

# Current Comments

## The Worldwide Problem of Lactose Intolerance

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Most Americans believe milk is an essential part of a normal diet. I suppose my own history of milk consumption is not atypical in the US. I can remember as far back as the age of 5 or 6 being "rewarded" every day with a chocolate milk shake at the local candy store. For ten cents you could purchase an enormous concoction of milk and ice cream blended with syrup and malt powder. And at home there was always an ample supply of milk in the icebox. While I've managed to cut down my milk consumption significantly, I occasionally succumb to an irresistible urge to consume it, or ice cream. I've observed this pattern in many other Americans.

In 1979, Americans consumed 256 pounds per person of milk and milk products. That figure was provided by William W. Menz of Dairy Research, Inc., a Rosemont, Illinois, organization formed by the dairy industry to stimulate the development of new milk products.<sup>1</sup> Undoubtedly, many Americans think milk is an essential food. But this assumption is being questioned, and one of the more controversial aspects of milk concerns breast feeding. Some popular authors, such as Joy Gross, though, are telling their readers that mothers should always breast-feed their babies.<sup>2</sup> Last year in *Pediatrics Annals*, two physicians summarized the arguments for breast feeding. Two of the controversial ones are that mother's

milk does not contain certain amino acids which could theoretically harm the developing central nervous system, and that breast feeding lowers the infant's predisposition to obesity or allergies. It is known that prolonged breast feeding suppresses ovulation, preventing the mother from quickly becoming pregnant again. Disadvantages to breast feeding include the possibility that pollutants in the mother's system will be fed to the baby.<sup>3</sup>

While this debate is centered on cow's milk versus mother's milk, goat's milk is sometimes recommended because it's easier than cow's milk for infants to digest.<sup>4</sup> (p. 1283)

Pure vegetarians argue that there are alternatives to milk for adults.<sup>5</sup> Milk contains protein, which is available in other foods. However, milk also provides calcium, riboflavin, and vitamin A. These nutrients are often found lacking in the American diet, according to Robert S. Katz and Elwood W. Speckmann of the National Dairy Council, a milk producer's and dealer's organization that performs nutrition research and education regarding dairy products.<sup>6</sup>

The general American conviction of the near-perfection of milk, aided and abetted by the dairy industry, causes us to send much milk to underdeveloped countries. However, though milk is almost omnipresent in the US and a few

other countries, many people here and throughout the world have problems digesting it. This is often due to a disorder called lactose intolerance. Lactose is a sugar that is found in milk and many milk products.<sup>7</sup> Milk from cows and goats is between 4 percent and 5 percent lactose. Yogurt has a little less lactose. Ice cream is 6.5 percent lactose; butter, 0.5 percent; and cheese, about 2 percent.<sup>8</sup>

Lactose helps the body absorb calcium and phosphorus. It is not used directly by the body, but must be hydrolyzed into its components, the sugars glucose and galactose, by the enzyme lactase, which is found in the mucosa of the small intestine.<sup>7</sup>

Lactose intolerant people have a deficiency of lactase. As a result, their systems can't use all the lactose in the milk. If the amount of lactose ingested is greater than the amount of lactase available to convert it, the leftover lactose continues undigested into the large intestine. The extra lactose draws water into the large intestine, and may ferment in the colon. All this leads to uncomfortable symptoms like abdominal cramps, a bloated sensation, diarrhea, and sometimes nausea and vomiting.<sup>9</sup>

Lactose intolerance should not be confused with other types of milk-related disorders, such as protein allergies. As many as 7 percent of US children in their first or second years may have this condition, which is an allergic reaction to protein in cow's milk. Symptoms include diarrhea and respiratory problems.<sup>10</sup>

As much as 70 percent of the world's non-Caucasian adult population may have lactose problems in some degree.<sup>11</sup> Compared with Caucasians, many groups, including Alaskan Eskimos, Jamaicans, Mexican Americans, American Indians, Vietnamese, Iranians, and

Black Africans and their descendants suffer more often from lactose intolerance.<sup>9,12-17</sup> Although some areas of the world have not been studied, lactose intolerance appears to occur less frequently among cattle-raising cultures. These groups usually drink milk, of course. Cultural groups that don't traditionally drink milk seem to have a higher incidence of lactose intolerance.<sup>7</sup> The differences in incidence have led some researchers to speculate about a genetic basis for the disorder.<sup>9</sup>

Researchers who study lactose intolerance have developed a lactose tolerance test. After fasting overnight, the patient is given up to 50 grams of lactose in solution orally. The existence of lactase deficiency is determined by observing changes in the blood glucose level within about 90 minutes. The usefulness of the test has been called into question. In one study, children who failed the test were able to drink as much as 16 ounces of milk in a day.<sup>18</sup> The test is administered in hospitals and by internal medicine specialists to confirm diagnoses of lactose intolerance.

Some physicians question whether people with lactose problems should drink milk at all. However, some lactase deficient people can tolerate significant quantities of milk. In fact, some of them continue to drink milk, and thus get at least some of its nutritional benefits, despite the uncomfortable symptoms of lactose intolerance.<sup>9</sup> Many lactose intolerant people can get nutritionally significant amounts of milk *without* experiencing gastrointestinal symptoms.

However, many lactose intolerant people, seeking to avoid its symptoms, avoid milk altogether. If they don't get calcium elsewhere, the results may be serious. One American study suggested that lactose intolerance can result in osteoporosis.<sup>19</sup> Theoretically, lactose

intolerant osteoporosis patients weren't getting enough calcium. However, a study of lactose tolerant and lactose intolerant Finns concluded that lactose intolerance by itself doesn't cause osteoporosis, though it does indeed reduce calcium intake.<sup>20</sup>

People in the industrialized countries can always turn to other sources of protein or calcium if they can't or won't drink milk. If they still enjoy milk but are unwilling to put up with the symptoms of lactose intolerance, an alternative is available.

Lactase derived from food yeasts is commercially available in the US through the Sugar-Lo Company of Atlantic City, New Jersey. Lact-Aid, as the product is called, can be added to milk. It supplements the lactase the body fails to provide and leads to symptomless digestion of the milk. The lactase also makes the milk taste sweeter.<sup>11,21</sup>

Lactose intolerance may not be a major problem among Caucasians, depending on how much importance one attaches to milk consumption. However, the widespread incidence of lactose intolerance in the Third World has led to concern over whether the industrial nations should send powdered milk as part of international food programs. Some scientific groups believe that lactose intolerance is not sufficient reason for discontinuing milk programs for young children. They include the UN's Protein Advisory Group, the Food & Nutrition Board of the US National Academy of Sciences and National Research Council, and the American Academy of Pediatrics' Committee on Nutrition.<sup>9</sup>

Unfortunately, little is known about patterns of milk consumption in developing countries.<sup>22</sup> The limited evidence suggests that lactose intolerant people in these nations drink enough milk, in

spite of its side effects, to obtain at least some nutritional benefits. At least one study gives some reassurance that milk is useful in feeding programs. It was conducted by researchers from Cornell University and the Ethio-Swedish Pediatric Clinic of Addis Ababa, Ethiopia. The nutritionists reported in 1977 that lactose intolerant Ethiopian infants who have kwashiorkor, a protein deficiency disease, can tolerate the amount of milk that is necessary to treat it.<sup>23</sup> If it is found that lactose intolerance affects the nutritional value of milk for people in the Third World, then lactase added to milk is a possible solution.

The existence of lactose intolerance should make Americans question their attachment to milk. While there appear to be many individuals who can consume large quantities of milk without apparent side effects, for most non-Caucasians moderation is definitely in order. However, many Americans are unaware of the existence of lactose intolerance. This could be remedied by labeling milk to warn people about the disorder. Robert S. Katz, National Dairy Council (NDC), told us that individuals' reactions to milk are different, and questioned the need to put a warning on every package. He stressed that while lactose intolerance may be uncomfortable to some milk drinkers, it is not really a health hazard. He agreed that people should be aware of lactose intolerance, and said the NDC tries to accomplish that by educating dietitians about lactose and other milk intolerances.<sup>24</sup>

Joginder G. Chopra of the US Food & Drug Administration's (FDA) Bureau of Foods told us the FDA plans in the indefinite future to inform the public about lactose intolerance. Apparently this may or may not take the form of labeling regulations. She also said the

FDA plans to label and regulate milk products with lactase added.<sup>25</sup>

Since the dairy industry has a strong lobby in Congress it is not likely that the US government will soon require labeling of milk that would warn the public of the potential side effects of excess lactose. But there have been dramatic

changes in dietary habits over the past decade. Research and education are a slow, tedious process.

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