TEST

D-xylose absorption

A D-xylose absorption test checks how well your small intestine absorbs a simple sugar.

WHAT IT MEASURES
Absorption of D-xylose sugar through the small intestine

SAMPLE
Blood, urine, or both

FASTING NEEDED?
Yes, usually eight to twelve hours

HOW LONG IT TAKES
Usually two to five hours, based on collection protocol

RESULTS IN
Several days; timing varies by laboratory

USED FOR
Evaluating suspected small-intestinal malabsorption

MAIN LIMITATION
Kidney function and incomplete urine collection can falsely lower results

Overview

The D-xylose absorption test checks how well the lining of your small intestine absorbs a simple sugar called D-xylose. After you drink a measured amount, the laboratory measures D-xylose in your blood, urine, or both.

D-xylose does not need pancreatic digestive enzymes before it can be absorbed. This means the test can help separate problems involving the intestinal lining from some problems involving the pancreas.

The test is used less often than it once was. Blood tests, stool tests, breath tests, scans, and intestinal biopsy may provide more specific information, depending on what your healthcare professional is investigating.

Why the test is ordered

The test may be ordered when there is concern about malabsorption , meaning that the intestines are not taking in nutrients normally. Possible reasons for investigating

malabsorption include ongoing diarrhea, unexplained weight loss, nutritional deficiencies, or abnormal blood tests.

A low result can support the possibility of damage or disease affecting the upper small intestine. It cannot identify the exact cause. For example, it does not diagnose coeliac disease or another intestinal condition by itself.

The test may also help show whether poor digestion is more likely to involve the intestinal lining rather than reduced pancreatic enzyme production.

Who should have the test

D-xylose testing is not a routine screening test. It is generally considered when symptoms, examination findings, or other test results suggest possible small-intestinal malabsorption.

It may be useful when earlier tests have not explained the problem or when a more specific test is unavailable. In many situations, a healthcare professional may instead recommend coeliac blood tests, stool testing, an endoscopy with biopsy, or another targeted investigation.

Children can have the test, but the amount of D-xylose and the interpretation may differ from those used for adults.

How to prepare

Follow the instructions from the testing centre because preparation and collection methods are not identical everywhere.

You will usually need to fast for 8 to 12 hours. This normally means having no food and drinking only plain water. The test is often scheduled in the morning so that most of the fasting period occurs overnight.

You may be asked to avoid foods containing certain sugars for about a day beforehand. The laboratory will tell you if this is necessary.

Tell the testing team about:

Some medicines can interfere with the result. These may include aspirin, indomethacin, atropine, isocarboxazid, and phenelzine. Do not stop a medicine unless the healthcare professional arranging the test tells you to do so.

- All prescription medicines, non-prescription medicines, and supplements
- Diabetes or difficulty fasting safely

- Kidney disease or reduced kidney function
- Pregnancy or breastfeeding
- Recent vomiting, diarrhea, dehydration, or intestinal surgery

What happens during the test

You drink water containing a measured amount of D-xylose. The drink may taste very sweet. The exact amount is selected according to the laboratory's protocol and, for children, may be based on body size.

For a blood test, a healthcare worker takes one or more blood samples from a vein in your arm at set times after the drink. Exact timing matters because the result is based partly on how quickly D-xylose enters your blood.

For a urine test, you collect all urine passed during a set period, often several hours. You may need to empty your bladder before drinking the solution so the timed collection starts with an empty bladder. Keep the collection container as instructed.

Some centres use blood samples only, while others use urine or both. The appointment may last two to five hours. If you vomit, miss a urine collection, or spill any urine, tell the staff because the test may need to be repeated.

Understanding your results

The laboratory compares the amount of D-xylose in your blood or urine with the expected result for that specific test method.

A result within the laboratory's expected range suggests that D-xylose was absorbed through the upper small intestine. It does not rule out every digestive disorder. Conditions affecting another part of the bowel, or problems involving pancreatic enzymes or bile, may still be present.

A lower result may mean that less D-xylose was absorbed. However, it can also happen because of slow stomach emptying, kidney impairment, dehydration, an incomplete urine collection, or other factors unrelated to damage of the intestinal lining.

There is no single universal reference range. Ranges and interpretation vary by laboratory, test timing, collection method, age, sex, pregnancy status, medicines, kidney function, and clinical context.

What affects the results

Several factors can make a result misleading even when the laboratory measurement itself is correct.

Kidney function is especially important. D-xylose leaves the body through the kidneys. Reduced kidney function can lower the amount found in urine while allowing more to remain in the blood. This can make blood and urine findings appear inconsistent.

An incomplete urine collection can produce a falsely low urine result. Missing even one collection, spilling urine, or collecting for the wrong length of time may matter.

Other influences include:

Pregnancy can change fluid balance and kidney filtration. The result therefore needs to be interpreted using the relevant clinical details rather than a general range.

Exercise is not usually a major direct source of error. However, strenuous exercise can contribute to dehydration, so it is sensible to avoid it before and during the test unless the testing centre says otherwise.

- Vomiting before the D-xylose has been absorbed
- Dehydration or not drinking the instructed amount of water
- Slow stomach emptying, which delays D-xylose reaching the intestine
- Rapid movement through the intestine because of severe diarrhea
- Bacterial overgrowth in the small intestine, which may use some D-xylose
- Recent intestinal surgery or a shortened small intestine
- Older age, which can reduce urinary excretion
- Medicines that change intestinal movement, absorption, or kidney handling
- Eating or drinking during the fasting period
- Blood samples taken at the wrong time

Accuracy and limitations

The test can miss mild, patchy, or early disease because enough healthy intestine may remain to absorb D-xylose normally. It can also miss conditions mainly affecting the lower small intestine.

A low result does not always mean there is intestinal disease. Kidney impairment, incomplete

urine collection, dehydration, delayed stomach emptying, bacterial overgrowth, and problems with timing can all create an abnormal result. There is no single reliable rate for missed or falsely abnormal results because performance changes with the protocol and the people being tested.

The test does not show the cause or location of a problem precisely. Coeliac antibody tests and an intestinal biopsy are usually more direct when coeliac disease is suspected. Stool pancreatic elastase may be more useful for suspected pancreatic enzyme deficiency. Breath tests may be chosen for certain sugar intolerances or bacterial overgrowth.

Results are most useful when considered alongside your symptoms, nutritional blood tests, kidney function, medicines, and other investigations.

Risks and complications

A blood draw can cause brief pain, bruising, or light-headedness. Tell the person taking the sample if you feel faint.

The D-xylose drink may cause nausea, bloating, cramps, or loose stools. Tell the testing staff promptly if you vomit because this can invalidate the test.

A severe reaction is not expected. Seek emergency help for trouble breathing, swelling of the face or throat, or collapse after the drink.

What happens next

A result within the expected range may lead to tests for other causes of poor digestion or nutrient loss, especially pancreatic, liver, or lower-intestinal problems.

A low or unclear result is usually followed up routinely rather than treated as an emergency. The next step might be repeating the test if collection was incomplete, checking kidney function, or using a more specific blood, stool, breath, or endoscopic test.

Contact the healthcare professional who arranged the test if you have not received instructions about your result within the laboratory's expected turnaround time. Seek urgent medical care for severe dehydration, ongoing inability to keep fluids down, black or bloody stools, or severe worsening abdominal pain; these concerns relate to your health, not to the test result itself.

Common questions

Can I drink coffee before the test?

Usually not. During the fasting period, plain water is generally the only permitted drink. Coffee, including black coffee, may affect digestion or break the laboratory's fasting instructions.

Does the time of day matter?

The exact timing of samples after the D-xylose drink matters more than the clock time. Morning appointments are common because they make overnight fasting easier.

Can I exercise beforehand?

Light normal activity is unlikely to affect the test. Avoid strenuous exercise that could leave you dehydrated, and follow any instructions from the testing centre.

Can I take my usual medicines?

Ask before the test. Some medicines can affect absorption, intestinal movement, or kidney handling of D-xylose. Do not stop prescribed medicine on your own.

What if I miss part of the urine collection?

Tell the testing staff. An incomplete collection can make the urine result falsely low, so the test may need to be repeated.

Can I eat as soon as the test is over?

Usually, yes. Once the final blood or urine sample has been collected, you can normally eat and drink unless you have been given different instructions.

Sources

- U.S. National Library of Medicine, MedlinePlus Medical Test: D-Xylose Absorption Test
- MSD Manual Professional Edition: Overview of Malabsorption
- Mayo Clinic Laboratories Test Catalog: D-Xylose, Plasma
- UCSF Health Patient Education: D-Xylose Absorption
- Testing.com: D-Xylose Absorption Test