

Your quick guide to:

Lactose Intolerance

Lactose intolerance is a common digestive condition that is classed as a food intolerance. It happens when the body does not produce enough of an enzyme called lactase, which is needed to digest lactose. Lactose is the natural sugar found in milk and dairy products, including milk from humans, cows, goats, sheep, buffalo and camels, and is sometimes called 'milk sugar'.

Lactase is produced in the small intestine, where it breaks lactose down into simpler sugars that can be absorbed into the bloodstream. When there is not enough of this enzyme to break down all the lactose, some lactose passes undigested into the large intestine. There, it is fermented by bacteria, which can lead to symptoms such as bloating, wind, tummy pain and diarrhoea.

In many populations around the world, milk is (or was) traditionally consumed mainly during infancy and early childhood. It is therefore very normal for lactase production to decrease with age, resulting in lactose intolerance. Infants and young children naturally rely on lactose in milk, but temporary lactose intolerance can develop after a gut infection or other inflammation. In these cases, lactose digestion usually improves as the gut heals.

Lactose intolerance is often confused with milk allergy, but it is not an allergy and does not involve the immune system.

How is lactose intolerance different from cow's milk allergy?

Lactose intolerance is caused by difficulty digesting the sugar in milk (lactose), leading mainly to gut symptoms. Cow's milk allergy is an immune reaction to the proteins in milk and can cause symptoms affecting many parts of the body, including the skin, gut and lungs, and in some cases be life-threatening. People with lactose intolerance can usually tolerate dairy products that are low in lactose, whereas people with cow's milk allergy often need to avoid all milk and milk-containing foods.

Symptoms of lactose intolerance

Symptoms usually develop within a few hours of consuming lactose, although some people may notice symptoms sooner. The severity of symptoms depends on how much lactose is consumed and how much lactase activity the body has.

Common symptoms include:

- Diarrhoea

- Bloating
- Flatulence (excess wind/gas)
- Stomach pain or cramping
- Stomach rumbling or gurgling
- Nausea (feeling sick)

A common symptom, particularly in infants and young children, is:

- Acidic stools, which may cause sore skin around the bottom and nappy rash

Less common symptoms include:

- Vomiting (more common in children than adults)
- Constipation

What causes lactose intolerance?

Lactose intolerance can occur for different reasons:

- Primary lactose intolerance is the most common type and is genetic (runs in families). The body naturally produces less lactase (the enzyme that digests lactose) as people grow older and rely less on milk, so symptoms usually appear in older childhood or adulthood and tend to last for life.
- Secondary lactose intolerance occurs when the gut is temporarily damaged, for example after an infection or due to certain medical conditions such as coeliac disease. Symptoms usually improve once the gut heals. This temporary lactose intolerance is particularly common in younger children after gut infections (stomach bugs) because their intestines are still developing.
- Developmental lactose intolerance can affect premature babies because their intestines are not fully developed, but it usually improves as the baby grows.
- Congenital lactose intolerance is an extremely rare condition in which a baby produces little or no lactase from birth. It usually becomes apparent shortly after birth when milk feeding begins.

Who is affected by lactose intolerance?

Primary lactose intolerance is a common condition that occurs in older children and adults of all ethnic backgrounds. It is particularly common among people of East Asian, African, Native American, Hispanic/

Key facts:

Lactose is the **natural sugar found in milk** and dairy products.

Symptoms usually **develop** within a **few hours** of consuming lactose.

Most people are **diagnosed based on their symptoms** and whether they improve when **following a low-lactose diet**.

It is **not necessary to avoid foods** with a cautionary allergen label such as **"may contain milk"** as the amounts of lactose will be minimal.

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Latino and Ashkenazi Jewish descent. In many populations around the world, most people lose some ability to digest lactose after early childhood. Retaining the ability to digest lactose into adulthood is more common in people of Northern European ancestry.

Secondary lactose intolerance is not affected by ethnicity and is most commonly seen in babies and young children, often following a stomach infection or other gut illness. It can also occur in adults, for example in conditions that damage the lining of the gut, such as untreated coeliac disease.

Diagnosis of lactose intolerance

It is important to see a healthcare professional, usually a GP, if you think you or your child may have lactose intolerance, as symptoms can overlap with other conditions. Most people are diagnosed based on their symptoms and whether they improve when following a low-lactose diet. Tests are usually only needed if the diagnosis is unclear or to rule out other conditions, such as coeliac disease or other digestive problems.

Symptoms such as diarrhoea, wind and irritability in infants are sometimes mistaken for lactose intolerance, but they are often caused by feeding issues, normal infant behaviour, common infections, or other conditions, for example cow's milk protein allergy. Parents should seek support with feeding and symptoms before removing foods from their child's diet, as many symptoms are common in infancy and may not be caused by lactose intolerance. In infants and young children, a GP may assess for cow's milk allergy because the symptoms can overlap. However, it is uncommon for cow's milk allergy to first develop later in childhood.

Primary lactose intolerance (more common in older children and adults) is usually diagnosed when symptoms improve after following a low-lactose diet and return when lactose-containing foods are reintroduced. Secondary lactose intolerance (more common in younger children) is usually diagnosed if the symptoms started after gut inflammation (most often due to a stomach bug) and improves on a low-lactose diet.

Below are the two typical approaches taken to diagnose lactose intolerance (Important: always follow individual advice from healthcare professionals):

Primary lactose intolerance: (more common in older children and adults)

1. Follow a strict low-lactose diet for two weeks
2. Monitor whether symptoms improve
3. Reintroduce lactose-containing foods
4. See if symptoms return.

If symptoms return lactose intolerance is likely and a low-lactose diet should be continued. Gradually introduce small amounts of lactose into the diet to discover individual tolerance. Start with foods with lower amounts of lactose. If these are tolerated, small portions of higher-lactose foods can also be tried.

If symptoms do not improve on a strict low-lactose diet, lactose intolerance is unlikely. Gradually re-introduce lactose-containing foods into the diet.

Secondary lactose intolerance: (more common in younger children)

Did symptoms start after a gut infection (stomach bug) or other gut inflammation?

IF YES:

1. Follow a strict low-lactose diet while the gut heals (typically for two to eight weeks)
2. Monitor whether symptoms improve.
3. After this period, gradually reintroduce lactose-containing foods. Start with small amounts of lower-lactose foods (for example yoghurt), then increase amounts and progress to higher-lactose foods.
4. Gradually return to usual intake of lactose once the gut has fully recovered.

During the first phase of following a strict low-lactose diet, it can be helpful to use lactose-free dairy products that still contain cow's milk protein, such as lactose-free milk, yoghurt, cheese and cream available in supermarkets. This can help maintain nutritional intake while also helping to distinguish between lactose intolerance and cow's milk allergy.

Seek referral to a dietitian if you are excluding cow's milk from a child's diet, or if you are concerned about the nutritional adequacy of your diet.

If lactose intolerance is diagnosed

A diagnosis of lactose intolerance does not usually mean that all lactose needs to be avoided. Most people can tolerate small

amounts without experiencing symptoms, although tolerance varies between individuals. Including tolerated amounts of lactose in the diet may be beneficial, especially for children. Lactose may help support the balance of healthy gut bacteria and the absorption of minerals such as calcium.

In primary lactose intolerance, once symptoms have improved on a stricter low-lactose diet, foods containing smaller amounts of lactose can be reintroduced gradually, followed by higher-lactose foods if tolerated. The aim is to identify the level of lactose that can be consumed without causing symptoms, rather than excluding lactose completely. Some evidence suggests that gradually increasing lactose intake to the level tolerated may help maintain or improve tolerance over time.

In secondary lactose intolerance, a temporary low-lactose diet is recommended while the gut heals. Once symptoms have settled, lactose-containing foods can usually be reintroduced gradually. Over time, most people are able to return to a normal diet without symptoms. The focus is on reintroducing lactose fully, rather than long-term restriction.

Following a low lactose diet

Lactose is found naturally in mammalian milk and dairy products and foods containing them, unless lactose has been removed during processing. See table 2 for a list of high lactose foods, lactose-free alternatives and lower lactose options.

During the initial strict low-lactose diet used to confirm diagnosis, it is usually helpful to choose lactose-free alternatives. Once symptoms improve, foods naturally lower in lactose can be reintroduced gradually to assess tolerance.

Some dairy products are naturally lower in lactose and may be tolerated depending on individual sensitivity. These include butter, clarified butter (ghee) and hard or matured cheeses such as Cheddar, Parmesan, Swiss-style cheeses (e.g. Emmental), Edam and Gouda. Lactose content can vary between cheeses, and tolerance can differ from person to person. Some cheeses may indicate on the ingredients list or nutrition information that they are lactose-free, even if they are not specifically labelled as 'lactose-free'.

Bacteria break down lactose during fermentation. Properly fermented yoghurts and kefir can therefore also be relatively low in lactose. However, they are not lactose-

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free unless specially processed for this, and tolerance varies between individuals as well as on the product and portion size.

Some foods with naturally occurring lactose are processed so that the lactose is removed. These are usually labelled 'lactose-free'. This means that the product contains very little lactose and is highly unlikely to cause symptoms in people with lactose intolerance, including those who are very sensitive.

Foods that are naturally free from lactose do not usually need to be restricted unless milk or milk-derived ingredients have been added. This includes:

- Meat, poultry, fish and eggs
- Legumes such as beans, lentils and peas
- Fruit and vegetables in all forms (fresh, frozen, tinned or dried)
- Starchy foods such as rice, pasta, potatoes, oats and many (but not all) breads
- Nuts and seeds
- Fats and oils, including vegetable oils and plant-based butter alternatives and margarines
- Most drinks, including water, fruit juice, squash, tea and coffee.

It is important to check food labels carefully, as milk, whey and other milk-derived ingredients (including lactose itself) may be added to processed foods and drinks. For example, whilst most breads are lactose-free, some are not, such as brioche and milk loaf. Ingredients with names similar to lactose, such as lactic acid, lactylates, lactones and lactates, do not contain lactose and do not need to be avoided.

As milk is one of the allergens that must be declared by law in the UK and EU, all milk-based ingredients included in pre-packed foods must be highlighted as containing milk in the ingredients list.

It is not necessary to avoid foods with a cautionary allergen label such as "may contain milk" as the amounts of lactose will be minimal.

Example of a food label

Yoghurt-coated rice cake

Ingredients: Yogurt Flavoured Coating (58%) (Sugar, Palm Kernel Oil, Dried Lactose (**Milk**), Dried Yogurt (**Milk**), Emulsifier: **Soya** Lecithin), Wholegrain Brown Rice (37%), salt.

Table 1. High lactose foods, lactose-free alternatives and foods that are naturally lower in lactose and may be tolerated by some people with lactose intolerance

Higher lactose foods	Lactose-free alternatives	Lower-lactose foods (many people tolerate these in small amounts)
Cow's, goat's, sheep's, buffalo and camel milk	Lactose-free milk; fortified plant-based drinks	Small amounts of milk may be tolerated by some people once symptoms have improved
Cream, crème fraîche	Lactose-free cream; plant-based cream alternatives; coconut cream	Butter and clarified butter (ghee)
Yoghurt, fromage frais	Lactose-free yoghurts; plant-based yoghurts	Well-fermented yoghurts and kefir (tolerance varies)
Soft cheeses and whey-based cheeses (e.g. ricotta, cottage cheese, cream cheese, mascarpone, brown cheese)	Lactose-free cheese	Hard and mature cheeses (e.g. Cheddar, Parmesan, Emmental, Gouda, Edam)
Ice cream, custard and milk puddings	Lactose-free or plant-based ice cream and custards; sorbet (check label)	Small portions may be tolerated by some individuals
Milkshakes, hot chocolate and malted drinks	Lactose-free or plant-based versions	Some people tolerate small amounts when consumed with meals
Milk powder, skimmed milk powder, evaporated milk and condensed milk	Plant-based alternatives where available (e.g. condensed coconut milk)	
Sauces, soups and ready meals containing milk, cream or cheese (e.g. white sauce, "cream of" soups, filled pasta)	Milk-free versions or homemade versions prepared with lactose-free milk or plant-based alternatives	Small portions may be tolerated depending on ingredients and individual sensitivity
Cakes, biscuits and pastries containing substantial amounts of milk (e.g. brioche, milk bread, creamy desserts)	Milk-free baked goods; homemade versions prepared with lactose-free milk or plant-based alternatives	Small portions may be tolerated by some individuals
Milk chocolate, white chocolate and chocolate spreads containing milk	Dairy-free chocolate alternatives	Dark chocolate that does not contain milk ingredients (check label)
Cream liqueurs, milk-based cocktails, milk stouts and other alcoholic or non-alcoholic drinks containing milk, cream or lactose	Alcoholic and non-alcoholic drinks without milk, cream or lactose as ingredients	Most beers, wines and spirits are naturally lactose-free, although tolerance and ingredients should always be checked where labels are available

Medicines and supplements

Some medicines and supplements contain small amounts of lactose. These amounts are usually too small to trigger symptoms in most people with lactose intolerance, although symptoms may occur in people who are very sensitive to lactose or who take multiple medicines containing lactose. Speak with a healthcare professional if you or someone you care for has lactose intolerance and you are concerned about possible reactions.

There are no medicines that treat lactose intolerance itself, and it is usually managed through

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dietary changes. However, lactase enzyme tablets or drops are available to buy over the counter. When taken according to the manufacturer's instructions, they can help people digest foods containing lactose and may reduce symptoms. Response varies from person to person.

Which milk?

Breastfeeding and formula feeding

Breastfed infants with secondary lactose intolerance can usually continue breastfeeding, as breast milk supports gut health and is generally well tolerated. It is very rare for breastfeeding to need to stop unless there are additional medical concerns. Lactase enzyme drops are sometimes used to support babies with temporary lactose intolerance.

In formula-fed infants, a lactose-free formula may be used temporarily. However, this is usually only needed for a short period, as lactose tolerance typically improves once the gut has recovered, often within a few weeks to a couple of months. Standard lactose-free formulas are usually based on cow's milk and are not suitable for infants with cow's milk allergy because they still contain milk proteins.

Suitable milk and milk substitutes for older children and adults

Whilst normal milk contains lactose and will cause symptoms in significant amounts, lactose-free milks are widely available in most supermarkets. Plant-based milk alternatives are naturally lactose free.

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- **Lactose-free milk and dairy products:** These are regular cow's milk and dairy products in which the lactose has been removed or broken down during

processing. Lactase enzyme is often used and will appear in the ingredients list for many of these products. Lactose-free milk is usually clearly named so, but for other products you may need to check the label more carefully (such as certain yogurts, cheeses or iced coffees). Because these products are made from regular dairy, they provide similar nutritional benefits to standard dairy products. They are good sources of energy, protein, calcium, iodine, vitamin A and vitamin B2 (riboflavin). Replacing regular dairy products with these alternatives is therefore unlikely to affect nutrient intake.

- **Plant-based milk and dairy alternatives:** There is a variety of plant-based drinks and dairy alternatives available that are naturally lactose free, including products made from soya, oats, coconut, nuts and pea protein. These products are nutritionally different from milk and dairy products and are not naturally rich in calcium, iodine and some of the vitamins found in dairy. When choosing these products as an alternative to milk and dairy, it is important to select those that are fortified with calcium and to ensure there are alternative sources of other key nutrients in the diet. Many products are also fortified with vitamin B2 (riboflavin), vitamin B12 and iodine. Rice-based drinks should not be used as a main drink for children under four and a half years of age because of their naturally occurring inorganic arsenic content.

Meeting calcium requirements

Milk and dairy foods are important sources of calcium. When following a low-lactose diet, it is important to include lactose-free milk and dairy products, or calcium-fortified plant-based alternatives, to help meet calcium needs. If this is not possible, a calcium supplement

may need to be considered.

Babies under one year of age should have breast milk or infant formula as their main drink, alongside small sips of water from when complementary foods are introduced. Breast milk or infant formula will usually provide enough calcium when taken in usual amounts. As intake of breast milk or formula decreases with the introduction of solid foods, including milk and dairy foods (lactose-free when needed) or calcium-fortified plant-based alternatives in cooking and food preparation can help meet calcium requirements.

For children aged over one year and adults, including around three portions of dairy foods or calcium-fortified alternatives each day can help meet calcium requirements, although needs can vary.

For more information on calcium-rich foods and portion sizes, see the [British Dietetic Association calcium resource](#).

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