

# Cow's Milk Allergy & Lactose Intolerance

## Understanding the Difference



### Introduction

- ▶ Allergies and intolerances result when the body cannot:<sup>1</sup>

**Digest**      **Absorb**      **Metabolize**

**A specific component or food**

- ▶ An immune response to **CMP** characterizes **CMA**<sup>1</sup>
- ▶ In **Lactose Intolerance**, body is unable to digest milk because of the total/partial absence of lactase enzyme<sup>1</sup>

### CMA: Most common food allergy in infants and children

Peaks in infancy  
**1.5-3%**  
reduces to less than  
**1%** at 6 years of age.<sup>2</sup>



Incidence is  
**<0.5%**  
in exclusively  
breastfed infants<sup>2</sup>



The **predisposing factors** for **CMA** in children are as given below:<sup>1</sup>

#### GENETIC

About **2/3rd** of children with CMA have a history of atopy

#### ENVIRONMENTAL

**Neonatal antecedents, prematurity, antibiotic therapy** in early life



### Signs and Symptoms

The characteristic symptoms after **ingestion of cow's milk protein** are given below:<sup>1</sup>

Cutaneous symptoms	Gastrointestinal symptoms	Respiratory symptoms
Rashes, pruritus, angioedema	Vomiting, bloody stools, diarrhea, gastroesophageal reflux, cramps, eosinophilic gastroenteropathy, enteropathy, enterocolitis, chronic constipation	Bronchospasm
<b>50-70%</b>	<b>50-60%</b>	<b>20-30%</b>



### Lactose Intolerance

A common GI condition caused by the **inability to digest and absorb dietary lactose**.<sup>3</sup>

Lactase enzyme hydrolyses lactose into D-glucose and D-galactose before absorption. **Lactase deficiency** incapacitates the digestion of lactose leading to malabsorption.<sup>3</sup>

Infants with **lactose malabsorption** are more susceptible to **developing diarrhea**.<sup>3</sup>

LI is mainly classified into **4 types**, but **secondary LI is the most common**.<sup>3</sup>



### Signs and Symptoms

LI manifests as:<sup>3</sup>

- ▶ Osmotic fluid shift in the gut
- ▶ Gas formation
- ▶ Bowel distension, causing abdominal pain, flatulence, and diarrhea

### What are the differential factors between CMA and LI?<sup>1,4</sup>

	COW'S MILK ALLERGY	LACTOSE INTOLERANCE
MECHANISM	IgE and non-IgE-mediated reaction	Lactase enzyme deficiency
AGE OF ONSET	At peak during 3-6 months of age	Secondary LI: Early infants to children and adolescents
RESOLUTION	Usually remits in childhood (2-5 years of age)	Usually resolves within 1-2 months <sup>3</sup>
FOOD COMPONENT INVOLVED	Cow milk protein	Lactose
SYMPTOM ONSET	<b>IgE mediated:</b> After 2 h of food intake <b>Non-IgE mediated:</b> After 2-48 h or later	30 mins to 2 h after ingesting lactose-containing foods
GASTROINTESTINAL SYMPTOMS	<b>IgE-mediated:</b> colicky abdominal pain; nausea; vomiting; diarrhea <b>Non-IgE-mediated:</b> diarrhea, stools with blood and/or mucus, vomiting, abdominal pain, malabsorption seen with poor weight gain	Nausea, abdominal pain, bloating, diarrhea and flatulence  Less common: vomiting, constipation
EXTRAINTESTINAL SYMPTOMS	<b>IgE-mediated:</b> Respiratory system (rhinorrhea, cough, chest tightness, wheezing, or dyspnea); skin (acute urticaria and angioedema) <b>Non-IgE/IgE-mediated:</b> Atopic eczema	Headache, vertigo, memory impairment and lethargy
TEST TO CONFIRM THE DIAGNOSIS	Oral food challenge test	Lactose breath test
DIETARY TREATMENT	CMP-free diet	Lactose free diet
PROGNOSIS	• 50% of the cases get cured by 1 year of age • 90% by three years of age	Temporary (usually within 1-2 months)

### Dietary interventions for CMA and LI

Condition	Dietary exclusions	Dietary recommendations
<b>CMA</b> Non-IgE mediated	A <b>CMP-free</b> diet. Excluding cow's milk and its products.	<b>eHF</b> Preferred choice in nutritional management of mild to moderate CMA. Addition of prebiotics such as <b>scGOS/lcFOS (9:1)</b> helps building infant immunity and treat allergies. <sup>3,6,7</sup>
<b>CMA</b> IgE mediated	Infant with suspected IgE-mediated CMA allergy will require testing for <b>specific IgE</b> to milk, which can be <b>avoided</b> in the diet.	<b>AAFs</b> used in nutritional management of severe symptoms and those who do not respond to eHFs. <sup>5</sup>
<b>LI</b>	<b>Exclude cow's milk</b> and foods containing cow's milk	<b>Lactose-containing feeds</b> can be <b>re-attempted</b> after 2-4 weeks of LI episode. <sup>3</sup>

### KEY TAKEAWAYS

- ✓ CMA and LI are often confused among physicians and parents, leading to misdiagnosis or delayed diagnosis.
- ✓ LI is a metabolic disorder, whereas CMA is an immune-mediated allergic response to cow's milk proteins.
- ✓ Complete exclusion of CMP in breastfeeding mothers and infants is recommended for CMA.
- ✓ eHFs and AAFs have proven beneficial for mild-to-moderate and severe cases of CMA, whereas lactose-free feeds help alleviate LI symptoms
- ✓ Re-introduction of cow's milk under expert supervision may be considered later in the diet for CMA.

**Reference**  
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**Abbreviations**  
AAF: Amino acid feed; CMA: Cow's milk allergy; CMP: Cow's milk protein; eHF: Extensively hydrolyzed protein; GI: Gastrointestinal; IgE: Immunoglobulin E; lcFOS: long chain fructooligosaccharides; LI: Lactose intolerance; scGOS: short chain galactooligosaccharides.

The World Health Organization (WHO)\* has recommended that pregnant women and new mothers be informed of the benefits and superiority of breast-feeding, in particular, the fact that it provides the best nutrition and protection from illness for babies. Mothers should be given guidance on the preparation for and maintenance of lactation, with special emphasis on the importance of the well-balanced diet both during pregnancy and after delivery. Unnecessary introduction of partial bottle feeding or other foods and drinks should be discouraged since it will have a negative effect on breast-feeding. Similarly, mothers should be warned of the difficulty of reversing a decision not to breastfeed. Before advising a mother to use an infant formula, she should be advised of the social and financial implications of her decision. For example, if a baby is exclusively bottle-fed, more than one can (500g) per week will be needed, so the family circumstances and cost should be kept in mind. Mother should be reminded that breast milk is not only the best but also the most economical food for babies. If a decision to use infant formula is taken, it is important to give instruction on correct preparation methods, emphasizing that unboiled water, unsterilized bottles or incorrect dilution can lead to illness.

\*See: International Code of Marketing of Breast Milk Substitutes, adopted by the World Health Assembly in Resolution WHA 34.22, May 1981

**Importance of Breastfeeding:**  
Immediately after delivery, breast milk is yellowish and sticky. This milk is called colostrum, which is secreted during the first week of delivery. Colostrum is more nutritious than mature milk because it contains more protein, more anti-infective properties which are of great importance for the infant's defense against dangerous neonatal infections. It also contains higher levels of Vitamin A; (ii) breast milk- A) is a complete and balanced food and provides all the nutrients needed by the infant (for the first six months of life) (B) has anti-infective properties that protect the infants from infection in the early months (C) is always available; (D) needs no utensils or water (which might carry germs) or fuel for its preparation, (iii) breastfeeding is much cheaper than feeding infant milk substitutes as the cost of the extra food needed by the mother is negligible compared to the cost of feeding infant milk substitutes, (iv) mothers who breast-feed usually have longer periods of infertility after child birth than non-lactators; (b) details of management of breast feeding, as under- (i) breast-feeding- (A) immediately after delivery enables the contraction of the womb and helps the mother to regain her figure quickly; (B) is successful when the infant suckles frequently and the mother wanting to breast-feed is confident in her ability to do so (i) in order to promote and support breast-feeding the mother's natural desire to breast feed should always be encouraged by giving, where needed, practical advice and making sure that she has the support of her relatives, (iii) adequate care for the breast and nipples should be taken during pregnancy, (iv) it is also necessary to put the infant to the breast as soon as possible after delivery, (v) let the mother and the infant stay together after the delivery, the mother and her infant should be allowed to stay together (in hospital, this is called "rooming-in"); (vi) give the infant colostrum as it is rich in many nutrients and anti-infective factors protecting the infants from infections during the few days of its birth; (vii) the practice of discarding colostrum and giving sugar water, honey water, butter or other concoctions instead of colostrum should be very strongly discouraged; (viii) let the infants suckle on demand; (ix) every effort should be made to breast-feed the infants whenever they cry; (x) mother should keep her body and clothes and that of the infant always neat and clean.  
Breast-feeding is the best form of nutrition for babies and provides many benefits to babies and mothers. It is important that, in preparation for and during breast-feeding, you eat a healthy, balanced diet. Combined breast and bottle-feeding in the first weeks of life may reduce the supply of your own breast-milk and reversing the decision not to breast-feed is difficult.  
Always consult your Healthcare Professional for advice about feeding your baby. The social and financial implications of using infant formula should be considered. Improper use of an infant formula or inappropriate foods or feeding methods may present a health hazard. If you use infant formula, you should follow manufacturer's instructions for use carefully - failure to follow the instructions may make your baby ill.

Breast milk is best for babies. At Danone, we support breast feeding and believe that breast milk is the best food for babies as the sole source of nutrition for the first 6 months of life and is recommended to be continued until 2 years with the introduction of appropriate complementary foods after 6 months of age.

**IMPORTANT NOTICE:** Breastfeeding is the best for babies and a healthy diet / maternal nutrition is important when breastfeeding. A decision not to breastfeed can be difficult to reverse. Infant formula is suitable for maternal and child when babies are not breastfed. It is recommended that all formula milks be used on the advice of a doctor, midwife, health visitor, public health nurse, dietitian, pharmacist, or other professional responsible for maternal and birth-care and the financial implications should be considered. All preparation and feeding instructions should be followed carefully as inappropriate preparation could lead to health hazards.

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**IMPORTANT NOTICE: MOTHER'S MILK IS BEST FOR YOUR BABY**