Lactose Intolerance

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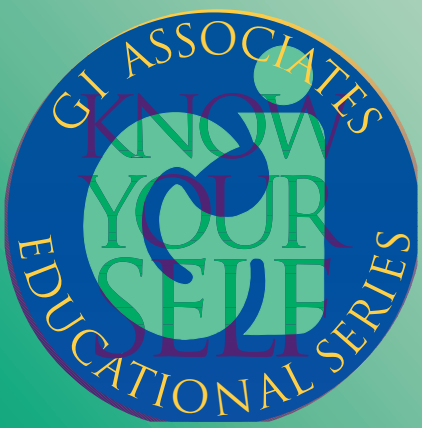

When milk becomes a problem: Lactose Intolerance

What is it?

Normally, the body is able to digest lactose by producing an enzyme called *lactase*. Lactase is naturally produced in the body by the absorptive cells in the small intestine.

Lactose intolerance is simply the inability to digest lactose, which is a complex, natural sugar found in milk and milk products.

When the enzyme lactase acts on the sugar lactose, lactose is broken down to a more simple sugar that can be absored into the bloodstream and used by the body.

When the body does not produce enough of the enzyme, the lactose cannot be digested properly.

Most infants and children have enough of the lactase enzyme to digest milk, which is very important to normal growth and development. But, as we age, there is a *natural reduction* in the amount of lactase produced by the body. When the body stops producing lactase or does not produce enough, the condition is known as *lactase deficiency*.

Who is affected?

Even though milk and milk products are a prime source of calcium and many other essential vitamins and minerals, those very products can cause discomfort for a large group of people.

Lactose intolerance affects an estimated 30 to 50 million Americans, or as much as 75% of the adult population. As many as 90% of Asian-Americans are said to be lactose intolerant. Persons who are African-American, Jewish, Native American and Mexican-American are also more prone to the problem. Persons of northern European descent are least likely to develop the problem.

What causes lactose intolerance?

- Having an inadequate amount of lactase may be *temporary* or *permanent*.
- Sometimes the deficiency of lactase can be a natural result of aging.

Other causes include:

- certain intestinal infections
- gastric surgery
- taking some medications (for example: antibiotics and some anti-inflammatory drugs used to treat arthritis)
- rarely, a person is born without the ability to produce lactase

What are the symptoms of lactose intolerance?

The degree of symptoms felt from lactose intolerance is a matter of the amount of lactase deficiency (whether a person is completely or partially deficient) and the amount of lactose-containing food eaten (whether or not a person eats a lot or a small amount of lactose-containing foods).

The body may produce *some* or *no* lactase. Depending on the level of deficiency, digestion of lactose will be impaired to a lesser or greater degree. Therefore, symptoms may range from mild discomfort to major discomfort.

The severity of the symptoms depends also on the amount and type of food eaten. For instance, if you are lactase deficient, the more lactose you take in, the worse symptoms will be.

Symptoms occur after eating any lactose-laden food that cannot be digested well. Discomfort usually begins 30 minutes to two hours after eating, but may be delayed as long as eight hours after eating.

The most common symptoms are:

- Gas
- Bloating
- Nausea
- Diarrhea
- Abdominal Pain

Remember: Even though lactose intolerance may seem easy to diagnose, there are other, more severe illnesses that have similar symptoms. Anytime there is a change in your particular digestive processes, it should be checked out by your doctor, to make sure you do not have a more serious illness.

Is lactose intolerance serious?

Even though it is a widespread and uncomfortable problem, lactose intolerance does not generally pose a serious threat to health. The average patient, once diagnosed, can learn to modify the diet, use specific products designed to help digest milk, and usually eliminate the discomfort associated with the condition.

How is lactose intolerance diagnosed?

People who have a deficiency of lactase often notice on their own that they have problems after eating or drinking dairy products. As symptoms grow worse, they often see a doctor for diagnosis.

A thorough history and physical exam help diagnose lactose intolerance. Diagnostic tests also may be used and are usually done as an outpatient at a clinic or hospital.

☑ Hydrogen breath test

Normally, no hydrogen is present in air that we exhale. But, undigested lactose turns into hydrogen gas in those people who are lactase deficient.

Patients are given a lactose-containing drink, then their breath is measured for hydrogen afterwards. People who have hydrogen in their breath have a lactase deficiency.

Some foods, some medications and tobacco smoking can affect this test, so patients need to avoid those before the test.

☑ Lactose tolerance test

A patient must go without food for a given time before this test. A lactose tolerance test involves drawing blood and checking it for fasting blood glucose (blood sugar) level. Then, the patient is given a small amount of liquid to drink that contains lactose. Blood samples are then drawn over a 2-hour period to check glucose levels. Results indicate how well the body is able to digest lactose and turn it into sugar (glucose) that can be used by the body.

The lactose tolerance test and the hydrogen breath test cannot be done on infants and children, because the lactose-containing drink can cause severe symptoms for little ones.

☑ Stool acidity test

The stool acidity test involves measuring the amount of acid in a stool sample. This test is useful for children and infants as well as adults. Undigested lactose creates more acid (and sometimes, glucose) in the stool, so the amount of acid present can indicate lactase deficiency.

How is lactose intolerance treated?

There is no known way to *increase* the production of lactase in the body, so symptoms of lactose intolerance are usually treated by controlling diet.

It's a matter of degree. Successful treatment of lactose intolerance depends on finding out, through trial and error, how much lactose and what forms of it your body can handle.

Children who have been born with lactase deficiency must not be fed any foods that contain lactose. Generally speaking, older children and adults usually can handle some lactose.

Treatment of lactose intolerance usually begins with a trial diet that restricts lactose-containing foods. When symptoms have improved, the physician may suggest adding some of the foods back into the diet, one by one, to determine what the patient's tolerance level is. Careful food choices are very important during the treatment process. Patients with lactose intolerance must be smart shoppers. They should learn to read labels well to check ingredient lists for sources of lactose.

Diet changes

• **Avoid milk and milk products such as ice cream, butter and cheese.**

• **Avoid food items that contain lactose.** Avoid any foods that list the following as an ingredient: milk, whey, curds, caseinate, lactoglobulin, or milk by-products.

• **Avoid certain medications.** About 20% of prescription drugs and 6% of over-the-counter drugs use lactose as a base ingredient. For example, many birth control pills contain lactose, as do some medications for stomach acid/gas. *Ask your pharmacist when in doubt!*

• **Look for "hidden" sources of lactose.** Living with lactose intolerance means being a smart consumer; there are many "hidden" sources of lactose that are not the obvious dairy products. Examples of some foods that may have hidden sources of lactose are:

- sauces
- dried mixes (cakes, pancakes, biscuits, cookies, etc.)
- candies
- processed sandwich meats
- bread & other baked goods
- processed breakfast cereals
- instant potatoes
- soups
- breakfast drinks
- margarine
- lunch meats
- salad dressings

Lactase additives

Over-the-counter (non-prescription) products are available that contain lactase, the enzyme needed to digest lactose, so patients may be advised to use such a product when beginning to allow lactose-containing food back into the diet. Some of those products are *Lactain, Lactrase, Dairy Ease* and *Sure-lac*. Some are in liquid form and can be added to milk to reduce lactose content. Others may be taken by mouth in tablet or granule form and help people digest foods that contain lactose.

Many supermarkets stock milk that has been processed to be lactose-free. It often costs more than ordinary milk.

Getting enough calcium

Dairy products are the main source of calcium, which is essential for good health. Having enough calcium in the diet helps prevent osteoporosis, which causes bones to become thin, brittle and easily broken. Calcium also, has many other important functions in the body, including healthy functioning of each cell in your body!

Again, wise food choices are a must!

Those who are lactose intolerant must be aware that even though lactose-containing foods must be restricted for a time, the body will still need adequate supplies of the vitamins and minerals (especially calcium) typically found in dairy products. Again, wise food choices are a must! Calcium, as well as other nutrients in dairy products, may also be found in other foods, so good nutrition can still be maintained, when foods are chosen with care. In some cases, you may be advised to take a calcium supplement to make sure you get the needed amount of calcium. Most calcium supplements do not contain lactose, but read the ingredient list or ask your pharmacist to make sure.

How much calcium to you need?

According to the *National Institutes of Health*, the recommendations for daily calcium intake (in milligrams* or mg.) are:

Age in years	Men	Women
11-24	1,200-1,500	1,200-1,500
25-49	1,000	1,000 (pre-menopausal)
50-64	1,000	1,000 (post-menopausal & taking estrogen) 1,500 (post-menopausal, not taking estrogen)
65+	1,500	1,500

*1,000 milligrams (mg.) = 1 gram (g.)

By knowing how much calcium you need, you can eat the best foods to supply your needs.

The following chart helps to understand which foods to avoid: those with high lactose content. Also, you can see which foods are low in lactase, but high in calcium. Eat more of those!

Calcium and Lactose in Common Foods

Vegetables	Calcium Content	Lactose Content
Broccoli pieces (1 cup, cooked)	94-177 mg.	0
Chinese cabbage/bok choy (1 cup, cooked)	158 mg.	0
Collard greens (1 cup, cooked)	148-357 mg.	0
Kale (1 cup, cooked)	94-179 mg.	0
Turnip greens (1 cup, cooked)	194-249 mg.	0

Dairy Products	Calcium Content	Lactose Content
Ice cream/ice milk (8 oz.)	176 mg.	6-7g
Milk (whole, low-fat, skim, buttermilk, 8 oz.)	291-316 mg.	12-13g
Processed cheese (1 oz.)	159-215 mg.	12-13g
Sour cream (4 oz.)	134 mg.	4-5g
Yogurt (plain, 8 oz.)	274-415 mg.	12-13g
Fish/Seafood	**Calcium Content**	**Lactose Content**
Oysters (1 cup, raw)	226 mg.	0
Salmon with bones (canned, 3 oz.)	167 mg.	0
Sardines (3 oz.)	371 mg.	0
Shrimp (canned, 3 oz.)	98 mg.	0
Other	**Calcium Content**	**Lactose Content**
Molasses (2 tbsp.)	274 mg.	0
Tofu (processed with milk salts, 3 oz.)	225 mg.	0

Read Labels! Remember, you can always find out how much calcium is in a particular food by looking at it's label. You can also find out whether or not it contains lactose by reading the label and looking for ingredients such as milk, milk by-products, milk solids, non-fat dry milk powder, whey, curds, caseinate, or lactoglobulin.

In Summary...

Even though lactose intolerance is a widespread and uncomfortable problem, it is not generally a major threat to your good health! Working with your gastroenterologist, a treatment plan will be developed to keep your symptoms to a minimum. And, many patients will be able to enjoy dairy products again at a later point in time.