LACTOSE INTOLERANCE FACT SHEET FOR CHILD NUTRITION PROFESSIONALS

INTRODUCTION

Lactose, or milk sugar, is the primary carbohydrate in milk. Since milk is an important source of the calcium and other essential nutrients every child needs for growth, Child nutrition professionals should work with children diagnosed with lactose intolerance and their parents to implement strategies to improve their tolerance of dairy foods or to find alternative sources of calcium when necessary.

WHAT IS LACTOSE INTOLERANCE?

Lactose intolerance is the body's inability to produce enough of the enzyme lactase needed to break down lactose so that it may be absorbed in the intestinal tract. Lactase is produced in the small intestine. Infants have an abundant supply of lactase. However, in some people, lactase levels decline as they age. This decline in lactase is called lactase non-persistence. Not everyone who has declining levels of lactase has lactose intolerance symptoms. Whether or not a person has symptoms depends on the level of lactase enzyme present and the amount of lactose consumed. If the levels of lactase are not sufficient for the amount of lactose consumed, the undigested lactose travels to the colon where intestinal bacteria feed on the undigested lactose-producing gas and the gastrointestinal symptoms associated with lactose intolerance.

DIETARY MODIFICATIONS FOR LACTOSE INTOLERANCE

Studies have shown that most people who have low levels of lactase can consume one cup of milk with a meal, or up to two cups of milk per day, without experiencing symptoms of lactose intolerance. In fact, drinking some milk on a daily basis, even if it is a small amount, may improve tolerance to lactose. Cheese is usually tolerated because it contains little or no lactose. Only a small amount of lactose is present in the milk curd used for making cheese. Aged cheeses are made with bacteria or molds that further decrease the lactose level during the ripening process. Examples of aged cheeses are Parmesan, cheddar, gouda, and Monterey Jack.

Yogurt may also be well tolerated, especially if it contains live and active cultures. Yogurt cultures digest lactose within the gastrointestinal tract after it is eaten. If milk solids are listed on the label, then the yogurt will contain additional lactose.

Lactose-reduced milk may also be an option. Children may like the slightly sweeter taste. Calcium-fortified orange juice and soy beverages are other sources of calcium, but these foods do not have the same nutrients as dairy foods. Soy beverages are fortified with calcium. Generally, the calcium in fortified soy beverages is absorbed 25% less efficiently than it is from milk.

Children diagnosed with lactose intolerance should be encouraged to eat cheese, yogurt, and small amounts of milk with meals as tolerated and as allowed by the diet prescription from the physician.

LACTOSE INTOLERANCE OR MILK ALLERGY

Lactose intolerance and a milk allergy are not the same. Symptoms of lactose intolerance are limited to the stomach and intestines, while symptoms of a milk allergy involve the immune system.
Lactose intolerance tends to develop later in childhood or in adolescence and will not be outgrown. Lactose is found primarily in milk or other dairy products. The lactose contained in other foods is usually present in small enough amounts to not cause symptoms. Therefore, checking labels on other foods is rarely necessary in the management of lactose intolerance.

With a milk allergy, the immune system reacts inappropriately to the protein in milk, whereas, with lactose intolerance, the body is unable to completely digest the lactose, or milk sugar. Most milk allergy begins in infancy and is outgrown by 3-4 years of age. Children who are allergic to cow's milk may or may not be allergic to soy beverages. A child with a true milk allergy must eliminate all dairy foods from the diet, since they all contain some dairy protein. Eliminating dairy foods increases the possibility that the allergy will be outgrown. Child nutrition professionals should check all food labels if a child in their care has a milk allergy.

Symptoms of lactose intolerance:

- Gas
- Abdominal pain or cramping
- Nausea
- Diarrhea

Symptoms of milk allergy:

- Itchy, red rash
- Eczema
- Hives
- Swelling of the lips, mouth, tongue, face, or throat
- Abdominal pain or cramping
- Gas
- Diarrhea
- Vomiting
- Wheezing

**GOOD COMMUNICATION IS KEY**

Talk with the child and the parents to learn what milk products and how much of these products are tolerated and what other sources of calcium are being consumed at home. Document this information to help staff remember what a child may and may not be served - especially since it may vary from one child to another. Keep all diet prescriptions on file along with all other diet-related documentation. Be sure that your staff, including new staff, is kept informed.

The calcium and lactose contained in foods and beverages may vary slightly with the brand and fat content of the milk. The following table is a good general guide.
### Calcium and Lactose in Common Foods

<table>
<thead>
<tr>
<th>Vegetables</th>
<th>Calcium Content</th>
<th>Lactose Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium-fortified orange juice, 1 cup</td>
<td>308-344 mg</td>
<td>0</td>
</tr>
<tr>
<td>Sardines, with edible bones, 3 oz.</td>
<td>270 mg</td>
<td>0</td>
</tr>
<tr>
<td>Salmon, canned, with edible bones, 3 oz.</td>
<td>205 mg</td>
<td>0</td>
</tr>
<tr>
<td>Soymilk, fortified, 1 cup</td>
<td>200 mg</td>
<td>0</td>
</tr>
<tr>
<td>Broccoli (raw), 1 cup</td>
<td>90 mg</td>
<td>0</td>
</tr>
<tr>
<td>Orange, 1 medium</td>
<td>50 mg</td>
<td>0</td>
</tr>
<tr>
<td>Pinto beans, 1/2 cup</td>
<td>40 mg</td>
<td>0</td>
</tr>
<tr>
<td>Tuna, canned, 3 oz.</td>
<td>10 mg</td>
<td>0</td>
</tr>
<tr>
<td>Lettuce greens, 1/2 cup</td>
<td>10 mg</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dairy Products</th>
<th>Calcium Content</th>
<th>Lactose Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yogurt, plain, low-fat, 1 cup</td>
<td>415 mg</td>
<td>5 g</td>
</tr>
<tr>
<td>Milk, reduced fat, 1 cup</td>
<td>295 mg</td>
<td>11 g</td>
</tr>
<tr>
<td>Swiss cheese, 1 oz.</td>
<td>270 mg</td>
<td>1 g</td>
</tr>
<tr>
<td>Ice cream, 1/2 cup</td>
<td>85 mg</td>
<td>6 g</td>
</tr>
<tr>
<td>Cottage cheese, 1/2 cup</td>
<td>75 mg</td>
<td>2-3 g</td>
</tr>
</tbody>
</table>


### KEY POINTS

- Child Nutrition Professionals should help to insure that children meet their calcium needs each day to reduce future risk of osteoporosis.
- Children who are lactose intolerant may be able to consume small or moderate portions of milk with a meal without experiencing symptoms.
- Children who are lactose intolerant may be able to consume other dairy products, such as cheese and yogurt without experiencing symptoms.
- Lactose intolerance and milk allergy are not the same.
- Keep good documentation.
- Train staff on any needed dietary modifications.
RESOURCES


Zukin J. *The newsletter for people with lactose intolerance and milk allergy*. Commercial Writing Service, P. O. Box 3074, Iowa City, Iowa 52244.

ORGANIZATIONS

American Academy of Pediatrics
141 Northwest Point Boulevard
Elk Grove Village, IL 60007-1098
http://www.aap.org/

American College of Allergy, Asthma & Immunology
85 West Algonquin Road, Suite 550
Arlington Heights, IL 60005
http://allergy.mcg.edu/home.html

American Dietetic Association
120 South Riverside Plaza, Suite 2000
Chicago, IL 60606-6995
http://www.eatright.org

Food and Nutrition Information Center
Agricultural Research Service, USDA
National Agricultural Library, Room 105
10301 Baltimore Avenue
Beltsville, MD 20705-2351
http://www.nal.usda.gov/fnic/

The Food Allergy & Anaphylaxis Network
11781 Lee Jackson Highway, Suite 160
Fairfax, VA 22033-3309
http://www.foodallergy.org/

National Dairy Council
10255 West Higgins Road, Suite 900
Rosemont, IL 60018
http://www.nationaldairycouncil.org/

National Digestive Diseases Information Clearinghouse
2 Information Way
Bethesda, MD 20892-3570
http://digestive.niddk.nih.gov/index.htm