CONDITION

Sucrose intolerance

Sucrose intolerance is difficulty digesting table sugar because the small intestine lacks enough of the enzyme sucrase

WHAT IT IS
Reduced ability to digest sucrose and some starches

BODY SYSTEM
Digestive system

MAIN SYMPTOMS
Diarrhea, bloating, abdominal pain, excess gas

WHAT CAUSES IT
Inherited enzyme deficiency or small-intestinal lining damage

HOW IT IS DIAGNOSED
Disaccharidase biopsy testing or specialized breath testing

MAIN TREATMENT
Dietary adjustment and digestive enzyme replacement

CAN IT BE CURED?
Sometimes - secondary cases may improve after intestinal healing

IS IT AN EMERGENCY?
Sometimes - severe dehydration or fainting

LONG-TERM OUTLOOK
Usually manageable with individualized diet and treatment

Overview

Sucrose intolerance means that your small intestine cannot fully digest sucrose, the sugar commonly called table sugar. Sucrose is also present in many fruits, vegetables, sweetened drinks, desserts, sauces, and packaged foods.

Normally, an enzyme called sucrase splits sucrose into simpler sugars that the body can absorb. An enzyme is a protein that helps a chemical process happen. When there is too little working sucrase, undigested sucrose passes farther through the intestine.

The undigested sugar draws water into the bowel and is fermented by bacteria. This can cause diarrhea, gas, bloating, and abdominal pain after foods containing sucrose.

Some people are born with low sucrase activity because of changes in the SI gene. This is

called congenital sucrase-isomaltase deficiency, or CSID. Isomaltase is another part of the same digestive enzyme and helps break down parts of starch.

Other people develop reduced sucrase activity after illness or inflammation damages the lining of the small intestine. This is called secondary or acquired sucrase deficiency. It may improve if the intestinal lining heals.

Symptoms can resemble lactose intolerance, irritable bowel syndrome, celiac disease, or other digestive conditions. Symptoms alone cannot show which condition is responsible.

Symptoms

Symptoms usually occur after eating or drinking sucrose. The amount that triggers symptoms differs from person to person. Starch may also cause problems in congenital sucrase-isomaltase deficiency because the affected enzyme helps digest some starch products.

Possible symptoms include:

In congenital cases, symptoms often begin during infancy after sucrose- or starch-containing foods are introduced. Breast milk does not contain sucrose, so a breastfed baby may not have symptoms until the diet changes. The timing is not the same for every child.

Some adults have had unexplained digestive symptoms for years before the problem is recognized. Others have milder enzyme deficiency and notice symptoms only after a large amount of sucrose or certain starches.

The symptoms are not specific to sucrose intolerance. Frequent diarrhea, pain, or weight loss needs medical assessment rather than self-diagnosis or long-term food restriction.

- Watery or loose diarrhea
- Bloating or visible abdominal swelling
- Excess gas
- Cramping or abdominal pain
- Nausea
- Urgency to have a bowel movement
- Poor weight gain or slowed growth in children
- Weight loss when symptoms are persistent

Causes and risk factors

Congenital sucrase-isomaltase deficiency is caused by changes in the SI gene. This gene provides instructions for making the sucrase-isomaltase enzyme in the lining of the small intestine.

Classic congenital deficiency follows an autosomal recessive inheritance pattern. This usually means a person has inherited a disease-causing gene change from each parent. The amount of enzyme activity can differ depending on the gene changes involved, so symptoms range from mild to more limiting.

A family history of confirmed congenital sucrase-isomaltase deficiency raises the chance of having it. However, no known family history does not rule it out.

Secondary sucrase deficiency happens when the surface of the small intestine is damaged. Sucrase sits near the tips of tiny projections called villi, so its activity may decrease when this lining is injured. Possible causes include celiac disease, Crohn's disease, intestinal infections, and other conditions affecting the small bowel.

In secondary deficiency, sucrose intolerance is a result of the underlying intestinal problem rather than an inherited inability to make a working enzyme. Whether it improves depends on whether the intestinal lining recovers.

Diagnosis

A clinician will usually begin by asking which foods seem to trigger symptoms, how quickly symptoms appear, and whether there has been diarrhea, weight loss, or poor growth. A food and symptom record may help identify patterns, but it cannot confirm sucrose intolerance by itself.

The traditional confirmatory test measures digestive enzymes in small samples of the intestinal lining. These samples are taken during an upper endoscopy, in which a flexible camera is passed through the mouth while the person is sedated. A laboratory measures sucrase and other disaccharidases, which are enzymes that digest specific sugars.

Specialized breath tests offer a non-surgical option in some centres. After a measured sucrose drink, the test examines substances in the breath that reflect sucrose digestion or bacterial fermentation. Test availability and accuracy depend on the method used. Symptoms during a home "sucrose challenge" are not a safe or reliable substitute for formal testing.

Genetic testing can identify some SI gene changes and may support a diagnosis of congenital deficiency. A negative result may not exclude the condition because testing may not detect every relevant change.

Testing may also be needed for other causes of similar symptoms, such as celiac disease, intestinal inflammation, infection, or lactose intolerance. This is particularly important when symptoms began suddenly, occur without an obvious link to sucrose, or include bleeding or weight loss.

Treatment and management

Management aims to reduce symptoms while keeping the diet nutritionally complete. It should reflect how much sucrose and starch you can tolerate rather than removing more foods than necessary.

A temporary reduction in sucrose may help establish whether symptoms improve. Some people with congenital deficiency also need to adjust certain starches. Complete avoidance is not always required, and tolerance may differ between foods and portion sizes.

Sucrose appears in more than sweets. It may be present in sweetened drinks, breakfast cereals, flavoured dairy products, sauces, dressings, baked goods, medicines, and nutritional supplements. On ingredient lists, the words "sucrose" and "sugar" are especially relevant. Other sugars are not automatically the same as sucrose, although they may cause symptoms for separate reasons.

A dietitian familiar with digestive enzyme disorders can help prevent unnecessary restriction. This is especially important for infants, children, pregnant people, and anyone losing weight. Fruit, vegetables, grains, and dairy products provide valuable nutrients, so broad food-group exclusions should not be started without a clear plan.

Sacrosidase is an oral enzyme replacement that helps break down sucrose. It is approved for sucrase deficiency that is part of genetically determined congenital sucrase-isomaltase deficiency. It does not replace the isomaltase part of the enzyme, so it may not prevent symptoms caused by starch. It must be used according to its prescribing instructions and a clinician's guidance.

For secondary sucrose intolerance, treatment focuses on the condition damaging the small intestine. Sucrose digestion may improve as the lining heals. Dietary adjustment can help control symptoms during recovery.

Complications

Ongoing diarrhea can lead to dehydration and loss of salts needed for normal body function. Infants and young children can become dehydrated more quickly than adults.

When symptoms repeatedly interfere with eating, possible longer-term effects include poor weight gain, slowed growth, weight loss, and inadequate intake of vitamins, minerals, energy, or protein.

An overly restrictive diet can create its own problems. Avoiding many fruits, vegetables, grains, or prepared foods without suitable replacements may reduce fibre and nutrient intake. Fear of symptoms can also make meals, school, work, and social events more difficult.

Congenital sucrase-isomaltase deficiency does not usually damage the bowel simply because sucrose has been eaten. The main concerns are symptoms and their effects on hydration, nutrition, growth, and quality of life.

Prevention

Inherited sucrose intolerance cannot currently be prevented. It results from gene changes present from birth and is not caused by eating too much sugar.

Secondary sucrase deficiency cannot always be prevented either. Prompt assessment and treatment of an underlying small-intestinal condition may allow the intestinal lining and enzyme activity to recover.

Once the condition is recognized, planning food choices and using prescribed enzyme replacement when appropriate can help prevent repeated symptoms, dehydration, and nutritional problems.

Living with it and what to expect

Congenital sucrase-isomaltase deficiency is usually lifelong. Enzyme activity does not generally return with age, but symptoms and practical food limits can change. Many people learn which foods and portion sizes they tolerate and maintain a varied diet with planning.

Young children may need closer monitoring because diarrhea can affect hydration and growth. As children become older, they can gradually learn to recognize symptoms, read food labels, and explain their needs at school or social events.

Secondary sucrose intolerance may be temporary. Improvement can take time and is linked to healing of the underlying intestinal condition. Follow-up may involve reviewing symptoms, growth or weight, nutrition, and whether restricted foods can be reintroduced.

Routine follow-up is appropriate if symptoms continue despite dietary changes, treatment becomes difficult to follow, or the diet is becoming increasingly limited. A clinician or dietitian

can reassess the diagnosis and look for nutritional gaps or another digestive condition.

Most people with a confirmed diagnosis can attend school, work, travel, exercise, and eat socially. This may require planning for meals, checking ingredients, and carrying prescribed enzyme replacement when applicable. The exact level of restriction cannot be predicted from the diagnosis alone.

When to get medical help

Arrange a routine medical appointment if you or your child has repeated diarrhea, bloating, or pain after sugary or starchy foods. Assessment is also important for unexplained weight loss, poor growth, symptoms that wake you from sleep, or a need to avoid many foods.

Seek prompt medical advice if diarrhea is persistent, you cannot maintain normal fluid intake, or signs of dehydration are developing. These may include a dry mouth, much less urination, unusual tiredness, dizziness, or no tears when a child cries.

Get urgent or emergency help for:

These findings are not typical signs of uncomplicated sucrose intolerance and may indicate severe dehydration or another condition needing urgent assessment.

- Fainting, confusion, or difficulty waking
- Very little or no urine with ongoing diarrhea
- Inability to keep fluids down
- Severe or rapidly worsening abdominal pain
- Blood or black material in the stool

Common questions

Is sucrose intolerance the same as a sugar allergy?

No. It is a problem digesting sucrose, not an immune reaction to it. Symptoms mainly involve the digestive system. A true food allergy can cause hives, swelling, wheezing, or breathing difficulty and requires a different assessment.

Is sucrose intolerance the same as lactose intolerance?

No. Sucrose is table sugar, while lactose is the natural sugar in milk. They require different digestive enzymes. Their symptoms can look similar, and a person may have one, both, or neither.

What foods contain sucrose?

Common sources include table sugar, sweets, baked goods, sweetened drinks, some cereals, sauces, and dressings. Sucrose also occurs naturally in many fruits and vegetables. Whether a food causes symptoms depends on its sucrose content, portion size, and your remaining enzyme activity.

Can sucrose intolerance start in adulthood?

Yes. A mild inherited deficiency may not be recognized until adulthood. Sucrase activity can also fall after a condition damages the small-intestinal lining. New adult symptoms should be assessed because several digestive conditions can look alike.

Can I still eat fruit?

Often, yes, but tolerance is individual. Fruits contain different amounts and combinations of sugars, and portion size matters. Avoiding all fruit may remove useful fibre, vitamins, and minerals, so a dietitian can help identify tolerated choices.

Will cutting out sugar confirm the diagnosis?

No. Improvement after reducing sugar can provide useful information, but it does not prove sucrase deficiency. Several digestive conditions improve when particular foods are removed, and formal testing may be needed to find the cause.

Sources

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