TEST

String test for intestinal parasites

A string test collects fluid from the upper small intestine to look for parasites.

WHAT IT MEASURES
Parasites and parasite forms in upper small-intestinal fluid

SAMPLE
Mucus and fluid collected on a swallowed string

FASTING NEEDED?
Yes, often overnight; follow the laboratory's instructions

HOW LONG IT TAKES
Usually about four hours, based on the collection protocol

RESULTS IN
Usually several days, varying by laboratory

USED FOR
Diagnosis

MAIN LIMITATION
A negative result does not reliably exclude infection

Overview

A string test collects mucus and digestive fluid from the first part of your small intestine. A laboratory examines this material for parasites or parasite forms, such as larvae or actively moving cells called trophozoites.

The test is mainly associated with Giardia duodenalis , which can cause giardiasis, and Strongyloides stercoralis , which can cause strongyloidiasis. It does not test equally well for every intestinal parasite.

During the test, you swallow a small capsule attached to a long string. One end of the string remains outside your mouth. The capsule dissolves, and normal movement through the digestive tract carries the string into the upper small intestine. Fluid and mucus stick to it before it is removed.

The string test is now used less often because stool antigen tests and molecular tests, such as PCR, are easier to collect and may be more accurate for some parasites. However, the string test may still help in selected cases.

Why the test is ordered

The test may be ordered when symptoms and exposure history suggest a parasite living in the upper small intestine. Possible reasons include ongoing diarrhea, abdominal discomfort, bloating, unexplained weight loss, or difficulty absorbing nutrients.

It may also be considered when:

A string test is not a general screening test for every cause of diarrhea. Many infections, inflammatory conditions, medicines, and food-related problems can cause similar symptoms.

- Stool testing has not found a cause, but suspicion remains
- A fresh sample from the upper small intestine is needed
- Endoscopy would be unnecessarily invasive for the information required
- A laboratory has specific experience examining string-test samples

Who should have the test

This test is usually reserved for people whose healthcare team is specifically investigating parasites such as Giardia or Strongyloides . Stool antigen testing, stool PCR, or stool microscopy is often tried first.

The test may not be suitable if you cannot safely swallow a capsule or have a significant swallowing disorder. Tell the testing team if you have previously choked on food or tablets, have a known narrowing of the digestive tract, or have recently had surgery involving your mouth, throat, stomach, or intestines.

Children may have difficulty swallowing the capsule or tolerating the string. Whether the test is practical depends on the child's age, ability to follow instructions, and the centre's experience.

How to prepare

You will usually need to stop eating and drinking for a set period before the test, often overnight. The exact fasting time differs between centres, so follow the instructions you receive rather than using a general fasting rule.

Tell the person arranging the test about all prescription medicines, over-the-counter products, and supplements you take. Recent antiparasitic treatment can reduce the number of organisms available to collect. Other antimicrobial medicines may also affect the findings. Do

not stop any medicine unless you are specifically told to do so.

Before the appointment, mention:

Pregnancy does not directly alter the sample in a predictable way, and the test does not use radiation. However, pregnancy may affect decisions about preparation, nausea management, and alternative tests.

- Trouble swallowing capsules, food, or liquids
- Recent antiparasitic or antibiotic treatment
- Recent tests involving contrast material, such as barium
- Pregnancy or the possibility of pregnancy
- A gelatin allergy or dietary restriction involving gelatin

What happens during the test

You swallow a gelatin capsule containing a coiled string. One end of the string stays outside your mouth and is secured to your cheek.

The gelatin capsule dissolves in your stomach. Natural muscular movement carries the free end of the string farther into the digestive tract. The string is generally left in place for several hours, commonly around four hours, although the protocol may differ.

You may be asked not to eat or drink while the string is in place. Talking and swallowing can feel unusual. Some people notice gagging, nausea, or throat discomfort.

A trained member of staff then gently pulls the string out through your mouth. The section carrying bile-stained mucus and intestinal fluid is sent to the laboratory. It may be examined under a microscope or tested using another method available at that laboratory.

Understanding your results

String-test findings are usually reported as detected or not detected rather than as a number with a reference range.

A positive result means that the laboratory found a parasite or a recognisable parasite form in the collected material. The report should name the organism when identification is possible. The importance of the finding depends on the organism, your symptoms, your immune health, and other test results.

A negative result means that no parasite was found in that sample. It does not prove that no

infection is present. The string may not have reached the best sampling area, or the number of organisms may have been too low to see.

There is no universal normal range for this test. Methods and interpretation differ by laboratory and clinical context. Age, sex, pregnancy status, medicines, and immune health may influence how the result is used, even when they do not directly change what is seen on the string.

What affects the results

The quality of the sample matters. The result may be negative even when a parasite is present if the string does not travel far enough into the small intestine or does not collect enough mucus.

Other important influences include:

Recent exercise, time of day, kidney function, and a blood transfusion do not usually have a meaningful direct effect on this test. Unlike many blood tests, it does not produce a concentration that changes with hydration or red blood cell turnover.

- Recent antiparasitic treatment, which may lower the number of organisms
- Some antimicrobial medicines, depending on the parasite being investigated
- Eating or drinking when fasting was required
- Delays in examining the sample, especially when fragile trophozoites are sought
- Uneven distribution or intermittent release of parasites
- Limited laboratory experience with string-test samples
- Contamination with material from the mouth or stomach

Accuracy and limitations

The string test can miss an infection. A false-negative result is more likely when only a few organisms are present, the string does not reach the correct area, or recent treatment has reduced the parasite burden. One negative result may therefore need to be followed by a different test if symptoms or exposure history remain concerning.

The test can also give a misleading positive result. Debris, harmless organisms, or contamination may occasionally be mistaken for a disease-causing parasite, particularly with microscopy. Confirmation by an experienced laboratory or a more specific test may be appropriate when the finding is uncertain.

For suspected giardiasis, stool antigen tests and stool PCR are often more convenient and can perform better than routine microscopy. Several stool samples collected on different days may be requested because parasite shedding can be intermittent.

For suspected strongyloidiasis, stool concentration methods, agar plate culture, PCR, or a blood antibody test may be more useful in some situations. Antibody testing has its own limits: it may remain positive after an earlier infection and may miss cases in people with weakened immune responses.

Endoscopy can collect fluid or tissue directly from the small intestine. It is more invasive, but it may be the better option when another intestinal condition also needs investigation.

Risks and complications

The main risks are temporary gagging, nausea, throat irritation, and discomfort as the string is removed. Some people may vomit or feel faint.

A person with swallowing difficulties may be at risk of choking or breathing the capsule into the airway. This is why swallowing problems should be discussed before the test.

What happens next

Your healthcare professional will review the result alongside your symptoms, travel or exposure history, medicines, and any stool or blood tests.

If a parasite is identified, the next step may be treatment or confirmatory testing. The appropriate treatment depends on the organism and your health circumstances.

If the result is negative but symptoms continue, routine follow-up may include stool antigen testing, PCR, repeated stool samples, blood tests, or endoscopy. A negative result should not be interpreted alone.

Contact your healthcare team promptly if ongoing diarrhea is causing signs of dehydration, such as very little urine, marked dizziness, or difficulty keeping fluids down. Seek emergency help during or after the procedure for choking, trouble breathing, or severe and rapidly worsening chest or abdominal pain.

Common questions

Can I drink coffee before a string test?

Usually not. If you have been told to fast, coffee, tea, milk, juice, and other drinks may interfere with preparation. Plain water may also be restricted, so follow your centre's instructions.

Does the time of day matter?

The test is often scheduled in the morning because fasting is easier overnight. The collection protocol and fasting period matter more than the clock time.

Can I exercise beforehand?

Ordinary activity is unlikely to alter the result. Strenuous exercise is not known to have the direct effect it can have on some blood tests, but fasting may make vigorous exercise uncomfortable.

Can I take my usual medicines?

Many medicines can be taken as usual, but antiparasitic drugs and some antimicrobial medicines may affect the result. Ask for specific instructions and do not stop prescribed treatment on your own.

Will swallowing or removing the string hurt?

It should not cause sharp pain, but it can feel unpleasant and may trigger gagging or nausea. Tell the staff immediately if you have trouble breathing or cannot tolerate the procedure.

Can I drive home afterward?

Sedation is not normally used, so most people can drive afterward. If another procedure or sedating medicine is planned at the same visit, you may need someone to take you home.

Sources

- MedlinePlus Medical Encyclopedia: String test , U.S. National Library of Medicine
- CDC: Clinical Testing and Diagnosis for Giardia Infection , Centers for Disease Control and Prevention
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