

understanding
**FOOD ALLERGIES
& INTOLERANCES**

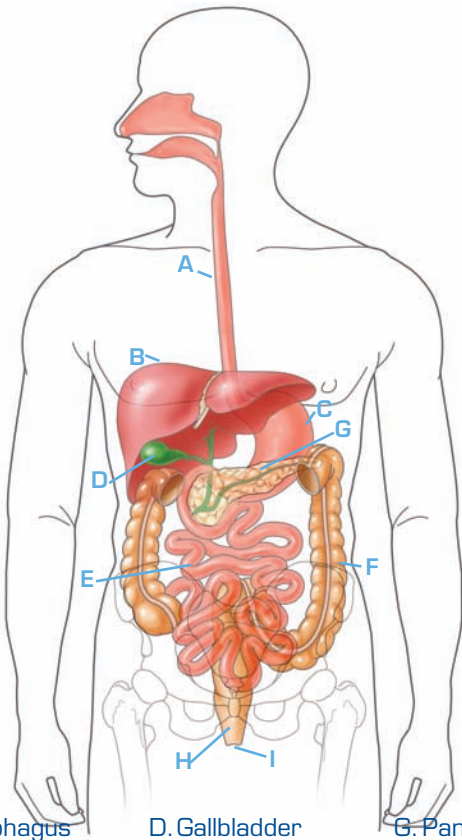
A patient's guide from your doctor and



Food Intolerance Basics

- Many people think they have food allergies, but may have food intolerance.
- The most common food intolerances are to:
 - Wheat and other gluten-containing grains.
 - Sugar found in fruits and honey.
 - Cow's milk and dairy products.
 - Corn products.
- It is important to work with your doctor if you think you have a food allergy or intolerance before omitting foods from your diet.
- Tests are available to identify if you have a food intolerance or allergy.

Your Digestive System



A. Esophagus

B. Liver

C. Stomach

D. Gallbladder

E. Small Intestine

F. Large Intestine

G. Pancreas

H. Rectum

I. Anus



To help you understand and manage your condition, the AGA Institute provides you with the following information, designed to give you some basic facts, to help you better understand your condition and to serve as a starting point for discussions with your doctor.

If you have an unpleasant reaction to something you have eaten, you may wonder if you have a food allergy.

Food allergy is an abnormal response to a food triggered by the body's immune system. Allergic reactions to food can cause serious illness and, in some cases, death. Sometimes, a reaction to food is not an allergy at all but rather another type of reaction called "food intolerance."

Food intolerance is more common than food allergy. The immune system does not cause the symptoms of food intolerance, though these symptoms can look and feel like those of food allergy.



Lactose Intolerance

Lactose intolerance is the inability to digest significant amounts of lactose, which is the predominant sugar of milk. Close to 50 million American adults are lactose intolerant.

Causes of Lactose Intolerance

Lactose intolerance results from a shortage of the enzyme lactase, which is normally produced by the cells that line the small intestine. Lactase breaks down milk sugar into simpler forms that can then be absorbed into the blood stream.

For most people, lactase deficiency is a condition that develops naturally, over time. After about the age of two years, the body begins to produce less lactase. The reasons for this are unclear and still under study. However, symptoms may occur years after childhood.

Common Symptoms Include:

- ▶ Nausea
- ▶ Cramps
- ▶ Bloating
- ▶ Gas
- ▶ Diarrhea

Symptoms begin about 30 minutes to two hours after eating or drinking foods containing lactose. The severity of symptoms varies depending on the amount of lactose each individual can tolerate.

Tests Used to Detect Lactose Intolerance

Lactose intolerance can be hard to diagnose based on symptoms alone. People sometimes think they suffer from lactose intolerance because they have symptoms associated with the disorder, not knowing that other conditions, such as irritable bowel syndrome, can cause similar symptoms.

Noting your body's response to lactose restriction may be sufficient to diagnose lactose intolerance. A gastroenterologist can also use tests to determine if you're lactose intolerant:

- ▶ **Lactose tolerance test:** Given to older children as well as adults. Before the test, patients fast (do not eat) and blood is drawn to measure the fasting blood glucose (blood sugar) level. Patients then drink a large amount of a liquid that contains lactose. Blood samples are taken over a two-hour period to determine glucose levels, which tell how well the body is able to digest lactose.
- ▶ **Hydrogen breath test:** Measures the amount of hydrogen in the breath. Normally, very little hydrogen is detectable in the breath. However, undigested lactose leads to the formation of various gases, including hydrogen, by bacteria in the colon. The hydrogen is absorbed from the intestines, carried through the bloodstream to the lungs and exhaled. In the test, the patient drinks a lactose-loaded beverage, and the breath is analyzed at regular intervals. Hydrogen in the breath means improper digestion of lactose. Certain foods, medications, and smoking can affect the test's accuracy and may need to be avoided before the test.

Tests for Infants and Young Children

The lactose tolerance and hydrogen breath tests are not given to infants and young children because giving these patients a lactose load can result in diarrhea, which can cause dehydration.

- ▶ **Stool acidity test:** This test, which measures the amount of acid in the stool, presents no risk to young children. Undigested lactose fermented by colon bacteria creates acids that can be detected in a stool sample. In addition, glucose may be present in the sample as a result of unabsorbable lactose in the colon.

Controlling Symptoms

No known way exists to increase the amount of lactase enzyme the body can make, but symptoms can be controlled through diet.

Small children born with lactase deficiency should not be fed any foods containing lactose. Most older children and adults do not need to avoid lactose completely, but individuals differ in the amounts of lactose they can handle.

Dietary control of the problem depends on each person's knowing, through trial and error, how much milk sugar and what forms of it your body can handle.

Products to control symptoms include:

- ▶ **Lactase tablets:** Help people digest solid foods that contain lactose; one to three tablets are taken just before a meal or snack.
- ▶ **Lactase enzyme:** Liquid for use with milk; adding a few drops to milk reduces the amount of lactose in the milk.
- ▶ **Lactose-free milk and other products:** Available at most supermarkets; the milk contains all of the other nutrients found in regular milk and remains fresh for about the same length of time.

A Nutrition Balancing Act

Milk and other dairy products are a major source of nutrients in the basic American diet. The most important of these nutrients is calcium. Calcium is needed for the growth and repair of bones throughout life.

U.S. Government Recommendations for Daily Calcium Intake

Male & Female Age	Calcium (mg/day)
0 to 6 months	400
7 to 12 months	600
1 to 5 years	800
6 to 10 years	1200
11 to 24 years	1200-1500
19 to 50 years	1000
51+ years	1500

It is important in meal planning to make sure that each day's diet includes enough calcium, even if the diet does not contain dairy products. Quite a few foods are high in calcium but do not contain lactose, including:

- ▶ Soy milk (1 cup: 200-300 mg calcium).
- ▶ Sardines, with edible bones (3 oz: 270 mg calcium).
- ▶ Salmon, canned with edible bones (3 oz: 205 mg calcium).
- ▶ Broccoli (1 cup: 90 mg calcium).
- ▶ Oranges (1 medium: 50 mg calcium).
- ▶ Pinto beans (1/2 cup: 40 mg calcium).
- ▶ Tuna, canned (3 oz: 10 mg calcium).
- ▶ Lettuce greens (1/2 cup: 10 mg calcium).

The following dairy products are high in calcium and low in lactose:

- ▶ Plain, low fat yogurt (1 cup: 415 mg calcium, 5 g lactose).
- ▶ Reduced fat milk (1 cup: 295 mg calcium, 11 g lactose).
- ▶ Swiss cheese (1 oz: 279 mg calcium, 1 g lactose).
- ▶ Ice cream (1/2 cup: 85 mg calcium, 6 g lactose).
- ▶ Cottage cheese (1/2 cup: 75 mg calcium, 2-3 g lactose).

Adapted from *Manual of Clinical Dietetics*, 6th ed. American Dietetic Association, 2000; and *Soy Dairy Alternatives*.

Calcium is absorbed and used only when there is enough vitamin D in the body. A balanced diet should provide an adequate supply of vitamin D from sources such as eggs and liver. Sunlight also helps the body naturally absorb vitamin D.

If you suspect that you're not getting enough calcium or vitamin D in your diet, talk with your doctor before taking dietary supplements.

Watch for Hidden Lactose

Although milk and foods made from milk are the only noteworthy natural sources, lactose is often added to prepared foods. It is important for people with very low tolerance for lactose to know about the many foods that contain lactose, even in small amounts, including:

- ▶ Bread and other baked goods.
- ▶ Processed breakfast cereals.
- ▶ Instant potatoes, soups and breakfast drinks.
- ▶ Margarine.
- ▶ Lunch meats (other than kosher).
- ▶ Salad dressings.
- ▶ Candies and other snacks.
- ▶ Mixes for pancakes, biscuits and cookies.
- ▶ Powdered meal-replacement supplements.

Some “nondairy” products, such as powdered coffee creamer and whipped topping, may include ingredients that are derived from milk and therefore contain lactose. It is important to read the food label.

Read Food Labels

Learn to recognize the following ingredients that may contain lactose:

- | | |
|-------------------|---------------------------|
| ▶ Milk | ▶ Lactose |
| ▶ Whey | ▶ Milk by-products |
| ▶ Dry milk solids | ▶ Non-fat dry milk powder |

In addition, lactose is used as the base for more than 20 percent of prescription drugs and about 6 percent of over-the-counter medicines. Many types of birth control pills contain lactose, as do some tablets for stomach acid and gas. A pharmacist can answer questions about the amounts of lactose in various medicines.



Fructose Intolerance

Fructose is naturally present in fruits, some vegetables and honey. It is also used as a sweetener in some soft drinks and fruit drinks. When the body doesn't absorb fructose properly, it is called fructose malabsorption or fructose intolerance. This is a common condition and different from hereditary fructose intolerance, which is a rare, genetic and sometimes fatal disorder affecting the liver.



Causes of Fructose Intolerance

Fructose malabsorption occurs when the body is not able to break down fructose during the digestive process. When undigested fructose reaches the intestines, it reacts with naturally occurring bacteria and generates carbon dioxide and hydrogen gases, which can cause bloating, abdominal pain, heartburn, diarrhea and gas.

Diagnosing Fructose Intolerance

The symptoms of fructose intolerance are commonly mistaken for other food intolerances or allergies. By eliminating suspect foods and keeping a diary of your body's reaction when foods are reintroduced, you can start to identify a possible intolerance. It is important to recognize that high-fructose corn sweetener is commonly added to prepared foods and is present in high concentrations in non-diet soft drinks and most fruit juices. To confirm fructose intolerance, your doctor can order a breath test that checks for hydrogen. When hydrogen is detected within one hour after eating a food containing fructose, the person is regarded as being fructose intolerant.

People who have irritable bowel syndrome may find that fructose increases their uncomfortable symptoms.

Treating Fructose Intolerance

Avoiding fructose and eating a low-sugar diet is the best way to prevent the uncomfortable symptoms associated with fructose intolerance. However, many people with fructose intolerance can eat some amount of fructose without problems. By keeping a food diary, you can determine how much fructose is too much for you.

Limit intake of:

- ▶ Fruit, fruit juices and dried fruit.
- ▶ Honey.
- ▶ Sodas and other beverages containing high fructose corn syrup.
- ▶ Alcohol.

Allergy or Intolerance?

If you believe you have a food allergy, keep a diary of all the food you eat to identify what might cause reactions. The intensity of your reaction can help determine whether you are having an allergic reaction or experiencing food intolerance.

An allergic reaction to food can take place within a few minutes to an hour. Reactions can begin with itching in the mouth, progress to vomiting, diarrhea and abdominal pain, and even lead to a drop in blood pressure, asthma and skin reactions such as hives or eczema.

Physicians can perform skin and blood tests to identify allergies. Food allergies are best treated by avoiding foods that trigger a reaction.

Many people think they have food allergies. In reality most people's symptoms are caused by intolerances to foods such as:

- ▶ Wheat and other gluten-containing grains (celiac disease).
- ▶ Sugar found in fruits and honey (fructose intolerance).
- ▶ Cow's milk and dairy products (lactose intolerance).
- ▶ Corn products.

Celiac Disease

Celiac disease occurs in the digestive system when people cannot tolerate a protein called gluten. Gluten is found primarily in wheat, barley and rye, but may also be in products you use every day, including some medicines and vitamins and even in stamp and envelope glue.

Celiac disease causes your immune system to damage the lining of the small intestine, the section of your gastrointestinal tract between the stomach and the large intestine.

If you change your habits and adopt a gluten-free lifestyle, you can reverse the damage associated with celiac disease.

To learn more about celiac disease, read the AGA Institute brochure on that topic in your gastroenterologist's office or visit www.gastro.org/patient.



Go to www.gastro.org/patient for more information on digestive health and tests performed by gastroenterologists and to find an AGA member physician in your area.

The American Gastroenterological Association (AGA) is dedicated to the mission of advancing the science and practice of gastroenterology. Founded in 1897, the AGA is one of the oldest medical-specialty societies in the U.S. Our 16,000 members include physicians and scientists who research, diagnose and treat disorders of the gastrointestinal tract and liver. The AGA Institute runs the organization's practice, research and educational programs.

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The Digestive Health Initiative® (DHI) is an AGA Institute initiative that offers educational programs on digestive disorders for individuals who are affected by a digestive disease, in an effort to educate the larger health-care community.

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For more information about digestive diseases,
please visit the AGA Web site at www.gastro.org.

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