Cow's milk allergy

Cow's milk allergy (also known as cow's milk protein allergy or CMPA) is the most common food allergy for babies and young children. It is usually outgrown by school age, but for a small number of children it can persist through the teenage years, and some children will never outgrow their milk allergy. This leaflet describes the different types of cow's milk allergy, the symptoms, how to get a diagnosis, and how to manage the allergy.

What is cow's milk allergy?

Cow's milk allergy happens when the body's immune system wrongly identifies proteins in cow's milk to be a threat.

In the UK, cow's milk allergy affects approximately two to three out of 100 babies. It usually starts when milk is introduced either as a formula feed or during the introduction of solid food.

Cow's milk allergy is uncommon in older children and adults. But older children and adults who have an immediate cow's milk allergy may experience more serious allergic reactions that will require emergency treatment.

What are the types of cow's milk allergy?

There are two main types of cow's milk allergy: **immediate** (known as IgE-mediated) and **delayed** (non-IgE**)**. A strong family history of allergy, where a parent or sibling has a food allergy or a related condition such as eczema, hay fever or asthma, may increase the risk of having an allergy to cow's milk

Immediate cow's milk allergy

Immediate cow's milk allergy is also called 'IgE mediated' cow's milk allergy as it involves IgE antibodies, which are part of the immune system that trigger allergic reactions. Reactions usually occur quickly -between minutes and up to two hours after drinking cow's milk or eating foods containing milk or dairy.

Symptoms can vary, but in some people this type of allergy can cause anaphylaxis, a serious, life-threatening reaction. Immediate cow's milk allergy is the most common type in older children and adults.

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Delayed cow's milk allergy

Delayed cow's milk allergy is also called 'non-IgE mediated' as it involves a different part of the immune system and does not involve IgE antibodies. Symptoms can vary but it mainly affects the digestive system and/or skin. Delayed (non-IgE) symptoms typically develop 2–48 hours after ingestion, and in some children can take up to 72 hours.

Delayed cow's milk allergy is thought to be more common than immediate cow's milk allergy in young children and is less common in older children and adults.

It possible for some children with cow's milk allergy to experience a combination of immediate (e.g. hives, vomiting, itchy mouth) and delayed (e.g. eczema, diarrhoea, stomach pain) symptoms.

There are other types of delayed allergic conditions that can be triggered by milk such as Food Protein-Induced Enterocolitis Syndrome (FPIES) and Eosinophilic Eosophagitis (EoE). These are not discussed in this leaflet but if your child has either of these conditions, they should be under specialist medical care.

What are the symptoms of delayed cow's milk allergy?

Symptoms can include:

- Stomach pains
- diarrhoea (which might be bloody)
- constipation
- being sick
- itchy skin
- rash
- eczema

Diagnosing delayed cow's milk allergy

Delayed cow's milk allergy can be more difficult to diagnose as there are no specific diagnostic tests for delayed allergies. In a Delphi consensus study, it was agreed that differential diagnoses needed to be considered for faltering growth, bile-stained vomiting, blood in the stool, colic and crying.

A milk free diet can be trialled for a period of 2-4 weeks followed by re-introduction of milk into the diet whilst monitoring symptoms to confirm or exclude suspected milk allergy.

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How to assess if your baby's symptoms are caused by a milk allergy:

If your child is breastfed and the symptoms only started after the introduction of cow's milk formula, then milk elimination from the mother's diet is not recommended.

In breastfed babies, a maternal dietary exclusion may be considered only if a relationship is identified between mother's dietary intake, breastfeeding and symptoms.

If an infant is bottle fed with a milk containing formula, then a trial of an extensively hydrolysed formula could be used.

If your baby has delayed cow's milk allergy, their symptoms will improve when cow's milk is out of their diet and reappear when it is added back in again. If there is no improvement in symptoms a milk allergy is unlikely.

Any trial elimination of cow's milk from the diet should be for a maximum of 2-4 weeks only. If there is resolution of symptoms it can be continued for longer. A trial of a milk free diet needs to be discussed first with a health professional, i.e. GP, Dietitian, health visitor, to ensure that you and your baby are not missing out on important nutrients.

What are the symptoms of immediate cow's milk allergy?

Mild to **moderate** symptoms:

- a red raised itchy rash (known as hives or urticaria) anywhere on the body
- swelling of the face, lips and/or eyes
- a tingling or itchy feeling in the mouth
- mild throat tightness
- stomach pain, vomiting or diarrhoea.

More serious symptoms

More serious symptoms such as anaphylaxis are uncommon but remain a possibility for some people, including children. These may include:

- **AIRWAY** - swelling in the throat, tongue or upper airways, hoarse voice, difficulty swallowing
- **BREATHING** - sudden onset wheezing, breathing difficulty, noisy breathing, persistent cough

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- **CIRCULATION** - dizziness, feeling faint, sudden sleepiness, confusion, pale clammy skin, loss of consciousness or collapse

The term for this more serious reaction is **anaphylaxis** (ana-fil-ax-is).

Healthcare professionals consider an allergic reaction to be anaphylaxis when it involves difficulty breathing or affects the heart rhythm or blood pressure. Any one or more of the ABC symptoms above may be present.

In extreme cases there could be a dramatic fall in blood pressure. The person may become weak and floppy and may have a sense of something terrible happening. Any of the ABC symptoms may lead to collapse and unconsciousness and, on rare occasions, can be fatal.

Read more about anaphylaxis.

Diagnosing immediate cow's milk allergy

If you think you or your child may be allergic to cow's milk, see your GP. If symptoms are mild, your GP may manage this allergy in primary care. The GP can refer you to the general peadiatric or allergy clinic if needed, or if a supervised food challenge is needed. They can find a clinic in your area from British Society for Allergy and Clinical Immunology (BSACI).

Read more about allergy testing.

What can mean you are at higher risk?

Some clues that you might be at higher risk of more serious reactions are:

- you have already had a serious reaction, with any of the **'ABC'** symptoms
- you have asthma, especially if it is not well controlled
- you have reacted to a tiny amount of milk or dairy.

If you or your child have asthma, and it is not well controlled, this could make an allergic reaction worse. Make sure you discuss this with your GP or allergy specialist and take any prescribed medicines.

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Treating symptoms

If you experience mild allergic symptoms, you may be prescribed antihistamine medicine that you take by mouth. Adrenaline auto-injectors are prescribed for people at higher risk (for example, previous anaphylaxis, poorly controlled asthma, or reactions to small amounts).

Adrenaline is now available in different forms (auto injectors or nasal spray) that are designed to be easy to use. It's important to know exactly how and when to use your prescribed adrenaline device. Healthcare professionals can show you how to use it, and there are also resources such as practice devices and videos on manufacturer websites.

Options currently available on prescription in the UK include:

- **Adrenaline auto-injectors (AAIs)** – EpiPen and Jext.
- **Intranasal adrenaline** – EURneffy, a needle-free nasal spray (The 2 mg adult dose is available on prescription. A 1 mg dose for children weighing 15–30 kg has been approved by the MHRA but is not yet available on prescription; it is expected to become available in Autumn 2026).

You must carry two in-date forms of prescribed adrenaline at all times as a second dose may be needed if symptoms do not improve after five minutes or get worse.

Find out more about what to do in an emergency.

Find out more about adrenaline.

Intolerance to cow's milk

Non-allergic conditions like lactose intolerance can mimic some cow's milk allergy symptoms but do not involve the immune system. It's quite common for people to think they have a cow's milk allergy when milk causes unpleasant gut symptoms such as bloating or wind. Some people also notice more mucus or a cough after drinking milk. This is not a sign of a cow's milk allergy—it's related to the texture of milk, which can feel "coating" in the throat, rather than milk causing the body to increase mucus production or signal allergy.

If gut symptoms are your only issue and start later in life, intolerance is more likely than allergy.

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It can be difficult to work out the cause of your symptoms. A healthcare professional can look at your full history and help you to identify if you have a milk allergy or a milk intolerance.

Lactose intolerance

The most common type of milk intolerance is **lactose intolerance**, which happens when the body is not making enough of the enzyme lactase and there is difficulty digesting lactose, the natural sugar in milk. Symptoms are typically related to the gut, such as bloating, diarrhoea, constipation, or IBS-type discomfort. Primary lactose intolerance occurs from birth and requires a lactose free diet for life. Secondary lactose intolerance can occur following illness or injury affecting the bowel. Secondary lactose intolerance often settles after a 6–8-week lactose-reduced diet; re-introduce lactose gradually to assess tolerance

You can read more about cow's milk intolerance here.

Seeing a dietitian

Cow's milk provides important nutrients such as protein, energy, fat, vitamins, and minerals (including calcium and iodine). If you or your child has a cow's milk allergy, your GP or allergy clinic can refer you to a dietitian for personalised advice.

A dietitian can help determine whether cow's milk needs to be completely avoided or whether certain forms of milk or dairy can be safely tolerated. Tolerance can depend on several factors, including the amount consumed, how frequently it is eaten, and whether the milk is cooked—and if so, for how long and at what temperature.

They will also support you in achieving a balanced and nutritious diet while avoiding milk and dairy where necessary.

Avoiding cow's milk

Once you have been diagnosed with a cow's milk allergy, you will need to avoid cow's milk and dairy and foods that contain them as ingredients.

Read the ingredient lists on food packets carefully every time you shop. Cow's milk is included in the list of top 14 major food allergens in the UK. This means it must be highlighted on ingredients labels, in bold for example.

Read the ingredient list every time you buy a product as manufacturers change their recipes often.

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When eating out

Restaurants, cafes, hotels, takeaways and other catering businesses are required by law to provide information on major allergens, including cow's milk. Ask staff directly if the food you would like to buy contains cow's milk and if there is a risk of cross-contamination. Let them know that even small quantities can cause a reaction and don't be afraid to ask staff to check with the chef.

Cross-contamination with milk can be a significant concern for someone with a serious immediate cow's milk allergy. Extra caution is advised in places such as pizza restaurants, ice cream shops and coffee venues, where milk is commonly used and the risk of accidental exposure is higher. It is still important to inform staff of your allergy when ordering so that cross-contamination risks can be addressed. Some restaurants publish an allergen menu on their website, so it can be helpful to check this before you visit.

Read about shopping and preparing food.

The following foods and ingredients can contain cow's milk protein:

Dairy products:

- Cow's milk (fresh, UHT, condensed, evaporated, dried/powdered, skimmed)
- Buttermilk
- Butter, butter oil, ghee, margarine
- Cheese (all types), cheese powder, cottage cheese
- Cream, sour cream, crème fraîche, artificial cream
- Ice cream
- Yogurt, fromage frais

Milk proteins and derivatives:

- Casein (curds), caseinates, hydrolysed casein
- Calcium caseinate, sodium caseinate
- Lactalbumin, lactoglobulin
- Whey, whey solids/powder/protein, hydrolysed whey, whey syrup sweetener
- Milk protein, milk solids, non-fat milk solids, modified milk, milk sugar

Cow's milk may also be found in some cosmetics and personal care products – it's important to read labels carefully.

Read our cosmetics factsheet.

Medication containing lactose

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Some medications contain lactose, which can worry people with a milk allergy. However, the lactose used in medicines is medical-grade, which means it contains only tiny trace amounts of milk protein—often so small that many people with a milk allergy can tolerate it.

If you are unsure, always check the ingredients and speak to your doctor or pharmacist, who can advise you on whether a medicine is safe for you.

Airborne and contact reactions

Serious allergic reactions usually only happen after eating or drinking something containing milk protein, but reactions can happen after touching or breathing it in. A splash of milk on the skin can cause a skin reaction such as a rash or hives. If milk gets into a cut in the skin, onto the lips or in the eyes, the reaction could be more serious. Cow's milk protein can become airborne when milk is heated (e.g. frothing in coffee shops), potentially causing mild symptoms like eye/nose itchiness or airway irritation if you are very sensitive. Serious reactions are uncommon from airborne exposure; symptoms are more often limited to eyes/nose/airways. Well-controlled asthma lowers the risk of serious reactions.

Always ensure asthma is well controlled, discuss with your GP or allergy specialist, as this reduces the risk of serious reactions from any allergen exposure, including indirect contact.

How do I feed my baby if they have a cow's milk allergy?

Breastfeeding

Cow's milk allergy usually happens when formula milk is introduced to a baby's diet or when introducing solid foods. It is very uncommon in babies who are solely breastfed.

If you have been advised to cut milk out of your diet and you are breastfeeding this should be for a time limited trial of 2-4 weeks. You should also be prescribed a calcium and vitamin D supplement. Do not cut foods out of your diet without guidance from a healthcare professional.

Dietary exclusion when breastfeeding can have a detrimental effect (nutrition, quality of life) on the mother and potentially affect breastfeeding without appropriate healthcare professional support.

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Hypoallergenic formulas

If your baby is not breastfeeding, your doctor can prescribe a type of hypoallergenic infant formula called 'extensively hydrolysed formula'. These are suitable for babies with cow's milk allergy as they contain fully broken-down proteins that the body doesn't react. If an extensively hydrolysed formula (EHF) isn't tolerated, your clinician may consider a hydrolysed rice protein formula (HRF) (available on NHS prescription) or an amino-acid formula. Your healthcare professional will be able to advise you on the correct formula for your baby.

Rice-based formula

This a hydrolysed formula that does not contain any cow's milk protein. It is prescribed by your GP, usually if your baby has not tolerated an extensively hydrolysed formula. It is not suitable if your baby has an allergy to rice e.g. rice FPIES.

The 'Comfort' range of formulas

The 'Comfort' range of formulas are not suitable as the milk proteins are only partially broken down, so could still cause a reaction.

Lactose-free milk

Lactose is a sugar naturally found in cow's milk. Lactose-free milk is not suitable as it still contains the milk proteins which cause allergic reactions.

Soya-based formulas

These are no longer available in the UK. Soya milk can be added to foods after the age of 6months as part of complementary feeding. There can be co-existing allergy between cow's milk and soya, more commonly seen with a delayed milk allergy, but for most babies with a milk allergy soya will not cause any issues at all. If you are concerned, speak with a healthcare professional who can advise when and how soya can be introduced.

Rice milk and other milk substitutes

Rice milk (not to be confused with a hydrolysed rice formula) is not recommended for children under four and a half years of age. Fortified plant-based milk alternatives—such as soya, oat, pea, coconut and nut milks—can be used from six months to mix with foods or added to cereal but should not be given as a main drink until a child is at least twelve months old. From twelve months of age, ready made plant-based milks can be used as a main drink, if the child is growing well and has a varied diet. It is important to

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choose a fortified product with added calcium; not all organic milks are fortified. If your child is unable to accept any suitable milk alternatives, seek advice from a dietitian, as vitamin or mineral supplements may be needed.

Milk from other mammals

Milk from animals such as goat and sheep all have similar proteins so are not recommended.

Do babies outgrow milk allergy?

Most babies outgrow their cow's milk allergy during childhood, with the majority becoming tolerant by around four years of age. Delayed (non-IgE-mediated) cow's milk allergy is often outgrown more quickly than immediate (IgE-mediated) allergy, sometimes within the first few years of life. While most cases begin in infancy, it is possible—though uncommon—for cow's milk allergy to first appear in adulthood.

Read our outgrowing allergy factsheet

Reintroducing cow's milk

Your allergy specialist or dietitian will talk to you about whether it's possible to start reintroducing milk into your child's diet as they get older.

Immediate allergy

With immediate cow's milk allergy, your child will probably need further skin prick or blood tests before adding milk back into the diet. When you do reintroduce milk, this will be supervised in an allergy clinic. You should not introduce milk to your child if they have an immediate milk allergy without guidance from their allergy health professional.

Delayed allergy

With delayed cow's milk allergy this will done gradually, usually at home, following something called a 'milk ladder', where you start with small amounts of baked milk. Baked milk is often well tolerated and less likely to cause allergic reactions than fresh milk.

The milk ladder

The **"milk ladder"** is a step-by-step way to reintroduce milk into the diet for those diagnosed with cow's milk allergy.

It is intended for infants with delayed (non-IgE mediated) cow's milk allergy;

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It typically involves:

- starting with foods that contain very small amounts of well-cooked milk (such as highly baked products)
- gradually increasing the amount of milk given
- eventually progressing to foods containing less processed or uncooked milk

Most families can follow the milk ladder at home with guidance from a specialist dietitian or allergy clinician. Your health care professional will be able to guide you with individualised advice for your child

A six-step milk ladder may be used at home for children with non-IgE milk allergy under specialist guidance. Do not use a milk ladder at home for immediate (IgE) milk allergy — reintroduction must be clinically-supervised.

If your child has been diagnosed with a condition called Food Protein Induced Enterocolitis Syndrome (FPIES). Reintroduction of milk should be under guidance from an allergy health professional and is usually done in hospital.

Oral Immunotherapy for cow's milk allergy

Milk OIT is available in some NHS specialist centers (and privately) but access is limited and suitability is assessed case-by-case. OIT aims to raise the reaction threshold, not cure the allergy; ongoing dosing and safety rules are essential.

OIT must always be carried out under the supervision of an allergy specialist. The aim of milk OIT is to build up tolerance to a defined amount of milk so there is less risk of a serious allergic reaction if milk is accidentally consumed. It is not a cure for milk allergy and there is a risk of reacting to the milk dose. There are rules when taking the dose which must be strictly followed. Not all children with more persistent milk allergy will be suitable for milk OIT; studies show that those who react to very small amounts of milk may have lower success rates and a higher likelihood of side effects. Careful consideration by the immunotherapy team, and discussion between the team and patient/caregivers, is required to assess the suitability of treatment.

Read about allergen immunotherapy.

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Key messages

- If you or your child have allergy symptoms after drinking cow's milk or eating foods containing dairy, visit your GP.
- Cow's milk allergy is usually outgrown during childhood.
- Your GP or allergy specialist, with support from a dietitian, can advise you on which foods to avoid and how to eat a balanced diet.
- If you are prescribed adrenaline, carry **two** in date doses with you **at all times.**

Feedback

Please help us to improve our information resources by sending us your feedback at: -

https://www.anaphylaxis.org.uk/information-resources-feedback/

Sources

All the information we produce is evidence-based or follows expert opinion and is checked by our clinical and research reviewers. If you wish to know the sources we used in producing any of our information products, please contact info@anaphylaxis.org.uk and we will gladly supply details.

Reviewer

This factsheet was peer-reviewed by Anna Conrad and Justine Dempsey, Specialist Paediatric Allergy Dietitians.

Disclosures

We are not aware of any conflicts of interest in relation to the review of this factsheet.

Disclaimer

The information provided in this factsheet is given in good faith. Every effort has been taken to ensure accuracy. All patients are different, and specific cases need specific advice. There is no substitute for good medical advice provided by a medical professional.

About Anaphylaxis UK

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Anaphylaxis UK is the only UK-wide charity solely focused on supporting people at risk of serious, life-threatening allergic reactions. We provide information and support to people living with allergies through our free national helpline. We also campaign and fundraise to achieve our ultimate aim, to create a safer environment for all people at risk of serious allergies. Visit our website www.anaphylaxis.org.uk and follow us to keep up-to-date with our latest news. We're on Facebook @anaphylaxisUK, LinkedIn, Instagram @anaphylaxisUK, Twitter @AnaphylaxisUK and you can find our podcast here.

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