movement naturally changes. A short study may therefore capture an unusually fast or slow period rather than your usual pattern.

- Missing a capsule or taking it at the wrong time
- Attending an X-ray earlier or later than scheduled
- Changing your diet or activity substantially during testing
- Diarrhoea, vomiting, dehydration, or an acute illness
- Recent bowel preparation for colonoscopy
- Pregnancy-related changes in bowel movement
- Previous bowel surgery or altered digestive anatomy

Accuracy and limitations

Radiopaque marker testing is useful because it is simple and shows where markers remain. However, there is no perfect test against which every result can be checked.

The study can miss intermittent slowing if your bowel happens to move normally during the testing period. It can also suggest slow transit when the delay was caused by a medicine, illness, protocol error, or major change in routine.

Results from different protocols may not agree exactly. The number and type of markers, timing of images, and definition of delayed transit all affect interpretation.

The test shows movement but gives limited information about the reason for a delay. If difficulty passing stool is suspected, anorectal manometry and balloon expulsion testing are

usually more direct. Scintigraphy may be more useful when movement through both the stomach and intestines needs assessment. Endoscopy or other imaging may be needed when the concern is narrowing, inflammation, or another structural problem.

Risks and complications

Radiopaque marker studies involve a small amount of radiation from abdominal X-rays. The total exposure depends on how many images are needed.

Scintigraphy also uses a small amount of radiation. Tell the testing team if you are pregnant, could be pregnant, or are breastfeeding so they can give method-specific advice.

Swallowing the standard marker capsule is usually straightforward. A wireless motility capsule can occasionally become stuck, particularly if the digestive tract is narrowed, and may require another procedure for removal.

What happens next

Your clinician will interpret the report alongside your symptoms, medicines, examination, and any other test results. Routine follow-up may involve reviewing constipation treatment, arranging pelvic floor testing, or considering further digestive tract investigations.

Contact the team routinely if you missed a capsule, took a laxative by mistake, or could not attend an image at the scheduled time. The study may need to be interpreted differently or rearranged.

Seek urgent medical help for severe or worsening abdominal pain, repeated vomiting, marked abdominal swelling, or an inability to pass stool or gas. Black or bloody stool, collapse, or feeling seriously unwell also requires prompt assessment. Do not wait for the transit study result if these symptoms occur.

Common questions

Can I drink coffee before the test?

For a standard marker study, you may be able to eat and drink normally. Coffee can stimulate the bowel, however, and fasting is usually required before scintigraphy or a wireless capsule. Follow your centre's instructions.

Does the time of day matter?

Yes. The time between swallowing the markers and having each image is part of the calculation. Take the capsule and attend imaging at the instructed times.

Can I exercise beforehand?

Usual daily activity is generally reasonable unless you are told otherwise. Avoid making an unusual change, such as starting intense exercise during the study, because this could affect bowel movement.

Can I take a laxative during the test?

Only if the testing team has told you to. Laxatives and enemas can move markers more quickly and make the result misleading. Do not stop prescribed treatment without checking first.

Will I see the markers in my stool?

Usually not. The markers are small and generally pass without being noticed. You normally do not need to collect or examine your stool.

Can I have an MRI while the markers are inside me?

Tell the MRI team that you are having a transit study and provide the capsule or marker product name if available. They can confirm whether imaging should proceed based on the specific product used.

Sources

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