CONDITION

Milk allergy

Milk allergy is an immune reaction to proteins in cow's milk.

WHAT IT IS
Immune reaction to proteins in cow's milk

BODY SYSTEM
Immune system, skin, breathing, and digestion

MAIN SYMPTOMS
Hives, vomiting, wheeze, diarrhoea

WHAT CAUSES IT
Immune response to milk proteins

HOW IT IS DIAGNOSED
Allergy history, testing, and supervised food challenge

MAIN TREATMENT
Milk-protein avoidance, nutrition support, emergency medicine when needed

CAN IT BE CURED?
Sometimes - tolerance develops over time

IS IT AN EMERGENCY?
Sometimes - breathing trouble or signs of anaphylaxis

LONG-TERM OUTLOOK
Many children improve; some allergy persists into adulthood

Overview

Milk allergy is an immune reaction to proteins in milk, usually cow's milk. The immune system mistakenly treats these proteins as harmful and starts a reaction. Even a small amount may cause symptoms in someone who is allergic.

Milk allergy is most often identified in babies and young children, although older children and adults can have it. Reactions may begin within minutes or develop over several hours or days.

Milk allergy is not the same as lactose intolerance. Lactose intolerance happens when the body has difficulty digesting lactose, the natural sugar in milk. It mainly causes digestive symptoms and does not cause hives, swelling, wheezing, or anaphylaxis.

Some milk-allergy reactions are mild. Others can be serious, so it is important to understand which foods to avoid and what to do if a reaction occurs. Avoiding milk without appropriate

nutrition advice can also affect growth, calcium intake, and vitamin intake, especially in children.

Symptoms

Symptoms differ according to which part of the immune system is involved.

An immediate, or IgE-mediated, reaction usually starts within minutes and up to about two hours after milk is eaten. IgE is an antibody involved in rapid allergic reactions. Symptoms can include:

Anaphylaxis is a serious allergic reaction that may affect breathing or circulation. It needs emergency treatment.

Delayed, or non-IgE-mediated, reactions may take hours or days to become clear. Possible symptoms include ongoing diarrhoea, vomiting, reflux-like symptoms, constipation, blood or mucus in stools, poor feeding, or slow weight gain. Eczema may become worse in some children, although eczema has many other causes.

A less common delayed condition called food protein-induced enterocolitis syndrome, or FPIES, can cause repeated forceful vomiting, paleness, and marked tiredness several hours after milk is consumed. Severe episodes can lead to dehydration or shock.

These symptoms are not specific to milk allergy. Infections, reflux, skin conditions, and other food problems can cause similar symptoms.

- Hives, itching, flushing, or swelling
- Vomiting, stomach pain, or diarrhoea
- Coughing, wheezing, a hoarse voice, or breathing difficulty
- Dizziness, unusual sleepiness, collapse, or a pale, floppy appearance

Causes and risk factors

Milk allergy happens when the immune system reacts to milk proteins such as casein or whey. It is not caused by lactose.

The allergy usually involves cow's milk. Proteins in goat's and sheep's milk are similar, so these milks are often unsuitable for people with cow's milk allergy. Milk from other mammals is not a safe substitute unless an allergy specialist or dietitian confirms that it is appropriate.

Milk allergy is more common in children with eczema or another food allergy. A family history

of eczema, asthma, hay fever, or food allergy may also increase the chance of allergic conditions. These factors do not mean that a child will definitely develop milk allergy.

Breastfed babies can occasionally react to small amounts of cow's milk protein that pass into breast milk from the mother's diet. This should be assessed carefully because common infant symptoms are often mistakenly blamed on milk allergy.

Milk allergy is not caused by poor parenting, eating too much dairy, or failing to breastfeed.

Diagnosis

Diagnosis begins with a detailed account of what was eaten, how much, when symptoms started, how long they lasted, and whether the reaction has happened again. Growth, feeding, eczema, medicines, and other possible causes may also need to be considered.

For suspected immediate allergy, a skin-prick test or blood test for milk-specific IgE may support the diagnosis. These tests show sensitisation, meaning the immune system recognises milk. A positive result alone does not prove that eating milk will cause symptoms. Test results also do not reliably predict how severe a future reaction will be.

When the diagnosis remains uncertain, a medically supervised oral food challenge may be used. During this test, gradually increasing amounts of milk are given while trained staff watch for a reaction. This is the most reliable way to confirm or rule out many food allergies. It should not be attempted at home unless a specialist has specifically planned a home introduction.

There is no routine blood or skin test that confirms most delayed milk allergies. Diagnosis may involve removing cow's milk protein for a limited period and then reintroducing it in a planned way to see whether symptoms return. Improvement during avoidance alone is not enough because symptoms may settle for unrelated reasons.

Commercial food-IgG tests, hair analysis, and similar alternative tests do not diagnose milk allergy.

Treatment and management

The main treatment is avoiding the milk proteins that cause reactions while maintaining a balanced diet. This includes checking ingredient labels and understanding terms such as milk, whey, casein, butter, cream, cheese, yoghurt, and milk powder.

Packaged-food allergen labels can help, but recipes and manufacturing practices may change. Food sold without packaging may require direct questions about ingredients and

cross-contact.

Lactose-free cow's milk is not suitable for milk allergy because it still contains milk protein. Goat's and sheep's milk are also usually unsuitable. Some plant-based drinks are low in calories, protein, calcium, or other nutrients and may not be appropriate as a child's main drink.

Babies who use formula may need an extensively hydrolysed formula, in which milk proteins are broken into smaller pieces. Some need an amino-acid formula containing the basic building blocks of protein. Standard formula, partially hydrolysed formula, and lactose-free cow's milk formula do not treat milk allergy. Formula choice should reflect the child's age, symptoms, growth, and nutritional needs.

A breastfeeding parent usually does not need to avoid milk unless the baby has convincing symptoms linked to cow's milk protein in breast milk. If maternal avoidance is advised, support may be needed to maintain calcium, vitamin D, protein, and overall nutrition.

Some people tolerate milk that has been baked thoroughly into foods, while reacting to less-heated milk. Eating baked milk may broaden the diet, but the first introduction can cause a reaction. It should follow an allergy professional's assessment rather than an unsupervised test.

People at risk of anaphylaxis may be advised to carry adrenaline, also called epinephrine, in an auto-injector. A written allergy action plan can explain when to use it. Antihistamines like cetirizine or loratadine may help some mild skin symptoms, but they do not treat breathing problems, low blood pressure, or anaphylaxis.

Oral immunotherapy, in which carefully controlled amounts of an allergen are given to raise the reaction threshold, is available in some specialist settings. It is not a simple cure and can itself cause reactions.

Complications

The most serious complication is anaphylaxis. Asthma, especially if poorly controlled, can make breathing symptoms during a reaction harder to manage.

Long-term milk avoidance can lead to low intake of energy, protein, calcium, vitamin D, iodine, or other nutrients. Children may have feeding difficulties or slower growth if suitable replacements are not provided.

Food allergy can also affect daily life. Fear of accidental exposure, label checking, eating away from home, and school arrangements may create stress. Overly broad food restriction can add to this burden without improving safety.

Prevention

Once milk allergy is present, reactions are prevented mainly by avoiding the relevant milk proteins and following an emergency plan. Accidental exposure cannot always be prevented completely.

There is no guaranteed way to prevent milk allergy from developing. Breastfeeding has health benefits but does not reliably prevent food allergy. Avoiding dairy during pregnancy or breastfeeding is not routinely recommended solely to prevent milk allergy.

Do not change an infant's feeding or introduce milk as an allergy test without appropriate advice, especially after a previous reaction or when the baby has severe eczema.

Living with it and what to expect

Many children become tolerant to cow's milk as they grow, particularly those with delayed allergy. Some immediate allergies continue into adolescence or adulthood. No test can give an exact date when an individual allergy will resolve.

Follow-up may include reviewing reactions, growth, nutrition, asthma control, test results, and whether a supervised food challenge is appropriate. This is routine care, not an emergency.

Tolerance may develop in stages. A child might first manage well-baked milk while still reacting to fresh milk. A structured "milk ladder" introduces forms of milk in a planned order, but it is not suitable for everyone. It should be used only when recommended for the person's type of allergy.

Nurseries, schools, relatives, and other caregivers should know which foods must be avoided, where emergency medicine is kept, and how to follow the allergy action plan. Older children can gradually learn label reading and how to tell others about their allergy.

Most people with milk allergy can eat a varied diet and take part in school, travel, exercise, and social activities with suitable planning.

When to get medical help

Call emergency services immediately if a reaction causes:

If an adrenaline auto-injector has been prescribed, use it as directed in the emergency plan and then call emergency services. Do not wait to see whether an antihistamine works. A person treated for anaphylaxis needs medical observation because symptoms can return.

Repeated forceful vomiting with severe tiredness, paleness, poor responsiveness, or signs of dehydration also needs urgent assessment, particularly in a baby.

Arrange a routine medical appointment if milk repeatedly seems to cause hives, vomiting, diarrhoea, worsening eczema, blood in stools, feeding problems, or poor growth. Seek earlier advice if symptoms are persistent or the diet has become very restricted.

- Difficulty breathing, noisy breathing, wheezing, or persistent coughing
- Swelling of the tongue or throat, trouble swallowing, or a hoarse voice
- Collapse, faintness, confusion, or a pale and floppy appearance
- Rapidly worsening symptoms affecting more than one body system

Common questions

Is milk allergy the same as lactose intolerance?

No. Milk allergy is an immune reaction to milk protein and can affect the skin, breathing, digestion, or circulation. Lactose intolerance is difficulty digesting milk sugar. It generally causes bloating, wind, cramps, or diarrhoea and does not cause anaphylaxis.

Can I have lactose-free milk if I have a milk allergy?

Usually not. Lactose-free cow's milk has had its lactose removed or broken down, but it still contains the proteins that trigger milk allergy.

Can I drink goat's or sheep's milk instead?

Usually not. Their proteins are similar to cow's milk proteins, so cross-reactions are common. Plant-based alternatives differ greatly in nutrition, and some are unsuitable for babies or young children.

Will my child grow out of milk allergy?

Many children do, but not all. Delayed milk allergy often resolves earlier than immediate IgE-mediated allergy. Regular reassessment helps determine whether avoidance is still needed and whether reintroduction can be tested safely.

Can someone with milk allergy eat baked milk?

Some can tolerate milk baked into foods, while others react to it. Heating changes certain milk proteins but does not make baked milk safe for everyone. Introduction should follow a personalised specialist plan.

Does a positive allergy test prove milk allergy?

No. A positive skin or blood test shows sensitisation but does not prove that milk causes

symptoms. The result must be interpreted with the reaction history and, when appropriate, a supervised food challenge.

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