

# Your quick guide to: Lactose Intolerance

## What is lactose intolerance?

This is a common disorder arising from an inability to digest lactose (milk sugar) because of low levels of the enzyme lactase. Lactose is the main sugar in milk and milk products from mammals (e.g. humans, cows, goats). Lactose is digested by the enzyme lactase in the small intestine of the gut. If lactase activity is low, undigested lactose passes into the colon (large intestine), where it can cause symptoms of lactose intolerance. Lactose intolerance is often confused with milk allergy, but it is **NOT** an allergy.

The symptoms of lactose intolerance are:

- Diarrhoea
- Bloating
- Flatulence (wind)
- Abdominal pain or discomfort
- Infantile colic

And less commonly, it can cause constipation and nausea.

## What causes lactose intolerance?

Lactose intolerance is often a temporary condition that can occur after a bout of gastroenteritis (stomach bug) or alongside undiagnosed coeliac disease. It can also occur in the first few months of life until the levels of lactase have become fully established (developmental lactase deficiency).

## Who is affected by lactose intolerance?

Certain populations, particularly Asian and African people, suffer from a genetic form of lactose intolerance where there is a gradual loss of ability to produce lactase over time (primary lactose intolerance). Primary lactose intolerance tends to be a condition seen in older children and adults - so you grow into lactose intolerance, not out of it.

## Diagnosis of lactose intolerance

Diagnosis of lactose intolerance is usually made if the symptoms get better after excluding all sources of lactose from the diet for two weeks and this involves carefully reading food labels. Lactose rich foods are then re-introduced into the diet and if the symptoms come back, the diagnosis is confirmed.

Lactose free, cow's milk protein containing products, such as Lactofree™ yoghurts and cow's milk, should be used where possible during the exclusion trial, to avoid confusing lactose intolerance with cow's milk allergy. Cow's milk allergy is much more likely in children under two years of age. It is important to visit your GP if you think you or your child may have lactose intolerance, as the symptoms can be similar to other conditions.

Lactose intolerance for longer than six to eight weeks is extremely rare in infants and young children and a low lactose formula should not be used for longer than this. If the diagnosis is not clear, a hydrogen breath test can be arranged, so discuss this with your GP. Do not continue to avoid lactose and dairy products if symptoms have not been resolved.

## Low lactose diet

This information is designed to help you get started on a lactose free diet. However, it is essential that once you have established that the strict exclusion of lactose from your diet has improved your symptoms you should then start to gradually re-introduce lactose containing foods, starting with those containing only small amounts of lactose. These would usually be the foods where you have checked the labels. Then try some hard cheese and yogurt. If there are still no symptoms, try having a small amount of normal cow's milk on cereal or in drinks according to individual tolerance levels (the amount of lactose a person can tolerate without the development of

## Key facts:

**Goat, sheep** and other **animal milks** are **not suitable** for lactose intolerance, as lactose is the main sugar in all mammalian milks

Certain populations, particularly **Asian** and **African people**, often suffer from a **genetic form of lactose intolerance**

Lactose intolerance is **often a temporary condition** that can occur after a bout of gastroenteritis (stomach bug)

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symptoms). If you have any concerns about achieving an adequate intake of vitamins and minerals, you should ask your GP for a referral to a dietitian.

Lactose intolerance is treated by following a low lactose diet. Most children and adults with lactose intolerance can tolerate small amounts of lactose in foods. Lactose may act as a prebiotic - feeding healthy gut bacteria and improving the absorption of minerals such as calcium, so try to include it if you can.

## Milk substitutes

### Breastfeeding and infant formula

Breast milk and infant formula have very high lactose content which could be the cause of infantile colic in some breast and bottle fed babies. Reducing the lactose content of breast milk and formula by using lactase enzyme (Colief™) for the first few months of life may help if there are no other symptoms suggestive of cow's milk allergy. 'Comfort infant formulas' also have a reduced lactose content and may help babies with colic.

### Lactose free formula

If your baby gets gastroenteritis and the diarrhoea does not resolve after two weeks of illness, a six to eight week period on a lactose free formula may help. Then, your baby should be gradually re-introduced to normal formula. If the symptoms come back, it may be that your baby is now suffering from cow's milk allergy and you should discuss this with your doctor. See our 'Does my child have a Cow's Milk Allergy Factsheet' for more information.

Lactose free infant formulas still contain the cow's milk proteins that are in normal infant formulas and so they are not suitable for babies with cow's milk allergy. Lactose free formulas may help with symptoms of diarrhoea, bloating, colic, wind and nappy rash, as lactose can cause these symptoms if not digested. As cow's milk protein is still in lactose free formulas however, your baby's gut will still be inflamed.

They may also suffer from other immune reactions affecting the skin and breathing e.g. rashes, blocked or runny nose. Once cow's milk protein is excluded by using a hypoallergenic (low allergy) formula, the gut will heal and the baby should be able to tolerate some lactose again. See our factsheet 'Cow's milk free diet for babies and children' for more information.

## Milk substitutes for older children and adults

- Lactofree™ milk and products help to ensure that you still get all the nutrients that you would from a normal cow's milk containing diet whilst avoiding lactose, so there should be no nutritional concerns if these are consumed as part of your daily diet. Cow's milk and dairy foods are rich sources of energy, protein, calcium, iodine, vitamin A and riboflavin. These are essential for growth and development, bone and dental health.
- Goat, sheep and other animal milks are not suitable for lactose intolerance, as lactose is the main sugar in all mammalian milks.
- If plant based milks and products are used e.g. soya, oat, coconut, nut, hemp, choose those fortified with calcium, and find alternative sources for other key nutrients. You should seek referral to a dietitian if undertaking long term exclusion of cow's milk for a child, or if you are concerned about the nutritional adequacy of your diet.
- Rice milk should be restricted because of its naturally occurring inorganic arsenic content and it is not suitable as a main milk drink for children under four and a half years of age.
- Soya milk is lactose free but is not recommended for children under six months.

## How much milk substitute should I give?

### Under One year of age

Most babies under one year of age need to take 600ml (20 fl oz/1 pint) of milk each day to meet their nutritional requirements, including a recommended calcium intake of 525mg daily. If breastfeeding, assume that one good breast feed is equivalent to a bottle of formula. If your baby consumes less than this, your baby may not be meeting their nutritional requirements and you should inform your GP or Health Visitor.

### One to three years of age

Calcium requirements are lower in this age group (350mg calcium) and generally 300ml (10 fl oz/ ½ pint) of milk substitute is enough. However, your child may need more than this if they are not getting enough vitamins and minerals from the foods that they eat.

### Four years upwards

Calcium requirements gradually increase back to around 500 mg daily, which requires an intake of the equivalent of 600ml (20 fl oz/1 pint) fortified milk substitute a day. It is recommended that adults consume the equivalent of one pint of calcium fortified milk a day.

### Include dairy products

Most children and adults with lactose intolerance can tolerate some low lactose foods (e.g. hard cheese, butter and yogurt), lactose in medications and even small amounts of cow's milk without causing symptoms (Table 1). Up to 240ml cow's milk (12 g lactose) is often well tolerated if spread throughout the day. Due to the benefits of lactose, try to include some if possible. Lactofree™ milk and products also help you get all the nutrients that you would from a normal cow's milk based diet while avoiding lactose.

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**Table 1:** Sources of lactose and lower lactose alternatives Checking food labels

Rich sources of lactose	Lower lactose alternatives
<ul style="list-style-type: none"> <li>Breast Milk</li> </ul>	<ul style="list-style-type: none"> <li>Colief™ added to breast milk or infant formula, low lactose infant formulas, 'Comfort' infant formulas milks</li> </ul>
<ul style="list-style-type: none"> <li>Cow &amp; goat's milk based infant formula</li> </ul>	<ul style="list-style-type: none"> <li>Lactofree™ milk</li> <li>Plant-based milks</li> </ul>
<ul style="list-style-type: none"> <li>Cow, goat and other mammalian milks</li> </ul>	<ul style="list-style-type: none"> <li>Butter</li> <li>Lactofree™ cream</li> <li>Plant-based creams</li> </ul>
<ul style="list-style-type: none"> <li>Yogurt/fromage frais</li> </ul>	<ul style="list-style-type: none"> <li>Lactofree™ yogurt</li> <li>Plant-based yogurts</li> </ul>
<ul style="list-style-type: none"> <li>Cheese - especially soft &amp; processed</li> </ul>	<ul style="list-style-type: none"> <li>Hard, mature cheese e.g. cheddar, parmesan, Lactofree™</li> </ul>
<ul style="list-style-type: none"> <li>Cream/ Crème fraiche</li> </ul>	<ul style="list-style-type: none"> <li>Plant-based milk puddings i.e. those made with plant-based or Lactofree™ milk</li> </ul>
<ul style="list-style-type: none"> <li>Milk based puddings e.g. custard, ice cream</li> </ul>	

## Checking food labels

You will need to carefully check the ingredients list on food items and avoid foods which contain any of the following during the strict exclusion trial. However, afterwards you should be able to include some of these ingredients in your diet based on your level of tolerance:

### Example of a food label:

Olive spread: Cream/artificial cream  
Lactose Ice cream Fromage frais

**INGREDIENTS:** Water, Vegetable Oils (37%) [Rapeseed Oil, Palm Oil], Olive Oil (22%), Whey Powder (from Milk), Salt (1.1%), Emulsifier (Mono- and Diglycerides of Fatty Acids), Stabiliser (Sodium Alginate), Preservative (Potassium Sorbate), Colour (Carotenes), Flavouring, Vitamin A, Vitamin D. Allergy Advice! For allergens, see ingredients in **bold**

<ul style="list-style-type: none"> <li>Cow's milk (fresh, UHT)</li> </ul>	<ul style="list-style-type: none"> <li>Whey, whey solids, whey powder</li> </ul>	<ul style="list-style-type: none"> <li>Yoghurt</li> </ul>
<ul style="list-style-type: none"> <li>Evaporated milk</li> </ul>	<ul style="list-style-type: none"> <li>Whey syrup sweetener</li> </ul>	<ul style="list-style-type: none"> <li>Margarine</li> </ul>
<ul style="list-style-type: none"> <li>Condensed milk</li> </ul>	<ul style="list-style-type: none"> <li>Milk powder, skimmed milk powder</li> </ul>	<ul style="list-style-type: none"> <li>Cream/artificial cream</li> </ul>
<ul style="list-style-type: none"> <li>Butter milk</li> </ul>	<ul style="list-style-type: none"> <li>Milk solids, non-fat milk solids</li> </ul>	<ul style="list-style-type: none"> <li>Lactose</li> </ul>
<ul style="list-style-type: none"> <li>Ghee</li> </ul>	<ul style="list-style-type: none"> <li>Modified milk</li> </ul>	<ul style="list-style-type: none"> <li>Ice cream</li> </ul>
<ul style="list-style-type: none"> <li>Butter, butter oil</li> </ul>	<ul style="list-style-type: none"> <li>Milk sugar</li> </ul>	<ul style="list-style-type: none"> <li>Fromage frais</li> </ul>

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## Lactose containing check list

On the following few pages are tables which give examples of lactose free foods and foods which may contain lactose. Please note that this is not an exhaustive list and you must always check labels as ingredients may change without any warning.

Suitable Foods	Foods that may contain lactose	Foods to avoid
<b>Milk and Dairy Products</b> <ul style="list-style-type: none"> <li>Lactose free infant formulas, casein based extensively hydrolysed infant formula</li> <li>Lactose free milk e.g. Lactofree™, oat milk, soya milk, pea milk, coconut milk, quinoa milk, hemp milk, nut milks</li> <li>Rice milk if over 4½ yrs age</li> <li>Lactose free cheese and yogurts e.g. Lactofree™</li> <li>Soya cream, oat cream, coconut cream</li> <li>Soya cheese, coconut oil based cheese (hard, soft, melting, parmesan type)</li> <li>Soya, rice, coconut &amp; pea based yogurts and desserts</li> <li>Soya, coconut, rice or nut ice cream</li> </ul>		<ul style="list-style-type: none"> <li>All stages of standard infant formulas and comfort milks, whey-based extensively hydrolysed infant formula, anti-reflux infant formula, goats infant formula 'Nanny™'</li> <li>All types of cow's milk, goat's and sheep's milk including skimmed, semiskimmed and full fat</li> <li>Rice milk under 4½ years of age</li> <li>Dried milk, evaporated milk, condensed milk, buttermilk, flavoured milk, coffee compliment, other whitener, cream, artificial cream</li> <li>Most types of cheese (some hard cheeses e.g. Cheddar, Parmesan low in lactose), quark, paneer, yogurt/yogurt drinks, ice cream</li> </ul>
<b>Fats and Oils</b> <ul style="list-style-type: none"> <li>Pure fats and oils, lard suet dripping</li> <li>Lactose free margarine e.g. Lactofree™</li> <li>Dairy free margarines e.g. Pure™, Vitalite™, Tomor™, Supermarket own brand of dairy free margarine • Kosher and vegan spreads</li> </ul>		<ul style="list-style-type: none"> <li>Butter, shortening, margarine, low fat spread, low cholestrol margarine, ghee</li> </ul>
<b>Cereals</b> <ul style="list-style-type: none"> <li>Flour, cornflour, oatmeal and barley, oats, rice</li> <li>Dried pasta, cous-cous</li> <li>Homemade pizza using suitable ingredients</li> <li>Some biscuits/crackers</li> <li>Breakfast cereals - many are milk free e.g. Shreddies™, Weetabix™, Cheerios™, Cornflakes™, Rice Krispies™</li> </ul>	<ul style="list-style-type: none"> <li>Bread – wholemeal, brown and white (most are milk free)</li> <li>Chapatti and naan breads</li> <li>Crackers and crispbreads</li> <li>Cakes and biscuits</li> <li>Filo pastry, puff pastry</li> <li>Fresh pasta, tinned pasta in sauces, pot noodles</li> <li>Savoury rice</li> </ul>	<ul style="list-style-type: none"> <li>Milk breads, some reduced starch breads, fruit loaves, soda bread, brioche, croissants, shortcrust pastry.</li> <li>Cheese topped rolls and scones, cheese straws, cheese flavoured biscuits</li> <li>Filled pasta eg lasagne</li> <li>Pizza</li> <li>Muesli, breakfast cereals containing chocolate</li> </ul>

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Suitable Foods	Foods that may contain lactose	Foods to avoid
<b>Meat, Fish and Alternatives</b> <ul style="list-style-type: none"> <li>All meats fresh and frozen, poultry, offal, bacon and ham</li> <li>Eggs</li> <li>Pulses: lentils, beans, hummus</li> <li>Soya mince</li> <li>Tofu</li> </ul>	<ul style="list-style-type: none"> <li>Meat products, sausages, beef burgers, pate, meat paste</li> <li>Breaded meat products e.g. chicken nuggets</li> <li>Fish in sauces, in breadcrumbs, fish fingers, tinned fish, fish pastes and pates</li> <li>Readymade meals</li> <li>Baked beans and food from fast food restaurants and takeaways</li> <li>Dry roasted or flavoured nuts, peanut butter</li> <li>Quorn based products</li> </ul>	<ul style="list-style-type: none"> <li>Quiche, sausage rolls, meat pies</li> <li>Cheesy savoury pastries e.g. cheese and onion pasty, rolls, yorkshire pudding</li> <li>Scotch eggs, scrambled egg, quiche, omelette</li> <li>Fish in batter</li> <li>Meals containing sauces made from cow's milk, butter or cheese</li> </ul>
<b>Vegetables</b> <ul style="list-style-type: none"> <li>All types of fresh, frozen, tinned and dried</li> </ul>	<ul style="list-style-type: none"> <li>Instant potato, potato croquettes, oven chips, potato crisps and other savoury snacks</li> <li>Vegetables in sauces, coleslaw</li> <li>Baked Beans</li> </ul>	<ul style="list-style-type: none"> <li>Vegetables pies</li> <li>Vegetables cooked with butter, white sauce or cheese</li> </ul>
<b>Fruit</b> <ul style="list-style-type: none"> <li>All types of fresh, frozen, tinned and dried</li> <li>Fruit juice</li> </ul>	<ul style="list-style-type: none"> <li>Fruit puddings, fruit pie fillings</li> </ul>	<ul style="list-style-type: none"> <li>Fruit yogurts, fools and mousses</li> <li>Chocolate and yogurt coated fruit</li> <li>Fruit pies, fruit in batter</li> </ul>
<b>Puddings</b> <ul style="list-style-type: none"> <li>Rice, sago, tapioca and semolina made with milk substitute</li> <li>Soya, coconut &amp; rice desserts</li> <li>Homemade milk free puddings, e.g. sponge, crumble</li> <li>Birds Original Custard Powder™ (in the tin), jelly</li> </ul>	<ul style="list-style-type: none"> <li>Custard powder</li> <li>Cocoa powder</li> <li>Iced buns</li> <li>Doughnuts</li> </ul>	<ul style="list-style-type: none"> <li>Milk based instant desserts, e.g. Angel Delight™, blancmange powders, instant whips</li> <li>Egg custard, milky puddings and custards, chocolate puddings, chocolate sauces</li> <li>Sponge cakes, crumbles and cheese cakes</li> <li>Profiteroles and other creamfilled cakes</li> </ul>
<b>Confectionery</b> <ul style="list-style-type: none"> <li>Soft jellies and gums</li> <li>Dairy free soya/ rice/ carob based chocolates (but beware of milk traces – check labels)</li> </ul>	<ul style="list-style-type: none"> <li>Plain chocolate (most are milk free, but some may contain traces)</li> <li>Juice based ice lollies</li> </ul>	<ul style="list-style-type: none"> <li>Toffee, fudge and butterscotch</li> <li>Ice Cream or milk lollies</li> <li>Milk and white chocolate</li> </ul>

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Suitable Foods	Foods that may contain lactose	Foods to avoid
<b>Drinks</b> <ul style="list-style-type: none"> <li>Fruit juice, squash cordials</li> <li>Fizzy drinks (not suitable for young children)</li> <li>Tea, coffee, cocoa (not suitable for young children)</li> </ul>	<ul style="list-style-type: none"> <li>Vending machine drinks</li> <li>Milkshake powders/ syrups</li> </ul>	<ul style="list-style-type: none"> <li>Toffee, fudge and butterscotch</li> <li>Ice Cream or milk lollies</li> <li>Milk and white chocolate</li> </ul>
<b>Miscellaneous</b> <ul style="list-style-type: none"> <li>Jam, honey, marmalade, syrup, and treacle, sugar</li> <li>Beef and yeast extracts e.g. Bovril™, Marmite™</li> <li>Salt, pepper, herbs and spices, tomato puree</li> <li>Sauces made with milk substitute</li> <li>Food colourings, oil based salad dressings</li> </ul>	<ul style="list-style-type: none"> <li>Salad cream and mayonnaise</li> <li>Gravy powders, stock cubes</li> <li>Tomato ketchup</li> <li>Salt, pepper, herbs and spices, tomato puree</li> <li>Sauces made with milk substitute</li> <li>Food colourings, oil based salad dressings</li> <li>Guacamole</li> <li>Tinned soups</li> </ul>	<ul style="list-style-type: none"> <li>Lemon curd, lemon cheese</li> <li>Chocolate spread</li> <li>Sauces made with milk</li> <li>Seafood sauce, Horseradish sauce</li> <li>Some artificial sweetener powders</li> <li>“Cream of” soups</li> </ul>

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## Clinical contributions:

### Allergy UK Clinical Team

Holly Shaw, Nurse Advisor

### Allergy UK Clinical Team

Dr Lisa Waddell, Specialist Community Paediatric Allergy Dietitian

## Additional Resources / References

Cow's Milk Free Diet Information For Babies and Children

<https://www.allergyuk.org/resources/cows-milk-free-diet-information-for-babies-and-children/>

Cow's Milk Allergy

<https://www.allergyuk.org/about-allergy/allergy-in-childhood/cows-milk-allergy/>

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