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Nourishing growth

The valuable role of milk and milk products for childhood nutrition in the UK

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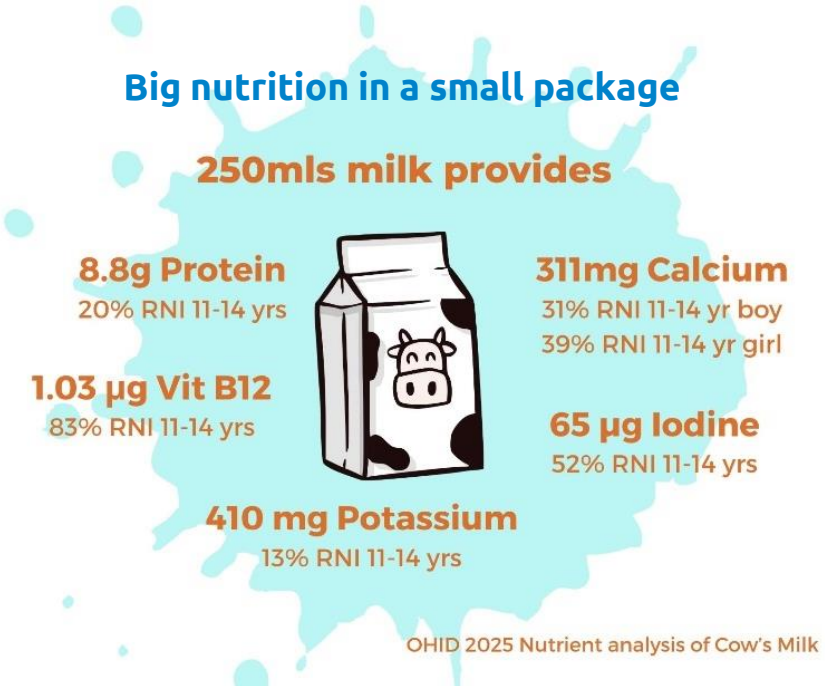
Dairy products, and milk in particular, play an important role in children's diets, providing essential nutrients that are vital for children's development and health. The Government's commitment to breakfast clubs in every primary school now provides an important opportunity to help ensure children are achieving adequate nutrition, and dairy foods can play a role within this.

Accepted and familiar, milk, and milk products (e.g. yogurt, cheese etc) are consumed by most families daily, providing an important source of a range of nutrients in the diets of UK children.

Key messages

- Children's diets in the UK fall short of government food based dietary recommendations
- Milk products are nutrient rich
- Milk – a solution for nutrient shortfalls
- Dairy - affordable nutrition
- Adolescence – make or break time for life-long bone health
- Hungry pupils struggle to learn
- Too many children miss out on free/subsidised milk



Children's diets in the UK fall short of government food based dietary recommendations

Milk and milk products are affordable, naturally wholesome, and a rich source of essential nutrients. The UK Eatwell Guide recommends having some dairy or unsweetened fortified dairy alternative every day as part of a healthy balanced diet.[1]

Guidance on intake of milk and dairy products for children includes:

- UK health advice that breastmilk, water, whole or semi-skimmed cow's milk (or sheep or goat) should be the main drinks for young children from age 1 onwards.
- Providing 3 portions of milk and unsweetened dairy foods each day in early years settings (including those provided at home). Non-dairy alternatives should be unsweetened, and calcium fortified (e.g. oat or soya drink). (Early Years Foundation Stage Nutrition Guidance)
- Serving a portion of milk or dairy every day at school, as well as a drink of lower-fat milk during school hours. Plain soya, rice or oat drinks enriched with calcium and plain fermented milk (for example yogurt) drinks are also permitted
- 2–3 portions of dairy foods or unsweetened fortified plant-drinks daily (UK Eatwell Guide)

National Diet and Nutrition Survey[2] results show that, on average, children's dairy intakes fall short of these recommendations. In fact:

- 1.5–3-year-olds consume around 1.5 portions (including 230ml milk, 39g of a yogurt/fromage frais/dairy-based dessert and 9g cheese)
- 4–10-year-olds consume less than 1.5 portions (including 200ml milk, 31g of a yogurt/fromage frais/dairy-based dessert and 7g cheese).
- 11–18-year-olds consume around 1 portion (including approx. 170ml milk, 16g yogurt/fromage frais/dairy-based dessert and 8g cheese)

Milk and milk products are nutrient rich

- Dairy and dairy-containing foods contribute many essential nutrients including protein, calcium, vitamin B12, riboflavin, iodine, and phosphorus. Therefore, dairy can be an important part of a healthy balanced diet during the life course.
- Children who drink cow's milk regularly are more likely to meet dietary recommendations for a variety of nutrients and have a better nutritional status compared to those with less frequent or no intake.[3]
- Cow's milk consumption (plain or flavoured, whole or lower-fat) has also been shown to improve nutritional status without adversely impacting body mass and body composition.[4,5,6]
- There appears to be a linear relationship between dairy consumption and growth in pre-school children.[7]
- Milk consumption (frequency and intake) has been positively linked to height during childhood.[8,9]

Cow's milk is naturally nutrient-rich.[10,11,12] A significant source of many essential nutrients, its inclusion as a component of a healthy balanced diet has been long recommended. Beyond milk's nutritional value, an increasing body of evidence illustrates cow's milk may confer numerous benefits related to health. Evidence from adult populations suggests that cow's milk may have a role in overall diet quality, appetite control, hydration and cognitive function.[3] Although evidence for children is limited compared to adults, these benefits are echoed in paediatric studies. The evidence consistently demonstrates that cow's milk (plain and flavoured) improves nutritional status in primary-school-aged children.[4] Cow's milk also appears beneficial for hydration, dental and bone health, and beneficial or neutral concerning physical stature and appetite.[4]

Milk – a solution for nutrient shortfalls

Milk and dairy foods are nutrient rich, and are key sources of protein, fat, vitamin B12, riboflavin, calcium, phosphorus and iodine.[13,14,15]

Table 1: Nutrient content of frequently consumed dairy products

	Whole Milk 200ml	Semi Skimmed Milk 200ml	Plain (low fat) Yogurt 150g	Fruit (low-fat) flavoured yogurt 150g	Cheddar Cheese 30g
Energy (kcal)	130	95	86	117	125
Protein (g)	7	7.2	7.2	6.3	7.6
Fat (g)	7.4	3.5	1.5	1.7	10.6
Saturated fat (g)	4.7	2.3	1.1	1.2	6.5
Carbohydrate (g)	9.5	9.7	11.7	20.6	0
Of which sugars* (g)	9.5	9.7	11.3	19.1	0
Riboflavin (B2) (mg)	0.38	0.36	0.33	0.32	0.12
Vitamin B12 (µg)	0.8	0.8	0.5	0.5	0.7
Calcium (mg)	247	247	243	210	222
Potassium (mg)	323	321	342	306	23
Iodine (µg)	46	52	51	72	9

* Milk is a source of lactose (milk sugar) which DOES NOT count towards free sugars intake.

Milk and milk products make a significant contribution to children's nutrient intakes in the UK.[2]

Table 2: Contribution of milk & milk products to children's nutrient intake.[2]

	1.5–3 years	4–10 years	11–18 years
Protein	24%	18%	13%
Vitamin A	28%	22%	18%
Vitamin B2	42%	35%	16%
Vitamin D	19%	13%	8%
Calcium	50%	41%	33%
Iodine	54%	48%	38%
Potassium	23%	18%	14%
Zinc	27%	20%	14%

Despite low average intakes, results from the National Diet and Nutrition Survey (2025)[2] demonstrate the contribution of milk and milk products to the diets of UK children.

Dairy – affordable nutrition

- Milk and dairy foods have had some of the lowest price rises over the past 12 months of any food at just a 1.4% increase which is half the overall price index increase of 2.8%.[16]
- A comparative analysis of milk, cheese and yogurt with plant-based products that aim to imitate dairy available in the UK found that dairy foods offer more nutrition.[17]
- Plant-based alternative products were found to be significantly **more expensive** compared to their dairy equivalent.[17,18]
- The nutritional composition of plant-based drinks is currently unregulated and there are no recommendations or guidance on minimum nutrient composition requirements. Plant-based drinks may be fortified with calcium to match cow's milk, but not other micronutrients such as riboflavin (B2), B12 and iodine.[19,20] The bioavailability (availability for bodily functions) of micronutrient fortificants added to these products is currently unknown.[21] To meet organic standards, organic plant-based drinks are not fortified with calcium or any other micronutrients.
- Switching to plant-based alternative products may have the unintended consequence of reducing micronutrient intake if not replaced with suitable nutritionally rich equivalents to dairy.[17] The greatest concerns in replacing cows' milk with plant-based alternative drinks relates to young children, particularly those who are following a vegan diet.[21]

The Healthy Start (England, Wales & NI) and Best Start (Scotland) schemes provide eligible, financially insecure families with a pre-loaded payment card (value £4.25 for each child aged over one but under four years) which can be redeemed against infant formula, cow's milk, or fruit and vegetables. Purchase of plant-based drinks is not included.

Milk – a solution for nutrient shortfalls

Nutritional deficiencies are common in the UK, especially so in our young people (11–18 years). National Diet and Nutrition Survey[2] data (see Table 3) show that deficiencies for calcium, magnesium, potassium, iron iodine, zinc, selenium, and vitamins D and B2 are occurring frequently, especially among teenage girls. Milk and dairy foods are key providers of many of these micronutrients.

Table 3: Percentage of males and females of different age groups in the UK with intakes of micronutrients (food sources only) below the lower reference nutrient intake (LRNI)*

Nutrient	1.5–3 years	4–10 years		11–18 years	
	All	Boys	Girls	Boys	Girls
Calcium	0	2	2	15	18
Magnesium	0	2	3	31	48
Potassium	0	0	1	27	37
Iron	6	2	2	11	49
Iodine	2	6	6	14	29
Zinc	3	7	8	14	23
Selenium	0	1	2	13	22
Vitamin D	17	20	18	21	16
Riboflavin B2	0	0	1	14	32

*Deficiency is defined as an intake below the Lower Reference Nutrient Intake which is the amount of a nutrient that is enough to ensure the need of only a small number of people with low requirements (≤2.5% of the population). The majority of individuals need more.

Young people (aged 11–18 years) are the group least likely to meet their nutrient requirements. Milk and milk products provide valuable nutrition to help support health and wellbeing. Milk and dairy are familiar foods and widely consumed, providing a vital contribution to nutrient intakes for children and young people. Milk is consumed regularly by 91% of 9–18-year-olds, followed by cheese (consumed by 60%) and yogurt (consumed by 56%).[22]

Despite the nutritional value of cow's milk in the everyday diet, intakes steadily decline as children age. Milk consumption typically reduces around the transition to secondary school, which could be related to a reduction in breakfast consumption (milk is frequently consumed during breakfast), or due to milk not commonly being offered to children in secondary schools.[23]

Of great concern is that 1 in 7 boys and 1 in 3 girls aged between 11–18-year-olds have iodine intakes below the lower reference nutrient intake (i.e. the minimum level required to avoid deficiency).[2] Milk is the main dietary source of iodine for children and young people, providing over one third of current intakes. Iodine is essential for the production of thyroid hormones [tri-iodothyronine (T3) and thyroxine (T4)] which help regulate metabolic rate, growth and development.[24] Inadequate intakes of iodine impair neurological development.[25] The latest results from the National Diet and Nutrition Survey (years 9–11) showed 1 in 10 young people to have very low urine iodine levels (below 50µg/l).[2] This is of public health importance, since mild iodine deficiency impairs cognition in children and severe iodine deficiency reduces IQ by 10 to 15 points.[26]

Adolescence – make or break time for bone mass

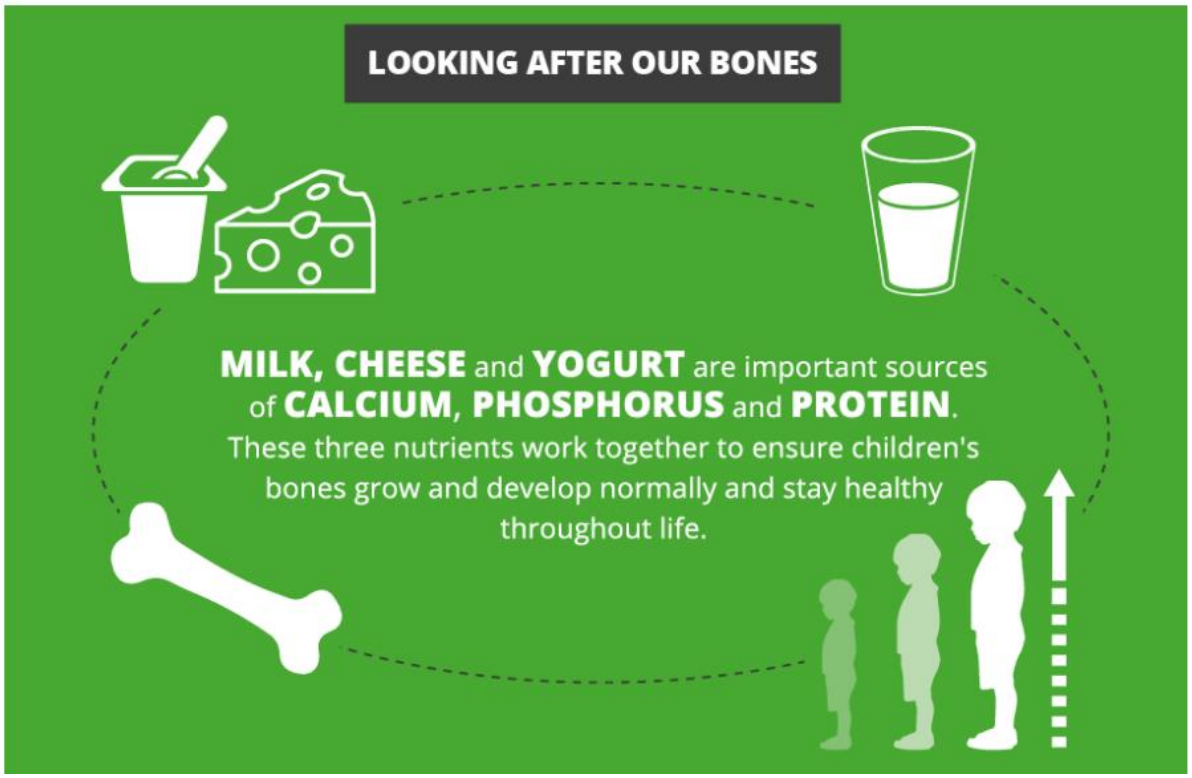
- Ensuring that peak bone mass is achieved during childhood and adolescence is the most important modifiable determinant of lifelong skeletal health
- Consuming milk and dairy products during growth favourably affects bone mass

Bone mineral content increases 40-fold between infancy and adulthood, with 25% laid down in the adolescent growth spurt (around 12.5 years for girls and 14.0 years for boys).[27] By age 18, 90% of peak bone mass has been accrued.[28] Calcium, vitamin D, and protein have been identified as major dietary determinants of peak bone mass.[29] Higher milk and dairy intake during childhood and adolescence results in higher bone mineral content and reduced risk of fractures in adulthood.[30,31] A 5–10% difference in accrual of peak bone mass can lead to a 25–50% difference in hip fracture rates in later life.[29,32] Computer simulations of the bone remodelling process predict that achieving (and then maintaining) a higher peak bone mass could delay the onset of osteoporosis by 13 years and the fracture risk during adult life will be reduced by 50%.[33] Milk avoidance in children has been associated with increased risk of fracture and poorer bone health.[34,35] Nutritional insufficiency can alter bone growth and move the trajectory towards a less favourable track, and lead thereby to a lower peak bone mass.[36]

Bone mass density (BMD) across the lifespan

Adapted from [29]

Milk and dairy foods contain a unique 'dairy matrix' of nutrients and non-nutrients providing benefits to health beyond those expected from its constituent nutrients alone.[36,37] Plant-based alternatives are not complete nutritional replacements for cow's milk and children and adolescents consuming solely plant-based alternative drinks or foods may risk nutrient deficiencies without appropriate dietary adjustments.[38]



Too many kids are missing out on free/subsidised school milk

- 50% of eligible schools fail to take advantage of the school milk subsidy scheme meaning that almost 9.7 million children miss out on drinking subsidised milk during the school day. Only 1 in 17 (245) secondary schools claim subsidised milk.
- School milk can be a great energy boost at mid-morning break, refuelling and rehydrating the body until lunch.[39,40,41] Milk and water are the only two drinks recommended between meals.
- School milk interventions have shown increased bone mineral density for regular consumers of school milk compared to children who drank milk seldomly.[42,43]

Schools in England and Wales (including pre-school, nursery, primary school or secondary school) can claim a subsidy for milk (250ml), certain milk products and yogurts for school children allowing them to sell these products to children at a lower price.[44] Some of the costs associated with administration and distribution may also be claimed. Children under the age of 5 years in England and Wales attending nursery, pre-school or school are entitled to receive 189ml (1/3 pint) of milk each day, free of charge. In Wales, pupils in Key Stage 1 are also eligible for free milk funded by the Welsh Government. At present plant-based drinks are excluded from the schemes.

Participation in the subsidised school milk scheme has been declining both in the UK and in other countries where an EU scheme is offered, such as Ireland. Research in Ireland has shown that while

the school milk scheme is viewed positively, practical issues such as storage of milk and serving at a suitable temperature were key barriers to uptake.[45]

In the 2023/24 school year, 14,688 of the 29,382 potential schools claimed £6.2 million from the rural payments agency to supply and distribute milk or yogurt to their pupils, equating to 78 million portions.[46] The transition to secondary school is often characterised by worsening dietary habits therefore the foods and drinks offered within the school environment are key to supporting young people's nutrition. Just 245 secondary schools across England, Scotland, Wales and Northern Ireland claim from the school milk scheme.

Recent results from the National Diet and Nutrition Survey shows that only 13% of primary age children are consuming free or subsidised school milk and just 2% of secondary age children are benefitting from the scheme.[2]

Hungry pupils struggle to learn

- Children who regularly eat breakfast typically have higher nutrient intakes, compared to their peers who skip breakfast.[47]
- Breakfast clubs help to reduce child hunger improving concentration and behaviour, with reported benefits on academic attainment in Key Stage 1.[48,49]
- Dairy foods play an important role in breakfast club provision.

Teachers are reporting that children are arriving at school hungry, likely exacerbated by the recent cost-of-living crisis.[50] We know from research that eating breakfast is important for children's nutrition and also their physical and mental wellbeing, irrespective of whether this is eaten at home or at school.

- Children who regularly eat breakfast have higher intakes of dietary fibre and micronutrients including calcium, vitamins A and C, riboflavin, zinc, iodine and iron compared to breakfast skippers.[51]
- Missed nutrients are not caught up over the rest of the day.[52]
- Eating breakfast leads towards more healthy food choices and dietary behaviours amongst children and adolescents.[47]
- Skipping breakfast results in increased intake of snack foods.[47]
- Breakfast consumption is associated with a lower risk of overweight, obesity, and chronic illness.[47]
- Breakfast provides fuel for the brain for efficient cognitive functioning during the morning[53,54,55] and habitual breakfast consumption may be positively associated with academic performance in children and adolescents.[56]

Breakfast clubs help to ensure that all children and young people can access a nutritious breakfast every day. According to an evaluation of breakfast clubs carried out by the Education Endowment Fund,[57] supporting schools to run a free of charge, universal breakfast club before school delivered an average of **2 months' additional progress for pupils in Key Stage 1** with moderate to low food security. An impact on attainment was not seen for pupils in Key Stage 2. Improvements were seen not just from eating the breakfast provided but also from simply attending breakfast club. It may be that school breakfasts are more nutritious, or that attending the club effectively prepares pupils for learning. Breakfast club schools also saw an improvement in pupil behaviour and attendance.
A systematic review of published evidence corroborates the positive impact of school breakfast programmes on academic outcomes in maths, science and English.[55] Effects may be more apparent for undernourished children who improved their nutritional status through attendance at a breakfast club.[55]

Milk and dairy foods play a key role in breakfast club provision, for drinks (milk or plain yogurt drink), to accompany breakfast cereals or as plain yogurt or fromage frais as a standalone item or with added fruit. School Food Standards require lower-fat milk to be available for drinking at least once a day during school hours.[58]

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This key summary report **Nourishing growth: The valuable role of milk and milk products for childhood nutrition in the UK** is aimed at policymakers, scientists, healthcare professionals, nutritionists, and other relevant experts.

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AHDB is a statutory levy board funded by farmers and others in the supply chain. Our purpose is to be a critical enabler, to positively influence outcomes, allowing farmers and others in the supply chain to be competitive, successful and share good practice. We equip levy payers with easy-to-use products, tools and services to help them make informed decisions and improve business performance. Established in 2008 and classified as a Non-Departmental Public Body, AHDB supports the following industries: meat and livestock (Beef, Lamb and Pork) in England; Dairy in Great Britain; and Cereals and Oilseeds in the UK. For further information visit **ahdb.org.uk**

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The British Nutrition Foundation is a registered charity that delivers impartial, authoritative and evidence-based information on food and nutrition. Its mission is to translate evidence-based nutrition science in engaging and actionable ways, working with an extensive network of contacts across academia, education and the food chain, and through the British Nutrition Foundation's work programme focusing on education in schools and nutrition science communication. The Foundation's governance structure (described in the Articles of Association) comprises a Board of Trustees, Advisory Committee, Scientific Committee, Editorial Advisory Board, Education Working Groups and a Nominations Committee, on which serve senior/experienced individuals from many walks of life. The composition is deliberately weighted towards the scientific 'academic' community, based in universities and research institutes, and those from education, finance, media, communications and HR backgrounds.

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