


# Milk

Nutrition information  
for all the family



*Dairy*  
UK



**MILK IS A STAPLE FOOD OF THE BRITISH DIET AND PROVIDES NUTRIENTS WHICH BENEFIT US THROUGHOUT LIFE. IT PLAYS A KEY ROLE WITHIN A HEALTHY BALANCED DIET.**

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# Varieties of milk

## PASTEURISED MILKS

- Whole milk has a minimum fat content of 3.5g per 100g
- Semi-skimmed milk has a fat content between 1.5 and 1.8g per 100g
- Skimmed milk contains a maximum of 0.3g fat per 100g
- 1% milk has a fat content of 1g per 100g
- UHT milk is heated at such high temperatures that all potentially harmful bacteria are killed giving UHT milk a longer shelf life than conventional milk
- Filtered milk goes through a filtration process (in addition to the usual steps of milk processing) to remove further souring bacteria, increasing shelf life
- Flavoured milk has been sweetened and flavoured (e.g. chocolate). Most flavoured milk is made using low-fat varieties. These milks are higher in sugar but still provide many beneficial nutrients

## RAW MILK

Raw milk is milk that has not been pasteurised (a heat treatment which kills potentially harmful bacteria). Because of this, sales of raw milk are banned in Scotland and tightly regulated in England, Wales and Northern Ireland. The nutritional value of raw milk is not significantly different to pasteurised or heat-treated milk.

THE FIRST KEY PLAYERS IN MILK PRODUCTION ARE OF COURSE THE COWS. AFTER MILKING, THE MILK IS COOLED IMMEDIATELY AND STORED IN TANKS AT 4°C, AND THEN TRANSPORTED TO THE DAIRY FOR PROCESSING. MILK HAS NO ADDED INGREDIENTS AND IS MINIMALLY PROCESSED FOR FOOD SAFETY REASONS.

## AT THE DAIRY, THE MILK IS:

**Pasteurised:** the milk is heated to 72°C for 15 seconds and then cooled quickly again. This process ensures that harmful bacteria are reduced in number so they don't pose a health risk and help prolong shelf life.

**Separated and Standardised:** the milk is separated into its cream and liquid parts. These are then re-blended in different proportions to contain the correct amount of fat, depending on whether the milk is to be sold as whole, semi-skimmed or skimmed.

**Most milk is Homogenised:** milk contains fat globules of different sizes. The larger globules make their way to the top and form a cream layer. Homogenisation is a process where the milk is pushed through a hole with such pressure that the larger fat globules are broken down and dispersed within the milk.

# The nutrients in milk

MILK IS A NUTRIENT-RICH FOOD AND PROVIDES A SIGNIFICANT AMOUNT OF VITAMINS AND MINERALS TO THE UK DIET.

A 200 ml glass of semi-skimmed milk provides the following amounts to the recommended daily intake of these important nutrients\*

## PROVIDES

A SOURCE OF  
**POTASSIUM**

16%

- Supports normal muscle and nerve function
- Helps maintain normal blood pressure

A SOURCE OF  
**VITAMIN B5**

23%

- Also known as Pantothenic acid
- Helps reduce tiredness and fatigue

A SOURCE OF  
**PHOSPHORUS**

28%

- Supports the maintenance of normal bones and normal teeth

## PROVIDES

HIGH IN  
**CALCIUM**

31%

- Needed for maintenance of normal bones and teeth
- Supports muscle and nerve function, and normal blood clotting

HIGH IN  
**VITAMIN B12**

74%

- Contributes to the reduction of tiredness and fatigue
- Supports the immune system and the release of energy from food

HIGH IN  
**IODINE**

41%

- Contributes to the production of thyroid hormones and thyroid function

HIGH IN  
**PROTEIN**

14%

- Contributes to the maintenance of normal bones and muscle, and growth in muscle mass

HIGH IN  
**RIBOFLAVIN**

35%

- Also known as vitamin B2
- Supports the maintenance of normal vision, skin and red blood cells.

\*Recommended intakes are based on guidelines for adults established and used for purposes of nutrition labelling in the European Union.

# Nutritional comparison of milk and alternatives

	Quantity (g) equivalent of 100ml	Energy (kcal)	Energy (kJ)	Protein (g)	Fat (g)	Sugars (g)	Free Sugars (g)	Lactose (g)	Calcium (mg)	Iodine (µg)	Riboflavin (B2) (mg)	Pantothenic Acid (B5) (mg)	Vitamin B12 (µg)	Cost (£) per litre
Whole milk	103	65	273	3.5	3.7	4.6	0	4.6	124	32	0.24	0.6	0.9	44p
Semi-skimmed milk	103	47	201	3.6	1.8	4.7	0	4.7	124	31	0.25	0.7	0.9	44p
Skimmed milk	103	35	150	3.6	0.3	4.8	0	4.8	130	31	0.23	0.5	0.8	44p
1% milk	103	42	180	3.6	1	4.8	0	4.8	128	31	0.24	0.61	0.9	44p
Soya drink, sweetened, fortified	103	44	187	3.2	2.5	2.2	2.2	0	134*	1	0.2*	0	0.4*	£1.40
Soya drink, unsweetened, fortified	99	25.7	107	2.4	1.6	0.2	0.2	0	119*	1	0.2*	0	0.4*	£1.40
Almond drink, fortified, sweetened	103	24.7	105	0.5	0.1	3.1	3.1	0	124*	0	0.2*	0	0.4*	£1.90
Almond drink, fortified, unsweetened	99	12.9	55	0.4	1.1	0.1	0.1	0	119*	0	0.2*	0	0.4*	£1.65
Almond drink, unfortified, unsweetened	99	31.7	130	0.9	2.1	0.5	0.5	0	18.6	0.1	0.1	0.05	0	
Hemp drink, fortified	103	40	169	0.1	2.6	1.6	1.6	0	124*	0	0.1	0.1	0	£1.50
Coconut drink, fortified	103	20.6	88	0.1	0.9	1.9	1.9	0	124*	0.04	0	0	0.4*	£1.75
Oat drink, unsweetened	99	32.7	139	1	0.7	3.8	3.8	0	4.5	0.1	0.01	0.1	0	£1.40
Oat drink, unsweetened, fortified	99	45	178	1	1.5	3.8	3.8	0	119*	0.1	0.01	0.1	0	£1.40
Rice drink, unsweetened, fortified	103	52	217	0.3	1	4.7	4.7	0	120*	0	0	0.01	0.4*	£1.40

\*indicates fortified nutrient

Nutritional information from Nutritics

# Milk throughout life

**MILK PROVIDES MANY NUTRIENTS WHICH PLAY IMPORTANT ROLES IN THE BODY THROUGHOUT LIFE. AROUND THE WORLD, HEALTH PROFESSIONALS RECOMMEND MILK AS PART OF A HEALTHY BALANCED DIET FOR ALL AGES.**

Two to three portions of dairy a day can help meet calcium and iodine needs, as well as providing protein, phosphorus, potassium, B12 and B2. See page 10 for suggested portion sizes of milk and milk products.

## INFANTS AND YOUNG CHILDREN

Professionals recommend that infants are exclusively breastfed up to the age of 6 months. After this, solid foods, including milk-based foods, can be gradually introduced into their diet.

Whole milk is recommended as a main drink for children from the age of 1 to 5 years. Children who are eating and growing well can have semi-skimmed milk from the age of 2 years onwards.

Skimmed or 1% fat milk are not suitable for children below the age of 5 as they are low in calories and fat.

## PRIMARY SCHOOL AGE CHILDREN

In this age group, milk continues to provide protein, calcium, iodine and phosphorus for their growth and development, as well as providing fluid for hydration.

Children may be offered milk at school to help meet their nutritional needs. For children aged 7-10 years, a school size carton of milk (189ml) provides:

- 42% of recommended calcium intake
- 53% of recommended iodine intake
- 47% of recommended B2 intake.

## TEENAGERS

During our teenage years we have higher calcium needs than at other stages of life due to rapid growth and development of bones. Having a good diet in our teens can also help lay the foundations for adult life. However, many teenagers fall short of their recommended calcium intake - a glass of milk provides a teenager with around a third of their daily requirement.

Teenage boys have higher requirements for calcium than girls and may need larger portions (or an extra portion).

## ADULTS

Pregnant and breastfeeding women need to ensure they are getting enough nutrients to meet their own nutritional needs and baby's too. Like folic acid, iodine is particularly important pre-conception and during pregnancy. Requirements for calcium remain the same during pregnancy but increase during breastfeeding - an extra 550mg calcium is needed in addition to 700mg.

Although the majority of our skeleton is laid down during our teenage years, bones continue to strengthen until our mid-thirties, and we need enough calcium in our diet to help support this. From our mid-thirties onwards, we naturally begin to lose bone mineral, and for some women there may be an increase in the loss of bone minerals post-menopause.

## OVER 75S

As we grow older, sometimes our appetite gets smaller, or we may experience problems with dental health or swallowing, and other health issues. Malnutrition may also be an issue and can be a result of prolonged hospitalisation or mobility issues.

Milk and dairy foods can be very useful for adding nutritional value to the diets of older people because they are rich in nutrients, flavoursome and palatable.

Cream, butter and soft cheese can also be used to add nutrients and calories to puréed foods.

## RECOMMENDED PORTION SIZES OF MILK AND MILK PRODUCTS FOR ALL AGES

	Infants and young children	Primary school age children	Teenage girls	Teenage boys	Adults and older people
	100ml whole milk from 1 year	150ml low-fat	200ml low-fat	250ml low-fat	200ml low-fat
	60g-80g whole milk yogurt from 6 months of age	125g low-fat	150g low-fat	200g low-fat	150g low-fat
	15g hard cheese or soft cheese from 6 months of age	20g hard cheese or soft cheese	30g hard cheese or soft cheese	40g hard cheese or soft cheese	30g hard cheese or soft cheese

\*A cheese stick the size of an average adult thumb is equivalent to approximately 15g of hard cheese

\*1 tablespoon grated cheese is about 30g

# Cow's milk allergy and Lactose intolerance

COW'S MILK ALLERGY AND LACTOSE INTOLERANCE ARE NOT AS COMMON IN THE UK POPULATION AS OFTEN PERCEIVED.

## COW'S MILK PROTEIN ALLERGY

Cow's milk protein allergy is an abnormal response by the immune system to the protein found in milk. This type of allergy mainly affects young children. However, children usually grow out of the condition by the time they start school and can enjoy dairy foods as adults.

## LACTOSE INTOLERANCE

Some people do not have the ability to digest lactose – the sugar found naturally in milk. This is because they cannot make enough lactase, an enzyme which breaks down lactose, in their body.

Lactose intolerance varies within different ethnic groups, but it has been estimated that it affects around 5% of the UK population overall.

Contrary to popular belief, many people with problems digesting

lactose can tolerate small amounts and therefore do not have to avoid all dairy foods. Hard cheeses such as Cheddar and Red Leicester contain very little lactose, and live yogurt cultures have been shown to improve lactose digestion in people with problems digesting it.

Many people who experience lactose intolerance may also be able to consume small amounts of milk without problems, particularly if it is taken as part of a meal or spread throughout the day.

If you think you have cow's milk allergy or lactose intolerance, you should visit your GP. If you are diagnosed with cow's milk allergy or lactose intolerance, a GP can refer you to a dietitian who will help you to manage your diet. Cutting out food groups without the advice of a dietitian is not recommended as it could have a negative effect on your nutrient intakes.

# Milk as part of a sustainable diet

A SUSTAINABLE DIET HAS BEEN DESCRIBED AS ONE THAT PROVIDES ALL THE NUTRIENTS NEEDED FOR A HEALTHY LIFE, IS CULTURALLY APPROPRIATE, AFFORDABLE, AND HAS A LOW IMPACT ON THE ENVIRONMENT AND ITS RESOURCES (INCLUDING WATER, PLANTS AND ANIMALS).

All food production has an impact on the environment and this may occur through increase in greenhouse gas emissions (gases which trap heat from the sun, causing a warming effect), excessive use of water and a negative impact on the planet's resources.

The dairy industry is responsible for less than 3% of greenhouse gas emissions in the UK. To put that into context, transport accounts for about 26%.

The British dairy industry is working hard within the supply chain and in partnership with the government to decrease environmental impacts, already surpassing the 2020 Climate Change Agreement.



## THE ACHIEVED OUTCOMES SO FAR INCLUDE:

### DAIRY FARMERS

- 73% actively plan optimal nutrient management, so that the nutrients put into the soil match requirements for optimal plant growth
- 78% are implementing measures to use water more efficiently
- 29% have implemented some form of renewable energy
- 78% are implementing strategies to reduce agricultural emissions

### DAIRY PROCESSORS

- All of the 5 major processing companies are implementing a programme to manage emissions
- The processors have achieved a 15% reduction in water consumption
- The dairy industry has implemented a biodiversity strategy for processors
- There has been an 18% improvement in energy efficiency in the dairy industry since 2008

In the UK it is estimated that we are now saving £3.3 billion a year compared with 2007, plus saving 4.4 million tonnes of CO<sub>2</sub> - that's the equivalent of taking 1.8 million cars off the road.

The Love Food Hate Waste campaign developed by WRAP (Waste & Resources Action Programme) includes a website with all the facts and tips associating with cutting food waste.

For more information visit:  
[lovefoodhatewaste.com](http://lovefoodhatewaste.com)

**EATING A HEALTHY, BALANCED DIET AND REDUCING FOOD WASTE ARE THE MOST EFFICIENT WAYS FOR CONSUMERS TO ENGAGE IN A SUSTAINABLE DIET.**



# Milk Q&A

## WHAT IS THE DIFFERENCE BETWEEN ORGANIC AND CONVENTIONAL MILK?

There are no significant differences in the quality or safety of organic and conventional milk.

Some people may choose organic milk due to personal preference. Organic food production avoids the use of artificial fertilisers and synthetic pesticides. Crop rotation and mixed farming practices are used to maintain soil fertility.

## IS MILK 'FULL OF FAT'?

There is a general misconception that dairy foods (including milk) are high in fat. In fact, whole milk is only 3.6% fat. Semi-skimmed milk is 1.7% fat, while skimmed milk is 0.3% fat and both are considered low in fat. Milk can be enjoyed as part of a healthy, balanced diet.

## ARE SKIMMED MILKS 'WATERED DOWN'?

While lower-fat milks can appear more watery, this is not due to the addition of any extra water, but the removal of fat.

Skimmed milks have less calories and fat than whole milk, and less vitamin A (which is found within the fat in milk). But levels of other nutrients including protein, calcium, and vitamins such as vitamin B2 and B12 are not reduced.

## WHAT IS THE DIFFERENCE BETWEEN RAW AND PASTEURISED MILK?

There are no significant nutritional differences between raw and pasteurised milk. Raw milk is not pasteurised and its sale is restricted in the UK for food safety reasons.

## IS THE SUGAR IN MILK BAD FOR CHILDREN'S TEETH?

Government advice is for us to cut down on a type of sugar known as 'free sugar'. Free sugars are those which are added to foods in processing, as well as during or after cooking. Lactose, the sugar found naturally in milk isn't counted as free sugar, and does not harm teeth in the same way. Dentists only recommend water or milk to drink between meals.

## ARE HORMONES OR ANTIBIOTICS ADDED TO COW'S MILK?

The use of hormones to increase milk production is banned in the UK. Natural hormones can be found in a wide range of foods and are present in both plant and animal based foods that we consume.

Milk is rigorously tested for traces of antibiotics under EU law to ensure that food is safe for consumption. If a cow needs antibiotics to treat an illness, these are prescribed by a vet and the cow's milk is discarded for a recommended period of time to ensure that the milk does not enter the food supply.



# Summary

Fresh plain milk is a natural product with nothing added. It undergoes heat treatment to remove any harmful bacteria

Lactose intolerance and cow's milk allergy are two completely different conditions that require different management

There are several varieties of milk including whole, semi-skimmed and skimmed milk

The nutrients in milk are beneficial for all ages

Dairy farmers and processors have achieved a number of milestones to produce more environmentally friendly sustainable products

Milk is a nutrient-rich product that is a source of several vitamins and minerals (calcium, potassium, phosphorus, iodine, B2 and B12) and protein.



## Information Sources

This is Dairy Farming. From Farm to Fridge. [www.thisisdairyfarming.com/discover/dairy-produce/from-farm-to-fridge/](http://www.thisisdairyfarming.com/discover/dairy-produce/from-farm-to-fridge/) [Accessed 09/2017]

PHE & FSA (2016). National Diet and Nutrition Survey: UK Results from Years 5 and 6 (combined) of the Rolling Programme (2012/13– 2013/14). [www.gov.uk/government/statistics/ndns-results-from-years-5-and-6-combined](http://www.gov.uk/government/statistics/ndns-results-from-years-5-and-6-combined) [Accessed 09/2017]

Food Standards Agency: Food Labelling Regulations 1996. [www.food.gov.uk/sites/default/files/multimedia/pdfs/Fguidnot1.pdf](http://www.food.gov.uk/sites/default/files/multimedia/pdfs/Fguidnot1.pdf) [Accessed 09/2017]

Claeys et al (2013). Raw or heated cow milk consumption: Review of risks and benefits. *Food Control* 31(1): 251-262.

Dairy RoadMap: What is the dairy roadmap? [www.dairyuk.org/images/documents/publications/2015\\_Dairy\\_Roadmap.pdf](http://www.dairyuk.org/images/documents/publications/2015_Dairy_Roadmap.pdf) [Accessed 09/2017]

Love Food Hate Waste: It all adds up. [www.lovefoodhatewaste.com/it-all-adds-up/](http://www.lovefoodhatewaste.com/it-all-adds-up/) [Accessed 09/2017]

Finglas et al (2015). McCance & Widdowson's The Composition of Foods, Seventh summary edition. Cambridge: Royal Society of Chemistry.

Department for Health (1991). Dietary Reference Values for Food Energy and Nutrients for the United Kingdom: Report of the Panel on Dietary Reference Values of The Committee on Medical Aspects of Food Policy. London: HMSO (41)

NHS choices: Milk and Dairy Foods. [www.nhs.uk/Livewell/Goodfood/Pages/milk-dairy-foods.aspx](http://www.nhs.uk/Livewell/Goodfood/Pages/milk-dairy-foods.aspx) [Accessed 09/2017]

NHS choices: Lactose intolerance. [www.nhs.uk/Conditions/lactose-intolerance/Pages/Introduction.aspx](http://www.nhs.uk/Conditions/lactose-intolerance/Pages/Introduction.aspx) [Accessed: 09/2017]

BDA: Milk Allergy Factsheet [www.bda.uk.com/foodfacts/milkallergy](http://www.bda.uk.com/foodfacts/milkallergy) [Accessed 09/2017]

For details on additional information sources please contact Dairy UK

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