

## MILK AVOIDANCE AND MILK ALTERNATIVES

D. Savaiano  
Department of Nutrition Science  
Purdue University

- The traditional dogma: Lactose maldigesters are lactose intolerant, they need to avoid milk, use digestive aids, take supplements, eat low lactose alternatives and not worry about lower calcium intakes and poor bone health.
- The scientific reality: Perceived lactose (milk) intolerance causes milk avoidance, milk avoidance causes low CA intakes and poor bone health, and lactose maldigestion is easily managed with regular single servings of milk with meals.
- Real or perceived lactose intolerance exists in 5 to 40% of maldigesters, and in a significant number of digesters. These individuals avoid dairy foods resulting in a 200 to 300 mg/day lower intake of calcium. This lower calcium intake reduces bone density and increases the likelihood of fractures.
- Dietary management of lactose maldigestion is relatively easy and depends on: dose, colon adaptation, residual lactase, food sources (with yogurt being very well tolerated), meal feeding and psychological factors (learned aversion).
- Self-described severely lactose intolerant individuals behave just like other maldigesters when blinded to the protocol.
- A serving of milk is unlikely to cause symptoms in maldigesters, particularly when consumed with a meal.
- Calcium intake and therefore bone density depend on perception of lactose intolerance, not reality.
- A significant number of maldigesters and digesters are milk adverse/perceive themselves to be lactose intolerant. This number appears to be increasing.
- Milk adverse individuals do not easily alter their diets to include milk.
- Alternative beverage consumption has increased while milk consumption has fallen dramatically since 1950. This has been most apparent for whole milk. But lower fat milk has not fully replaced the reduction in intake of whole milk.
- While milk consumption has fallen, total dairy intake has remained strong, actually growing due to the large increase in cheese consumption.
- Alternative beverages include carbonated beverages, low lactose milks and plant-based beverages.
- Americans still consume more milk than any other country.
- Carbonated beverage intake grew rapidly from the 1950s to the 1990s, but has fallen substantially in the last 15-20 years.
- The anti-sugar movement appears to have made substantial progress through marketing, taxation (Berkeley, Oakland, Philadelphia, Chicago, San Francisco) despite a large lobbying investment by the carbonated beverage industry.
- Brands of low lactose and lactose-free milks have grown substantially, but still remain a very small segment of the overall dairy market.

- Plant-based beverages sales are growing at double digit rates. Almond beverages have surpassed soy beverages in sales. There are many new product formulations coming on the market. But, overall the segment is still small (less than 10%).
- Almost every nut and grain is being tried in this market. Almond beverages are most popular with an estimated 6.7% of the market followed by soy beverages with 2%, as compared to fluid milks with 81.2%.
- Nutrient composition of plant-based beverages can vary dramatically. Products still market 'milk equivalence' with a plus of being plant-based.
- Consumers are attracted to the plant-based diet focus, anti-dairy sentiment, lactose intolerance and sustainable agriculture arguments.
- Anti-dairy market seems to be one of the primary tools to market plant-based beverages, yet at the same time the products are marketed as equivalent to or better than milk. This is an interesting dichotomy.
- Cherry picking research data is part of the marketing approach.
- Drivers of choice for dairy remain taste, natural, healthy, organic, reduced fat, vitamin fortified and high quality protein. In contrast, drivers of choice for plant-based beverages are taste, healthy, weight control, growth hormone-free, digestion, natural, organic, vitamin fortified, and calcium and protein equal to milk (McCarthy 2017).
- Closing thoughts include:
  - It is not reasonable to expect fluid milk consumption in the US to increase.
  - Global markets have much upside potential.
  - Plant-based diets will likely become more common in developed countries.
  - Is the current US animal production industry sustainable?