

Dairy allergies and lactose intolerance



Dairy allergies, more commonly known as cow's milk allergy (CMA) is a complex and often misunderstood disorder. A frequent misconception among the general public is the confusion between CMA and lactose intolerance.¹ A true food allergy occurs when there is an abnormal reaction by the immune system to one or more food protein.²

The World Allergy Organization defines an adverse reaction to food as food hypersensitivity. Food hypersensitivity can be divided into two categories i.e. immune-mediated reactions (food allergy) and non-immune mediated reactions (food intolerance). An immune-mediated reaction or food allergy that triggers immediate symptoms is further referred to as IgE-mediated reactions; and when symptoms are delayed – referred to as non-IgE-mediated reactions.³

Lactose intolerance

Lactose (milk sugar) is the carbohydrate naturally found only in mammalian milk and is hydrolysed by lactase in the small intestine.⁴ When digested by the body, lactose is split into two smaller sugars, glucose and galactose.⁶ When a person has insufficient lactase enzyme to break down all of the lactose, they are said to have lactose maldigestion. The undigested lactose passes through the small intestine to the colon, where natural bacteria ferment the lactose and produce acids and gas. The consumption of quantities greater than 12 g lactose (the amount typically found in 250 ml milk) may result in symptoms that include abdominal pain, bloating, flatulence, cramps and diarrhoea.^{4,6}

Lactose content of various dairy foods:		
Dairy food	Lactose content (g)	
	Per 100 g	Per portion
Butter	0.06	0.1 (20 g)
Cream	3.13	7.8 (250 ml)
Cheese, cream	3.21	1.3 (40 g)
Cheese, cheddar	0.23	0.1 (40 g)
Maas	3.68	7.4 (200 ml)
Milk, condensed	7.24	3.6 (50 ml)
Milk, full cream	4.80	12.0 (200 ml)
Yoghurt, fruit	3.67	7.3 (200ml)
Yoghurt, drinking	3.47	8.7 (250 ml)

Food intolerance is different from a food allergy and does not involve the immune system. It occurs when a person has an enzyme deficiency or a reaction to either natural or artificial substances in foods.^{2,3}

Lactase (the enzyme responsible for digesting lactose) activity declines exponentially at weaning to about 10% of the neonatal value. Even in adults who retain a high level of lactase, the quantity of lactase is about half that of other enzymes that digest sugars.⁴ The level of lactase present in the small intestine, the dose of lactose consumed from food and other products and the conditions under which it is consumed, all affect an individual's level of tolerance.^{3,5}

The likelihood of developing lactose intolerance later in life is influenced by a range of factors such as:

• Ethnic disposition

The tendency to produce less lactase enzyme with

age is more common in people of Asian, Southern European and African heritage.

• Medical conditions

Temporary lactose intolerance may occur as a response to malnutrition or gastrointestinal infections, or may develop after surgery.^{3,7}

Occurrence

In South Africa the true prevalence of CMA is hard to ascertain. It is believed that 2% of children under the age of 2 years are truly allergic to cow's milk, and in adults CMA is rare.

The prevalence of lactose intolerance in the USA is estimated at 11.03%. No accurate figures are available for the South Africa population.^{3,8}

The treatment for cow's milk allergy and lactose intolerance

Once an allergy has been diagnosed by a qualified health professional, the offending food or foods should be eliminated from the diet. Even trace amounts can cause severe symptoms. So if cow's milk protein is the problem, avoid all milk and dairy products, e.g. milk, cheese, yoghurt, butter, ghee, ice cream, buttermilk, cultured milk, milk shakes and flavoured milk. Read all food labels to check for ingredients such as: milk, milk powder, milk solids, casein and whey.^{3,4,9,10}

CMA persists in only a minority of children. The prognosis depends on the patient's age and specific IgE count at the time of diagnosis. The overall remission rate is approximately 45 – 50% at one year of age; 60 -75% at two years of age; 85 – 90% at three years of age; 92% between five and ten years of age; and 97% at 17 years of age.^{2,4}

Infants with CMA should be re-examined regularly by their doctor and dietitian. Periodic rechallenges should be conducted to monitor tolerance (6- to 12-monthly). In case of IgE-mediated CMA, milk specific

IgE levels should also be monitored periodically. Declining levels of specific IgE correlate well with development of tolerance to foods. A specific IgE level for milk protein of 2ku/L predicts a 50% chance of passing a challenge test.^{2,4,10}

In the case of lactose intolerance, complete avoidance of milk and milk products is not necessary. No treatment can improve the body's ability to produce lactase, but symptoms can be controlled through diet.¹¹

Facts on dairy allergies

- ✓ CMA is an inflammatory response to milk proteins and is distinct from lactose intolerance.^{1,2,3}
- ✓ CMA is more prevalent in infants (2-6%) than in adults (0.1-0.5%) and the dominant immunological driving allergic reactions change with age.^{1,4}
- ✓ The prevalence of self-diagnosed CMA in the community is substantially higher than the incidence reported in blinded and controlled challenge trials, suggesting that a proportion of the population is unnecessarily eliminating dairy products.^{1,2,5}
- ✓ Breast-feeding is the best preventative strategy for preventing CMA, although it cannot eliminate the risk of allergic sensitisation in infants.^{2,5}
- ✓ Management of CMA involves avoidance of dairy for the duration of the condition, and in the light of this, the provision of appropriate nutritional advice is important to prevent nutritional deficiencies.^{1,5}

The difference between cow's milk allergy and lactose intolerance^{1,3,7}

Food condition	Cause of condition	Common symptoms	Required action
Cow's milk allergy	Abnormal immune system reaction	Urticaria (hives), vomiting, diarrhoea, colic, rhinitis, gastroenteritis	Must avoid all dairy products
Lactose intolerance	Not a reaction of the immune system, but a deficiency of the enzyme lactase resulting in the inability to digest milk sugar (lactose)	Loose, slimy, frothy and acidic stools; abdominal pain and cramps; bloating; flatulence	Total avoidance is not necessary but some dietary adjustments will be required

If you are lactose intolerant you can successfully add dairy to your diet if you keep the following in mind:^{3,11}

- Use milk with other foods – such as milk on cereal – and not on an empty stomach.
- Build up your tolerance. Start small and gradually increase your milk consumption.
- Full-cream milk may be better tolerated than low-fat or fat-free milk.
- Yoghurt is better tolerated than milk.
- Cheese is very low in lactose and well tolerated.
- Try low-lactose milk or lactose-digesting preparations (available from chemists).
- Use a probiotic supplement on a daily basis to improve your colonic microbiotic environment.

The dangers of unnecessarily removing cow's milk from the diet

Cow's milk provides a unique package of ten or more essential nutrients, including protein, carbohydrates, vitamins A, B6, B12, riboflavin and niacin and minerals such as calcium, phosphorus, magnesium, potassium and zinc, all needed for a healthy diet.³

Eliminating milk and other dairy products unnecessarily from the diet can result in inadequate nutrition, unless an appropriate selection of substitute foods are consumed.⁹

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www.rediscoverydairy.co.za • info@dairy.co.za

AN INITIATIVE BY THE CONSUMER EDUCATION PROJECT OF MILK SA • For further information contact: Tel: 012 991 4164 • Fax: 012 991 0878