

Cow's milk protein allergy and lactose intolerance – what is the difference?

Many people often confuse the terms lactose intolerance and cow's milk protein allergy. Although they may share some symptoms they are two distinctly different conditions that are diagnosed and managed in different ways.

Cow's milk protein allergy is an allergy which involves interaction between the protein in cow's milk and the body's immune system. It can be further classified into IgE (Immunoglobulin E) mediated (i.e. immediate type allergy) and non IgE mediated (i.e. typically delayed type onset). Symptoms related to IgE mediated cow's milk protein allergy (CMPA) typically appear within two hours of ingesting cow's milk, whereas symptoms related to non IgE mediated CMPA tend to appear >2hrs and up to 72hours or a couple of days. Symptoms can involve several different organ systems: the skin, the digestive system and the lungs; See Table 1 for symptoms associated with both IgE and non IgE mediated CMPA.

CMPA is the most common food allergy in infants and young children – up to 7.5% of all children suffer from this condition. Most children will outgrow their CMPA by the age of 3-5 years, however some children will remain hypersensitive into childhood and adolescence, depending on the individual child & the food they are allergic to.

Lactose intolerance is an inability to digest lactose, the sugar found in milk and dairy. It usually occurs when there is a deficiency in the enzyme – lactase which prevents the body from breaking down lactose. Undigested lactose travels through the digestive system producing the symptoms associated with lactose intolerance (See Table 1). Although there are a number of different types of lactose intolerance (LI) the two main types are Primary LI and Secondary LI. Primary LI is generally not seen in infants and young children (<2-5 years old) and as it is genetic it is more common in Hispanic, Asian and black populations. Individuals have low rather than absent enzyme activity and can, therefore usually tolerate some lactose in their diet. Secondary LI is more common in children <2 years and is present when there has been damage to the gut lining that produces lactase

Table 1: Symptoms associated with CMPA & LI

	Cow's milk protein allergy		Lactose Intolerance
	IgE mediated	Non IgE mediated	All forms
Skin	Pruritus Acute urticarial Erythema Acute angioedema	Pruritus Erythema Atopic eczema	Not applicable
Gastro-intestinal system	Acute angioedema (lips, tongue, palate) Oral pruritis Acute vomiting /diarrhea Colicky abdominal pain Nausea	Constipation Gastro-oesophageal reflux disease Loose frequent stools Blood and /or mucous in stools Abdominal pain Infantile colic Food refusal /aversion Perianal redness Pallor and tiredness Faltering growth & ≥ 1 of above symptoms (with / without serious atopic dermatitis	Diarrhoea Abdominal distention Nausea Flatulence Bloating
Respiratory system	Upper respiratory tract symptoms (nasal itching, sneezing, rhinorrhea or congestion – with or without conjunctivitis) Lower respiratory tract symptoms (cough, chest tightness, wheezing, or shortness of breath)		Not applicable
Other	Anaphylaxis	Diagnosis includes: Eosinophilic oesophagitis Food-protein induced enterocolitis Food-protein induced proctocolitis Food-protein induced enterocolitis syndrome Eosinophilic gastritis Eosinophilic enteritis Eosinophilic colitis Eosinophilic gastroenteritis	

resulting in temporary LI. It is often caused by severe gastroenteritis e.g. rotavirus, untreated coeliac disease and Crohn's disease. It requires a short term dietary lactose restriction (4-8 weeks only) to allow the lining of the gut to heal, after which a normal diet should be resumed to prevent nutritional deficiencies.

How can my child / infant get tested for CMPA and / or LI?

If you suspect your child has either CMPA or LI it is recommended that you contact your GP or Paediatrician. A detailed clinical history is the most important first step in determining whether your child may have CMPA or LI. Following on from this the health care professional should make a decision regarding possible testing:

- If IgE mediated CMPA is suspected, then either a skin prick test and / or a specific IgE blood test to cow's milk should be performed. Unfortunately, these two tests are usually only available in the hospital setting. The results of the allergy test should always be reviewed in the context of the allergy focused clinical history.
- If non IgE mediated CMPA is suspected, a trial elimination diet of 2-6 weeks should be recommended followed by a home food challenge or reintroduction. The elimination period will involve either choosing an appropriate hypoallergenic formula for bottle fed infants or maternal avoidance of cow's milk in breastfed infants. There are no other reliable tests for non IgE mediated allergies.
- Two tests are used in adults to confirm LI – the hydrogen breath test and the lactose tolerance test but due to the nature of these tests they are not deemed suitable for children and infants. Instead the diagnosis is confirmed by a detailed clinical history which leads to suspicion of LI followed by a short period of elimination (4-8 weeks) of dietary lactose to see if symptoms resolve.
- Parents should be aware that vega tests, kinesiology, hair analysis and IgG testing in the diagnosis of food allergy have no scientific evidence and are not advisable.

How can a dietitian help my child if they have either CMPA or LI?

Dietary elimination of either cow's milk or lactose in infants and children should be carried out under the supervision of a dietitian (Irish Food Allergy Network). Dietitians are uniquely placed to support those affected by food allergy by:

1. Providing tailored individualised care plans or meal plans to your child or infant.
2. Providing specific education and advice about your child's food allergy or intolerance
3. Identifying and recognising common sources of food allergens and giving advice on appropriate food avoidance and suitable alternatives.
4. Devising safe, nutritious elimination diet when needed
5. Recommending suitable hypoallergenic formulas and food supplements where appropriate.
6. Monitoring the nutritional balance of the infant / child's diet, growth and follow-up.



*Olivia Walsh RD MINDI
B.Sc (Hum Nut), Dip (Diet)
Specialist Paediatric Dietitian
Clinical Nutrition Consultancy*