Drinks for young children marketed as ‘growing up’ and ‘toddler’ milks and drinks

Key points

- ‘Growing up’ and ‘toddler’ milks are widely available, extensively marketed for, and consumed by children over 12 months of age in the UK. This is despite public health guidance which states that formula is unnecessary after 1 year of age, that the consumption of sugar-sweetened beverages be minimised in children and that young children should be given milk or water as their main drinks, as well as breastmilk (NHS, 2024; SACN, 2023).

- Formula including ‘growing up’ and ‘toddler’ milks are the top source of free sugars in the diets of 12-to-18-month-olds, contributing 18.1% to their population average intake. Among the 36% of consumers, the contribution is even higher at 49.8%.

- The consumption of 350ml/day of 14 of the 16 ‘growing up’ and ‘toddler’ milks and drinks marketed for 1–2-year-old children[1] would result in them consuming significantly more than the recommended maximum 5% energy intake from free sugars (including maltodextrins), just from these drinks alone.

- Manufacturers market ’growing up’ and ‘toddler’ milks and drinks using misleading nutrition and health claims and the milks are also used to cross-promote infant formula. Their consumption displaces more nutritious, minimally processed and unprocessed foods essential for optimal growth, health, and development, starting with breastmilk.

- Families choosing ‘growing up’ or ‘toddler’ milks in place of cows’ milk could spend an extra £14 on average per month, placing an avoidable burden on their household budget.

- The Scientific Advisory Committee on Nutrition’s 2023 review of the dietary intakes and nutritional status of UK 1–5-year-olds showed excess consumption of energy and free sugars associated with overweight and obesity and dental caries. SACN recommended that the Government consider strategies among children of this age to promote good oral health, reduce consumption of free sugars and reduce consumption of sugar-sweetened beverages. Taking actions to reduce the consumption of ‘growing up’ and ‘toddler’ milks and drinks would support SACN’s recommendations; accordingly, our recommendations for DHSC are:

[1] 225ml for Paediasure Shake

Recommendations

Families should have access to clear, transparent and accurate information that enables them to make informed choices about what to feed their young children in line with public health recommendations:

- *Regulate the marketing of 'growing up' and 'toddler' milks and drinks* by strengthening existing UK regulations in line with the International Code of Marketing of Breastmilk Substitutes and all subsequent World Health Assembly Resolutions. Companies should be prevented from marketing drinks for children over 1 year of age by extending a formula range, including through use of misleading stage numbers. Compliance needs to be independently monitored and enforced.
    - In the short term: Ensure the forthcoming "Voluntary industry guidelines for commercial baby foods and drinks aimed at children aged up to 36 months" addresses the marketing of 'growing up' and 'toddler' milks and drinks.

- *Mandate front of pack free sugar warnings on 'growing up' and 'toddler' milk and drink labels* to provide clearer information on free sugar content relative to the needs of young children. Warning labels should be added for those in which free sugars (including maltodextrins) exceed 5% estimated average energy requirement for the age group for which they are marketed.

- *Undertake a public health campaign to raise awareness that 'growing up' and 'toddler' milks and drinks are not recommended, and to reiterate public health guidance on appropriate drinks for young children.* This could help address the misconceptions created by industry about the nutrition and health benefits of these products.

Any available products should be reformulated to reduce the sugar content:

- *Reduce the amount of sugar in 'growing up' and 'toddler' milks and drinks* by ensuring that initiatives to encourage or mandate reformulation of foods and drinks to reduce sugar include these products, including the "Voluntary industry guidelines for commercial baby foods and drinks aimed at children aged up to 36 months" and the Soft Drinks Industry Levy. The maximum permissible sugar levels should be aligned with SACN's recommendation that free sugars (including maltodextrins) should not exceed 5% estimated average energy requirements.

Contents

Appendices

1. Introduction

In the first year of life infants should receive breastmilk, or a first infant formula, as their main milk drink. Breastfeeding is recommended in the second year of life (and beyond), but where breastmilk is not given, young children can have semi-skimmed or full-fat animal milk as the main milk drink (NHS, 2024). Public health guidance is consistent in stating that commercial milk formula products are not a necessary part of a young child's diet from 12 months of age (see Box 1) and that the consumption of sugar-sweetened beverages by young children be minimised (SACN, 2023).

Box 1. Public health guidance relevant to 'growing up' and 'toddler' milks and drinks

'Formula milks (including infant formula, follow-on formula, 'growing up' or other 'toddler' milks) are not required by children aged 1 to 5 years' (SACN, 2023; endorses WHO, 2013).

'Once they're 12 months old, first infant formula is not needed – toddler milk, growing up or goodnight milks are also unnecessary.' (NHS, 2023).

'No unique role of young-child formulae with respect to the provision of critical nutrients in the diet of infants and young children living in Europe can be identified, so that they cannot be considered as a necessity to satisfy the nutritional requirements of young children when compared with other foods that may be included in the normal diet of young children.' (EFSA, 2013).

Despite this guidance, over a third of 12–18-month-old children in the UK (36%) consume commercial milk formula (including follow on formula and 'growing up' milks), with mean consumption equating to roughly 2 portions per day (365g) (SACN, 2023).

Even at 18-47 months, 7% of children still consume commercial milk formula.

This is unsurprising given its widespread availability and extensive marketing. Many infant formula companies expand their product lines into the second and third years of a child's life by marketing these products as 'growing up' and 'toddler' milks, labelled as stage 3 and stage 4 'formula'. These products are predominantly branded and packaged to resemble infant and follow-on formula milks, which can lead to confusion among parents who are led to believe that their children should transition to a new product as they age.

The widespread use of 'growing up' and 'toddler' milks is not limited to the UK. In 2019, these products constituted a substantial proportion of the global commercial milk formula market, comprising 48% of total sales by volume (Baker et al, 2020). This contrasts with 24% for infant formula, 22% for follow-on formula, and 5.6% for specialised milks.

2. Products marketed as ‘growing up’ and ‘toddler’ milks and drinks in the UK

‘Growing up’ and ‘toddler’ milks and drinks are marketed as replacements for breastmilk, cows’ milk, or plant-based drinks. Most of these are available both in a powdered format and as ready to feed versions. Some are made available in cartons with a straw for a child to drink without the need to decant into a cup. They are mainly made up of powdered milk or individual milk components, added sugars, and vegetable oil (Pomeranz et al, 2018) and are ultra-processed foods (Monteiro et al, 2017). Until recent years, they have been offered solely by commercial milk formula manufacturers, marketed as ‘Stage 3’ milks for children from 1 year of age, and ‘Stage 4’ milks aimed at children from 2-3 years of age (see Figure 1). Plant-based ‘growing up’ drinks have been added to the category more recently (see Figure 2 and Appendix 1), marketed as suitable from 1 year of age and available in both the ‘Baby’ and ‘Free from’ departments of supermarkets. They are manufactured by Danone under the Alpro brand and by First Grade International Ltd (who do not produce other formula milks) under the brand name Koko, as well as by Nestlé under their SMA brand, to expand their market to flexitarians (Mintel, 2022).

Figure 1. Examples of ‘Growing up’ and ‘toddler’ milks on the UK market

Figure 2. The four plant-based 'growing up' and 'toddler' drinks on the UK market

There are a total of 19 products marketed as 'growing up' and 'toddler' milks and drinks currently available from UK retailers (see Table 1), including the four plant-based drinks (shown in green).

Table 1: Drinks marketed as 'growing up' and 'toddler' milks and drinks for children in the UK (July 2024)

Product	Manufacturer	Target age group
Alpro Oat Growing Up Drink	Alpro (Danone)	1-3+ years
Alpro Soya Growing Up Drink	Alpro (Danone)	1-3+ years
Aptamil 3 Toddler Milk	Nutricia (Danone)	1-2 years
Aptamil Advanced 3 Toddler Milk	Nutricia (Danone)	1-3 years
Aptamil 4 Toddler Milk	Nutricia (Danone)	2-3 years
Cow & Gate 3 Toddler Milk	Nutricia (Danone)	1+ years
Cow & Gate 4 Toddler Milk	Nutricia (Danone)	2+ years
HiPP 3 Growing Up Milk	Hipp	1+ years
HiPP 4 Growing up Milk	Hipp	2+ years
Kendamil Toddler Milk Stage 3	Kendal Nutricare	12-36 months
Kendamil Goat Toddler Milk Stage 3	Kendal Nutricare	12-36 months
Kendamil Organic Toddler Milk Stage 3	Kendal Nutricare	12-36 months
Koko Kids from Milk	First Grade Int Ltd	1-3+ years
Nannycare 3 Growing up Goat Milk	Nannycare Ltd	1-3 years
PaediaSure Shake	Abbott Nutrition	1-10 years
SMA Advanced 3 Growing Up Milk	Nestlé	1-3 years
SMA Little Steps Growing Up Milk	Nestlé	1-3 years
SMA Little Steps Plantygrow Plant-Based Growing Up Drink	Nestlé	1-3 years
SMA Pro Growing up Milk	Nestlé	1-3 years

3. Regulation of products marketed as ‘growing up’ and ‘toddler’ milks and drinks

Over the past decade, ‘growing up’ and ‘toddler’ milks have become an increasingly prominent source of revenue for commercial milk formula manufacturers in the context of declining birth rates and increasing breastfeeding (Hastings et al, 2020; Rollins et al, 2016). As a result, ‘growing up’ and ‘toddler’ milks are the fastest growing category of commercial milk formula globally (SACN, 2023). Whilst still a niche within the category, plant-based alternatives are rapidly establishing a presence (Mintel, 2024).

In the UK, there are no specific regulations governing the composition, marketing, or labelling of these products, which are only required to comply with general food law[2].

The nutrient composition of most 'growing up' and 'toddler' milks and drinks does not align with recommended nutrient intakes for this age group. However, and despite a lack of evidence, nutrition and health claims are frequently on front-of-pack labels. Additionally, the marketing of ‘growing up’ and ‘toddler’ milks is used by infant formula manufacturers to promote their brands directly to families, circumventing the legal restrictions on advertising infant formula; a marketing tactic called cross promotion (WHO, 2019).

UK regulations do not align with global guidance. The World Health Assembly (WHA) resolutions 39.28 in 1986 and 63.23 in 2010 stipulated that nutrition claims should not be made on foods for infants and young children unless approved by Codex[3] or in national legislation. Furthermore, WHA resolution 69.9 in 2016 reiterated that any beverage marketed for children under 3 years old is considered a breastmilk substitute and should not be advertised or promoted (WHA, 2016).

[2] The European Commission decided in 2016 that no additional regulations were needed for formula milks for young children (EUR-lex, 2016). This decision was based on guidance from the European Food Safety Authority, which indicated that 'growing up' and 'toddler' milks do not play a unique role and are not necessary to meet the nutritional requirements of young children compared to other foods in the diet. Experts from Member States expressed concerns, drawing on previous experiences of formula for young children being viewed as fortified food. They argued that further actions regarding 'growing up' and 'toddler' milks might elevate their status and mislead consumers, and that existing EU food laws are adequate to effectively regulate these products.

[3] The Codex Alimentarius is a collection of internationally adopted food standards and related texts. That aim to protect consumers’ health and ensure fair practices in the food trade. Codex standards and related texts are not a substitute for, or alternative to national legislation.

4. Nutrition and health risks associated with the consumption of products marketed as 'growing up' and 'toddler' milks and drinks

Products marketed as 'growing up' and 'toddler' milks and drinks are aimed at children who are still growing and developing. Most have a nutrient composition that does not align with recommended nutrient intakes for this age[4], especially for sugar, which also gives them a sweet taste profile encouraging a preference for sweet tastes. The consumption of these products does not support healthy dietary habits, and they displace the minimally processed and unprocessed foods needed for optimal growth, health and development, starting with breastmilk.

'Growing up' and 'toddler' milks and drinks are a key source of free sugars in the diets of young children

Most of the carbohydrates in 'growing up' and 'toddler' milks come from sugar because they are usually based on milk, which contains lactose, a naturally occurring (intrinsic) sugar. The addition of lactose (i.e. extrinsic lactose), and ingredients such as sucrose, concentrated apple juice, raw cane sugar and fructose means that these products are often high in free sugars[5]. Plant-based 'growing up' and 'toddler' drinks typically contain a wider range of carbohydrates from both their starchy plant base and free sugars from added sucrose, fructose, concentrated fruit juice and hydrolysed starch[6].

Adding sugars to milks serves several purposes for manufacturers:

- The sweet taste it gives the product is attractive to children
- The addition of extra carbohydrate allows the protein and fat content to be moderated
- Sugars are cheap ingredients

Formula milks (follow-on formula and 'growing up' milks) are the top single food source of free sugars in the diets of young children aged 12-18 months in the UK, contributing 18.1% of total free sugars at population level for this age.

Over a third (36%) of children aged 12-18 months consume formula milks, and for consumers half (49.8%) of their total free sugars' intake comes from these products (SACN, 2023).

[4] In addition to being a key source of free sugars in the diets of young children, formula milks (follow-on formula and 'growing up' and 'toddler' milks) provided 4.9% of daily salt intake in children aged 12 to 18 months (Lennox et al, 2013). Although not a top contributor to salt intakes, these products are discretionary meaning this contribution could be completely avoided (Appendix 2).

[5] Free sugars include "all added sugars in any form; all sugars naturally present in fruit and vegetable juices, purées and pastes and similar products in which the structure has been broken down; all sugars in drinks (except for dairy-based drinks); and lactose and galactose added as ingredients" and "all sugars naturally present in dairy-alternative drinks such as soya, rice, oat and nut-based drinks" (Swan et al, 2018). Lactose that is naturally present in cows' milk is not classified as a free sugar, while lactose that is added to a product is.

[6] Free sugars are created by the breakdown of the starch in grains, through hydrolysis. The enzymatic breakdown of oats during processing will reduce starch to simple sugars such as maltose and glucose.

For older children the contribution is far less; 18 - 47-month-olds obtain an estimated 2.8% of their free sugars from formula milks (SACN, 2023). Currently, there is no data available indicating when within this age range children stop consuming 'growing up' and 'toddler' milks.

Estimating the free sugar content of specific 'growing up' and 'toddler' milks and drinks

The labels of all 'growing up' and 'toddler' milks and drinks include the total sugar content (all monosaccharides and disaccharides present in the product) in accordance with EU Regulation No. 1169/2011 (see Appendix 3). However, these labels do not specify the amount of naturally occuring (intrinsic) lactose, making it impossible to compare the free sugar contents of different products. Additionally, maltodextrins are not labelled as sugar in food products (Swan et al, 2018) because they are polysaccharides and not included in the Public Health England 2018 definition of free sugars. This is misleading because maltodextrins have a greater impact on blood sugar levels than sugar and can contribute to the development of dental caries (see Appendix 4).

To compare the free sugar contents of products currently on the market, we have estimated the amount of free sugar and maltodextrins that drinks marketed as 'growing up' and 'toddler' milks and drinks may provide[7], and the contribution that this makes towards total dietary energy intake; see Table 2 (plant-based products are in green). **SACN advises that the average free sugars intake for children aged 1 year and older should not exceed 5% of their total dietary energy intake, and that foods high in free sugars should be limited in children aged 1 to 5 years (SACN, 2023).** The shaded areas in Table 2 indicate where total daily amount of free sugar and maltodextrins from the drink alone provides more than the recommended 5% contribution of free sugars to total energy.

The consumption of 350ml/day of 14 out of 16 of the 'growing up' and 'toddler' milks marketed for 1–2-year-old children[8] would result in them having significantly more than the recommended maximum 5% energy intake from free sugars (including maltodextrins), from these drinks alone, aside from the contribution from the rest of the child's diet.

If used daily, 'growing up' and 'toddler' milks marketed for children between 1 and 2 years of age could provide on average around 480g of extra free sugar (including maltodextrins) a month to a young child's diet (see Appendix 5). This is equivalent to about 480kcal/week, or 8.7% of the estimated average requirement for total dietary energy for children between 1 and 2 years of age[9].

[7] The estimated free sugar and maltodextrins content of milk-based 'growing up' and 'toddler' milks can be calculated by subtracting the sugars expected to be found in cows' milk from the total carbohydrate content. It is more difficult to calculate free sugars in plant-based 'growing up' drinks because they can be manufactured from a wide number of plant protein sources meaning that unlike cows' milk, there is no consistent nutritional composition to use as the basis for calculations. We have calculated the added sugar in plant-based 'growing up' drinks by subtracting sugars in unsweetened versions of each product listed from total carbohydrates.

[8] 225ml for Paediasure Shake

[9] To calculate free sugars intake as a percentage of total average energy requirements, we have used 1g free sugar = 4 kcal in these calculations with the average energy requirements for each age highlighted in Table 2.

Table 2: Estimates of daily free sugar[10] and maltodextrins intake from drinks marketed as 'growing up' and 'toddler' milks[11] and drinks as a percentage of total estimated average requirements (EAR) for energy at ages 1, 2 and 3 years

Product	Energy from free sugar as % of total energy 1st – 2nd birthday EAR 741 kcal/day	Energy from free sugar as % of total energy at 2nd – 3rd birthday EAR 968 kcal/day	Energy from free sugar as % of total energy at 3rd – 4th birthday EAR 1124 kcal/day
PaediaSure Shake	15.7	12.0	10.3
Alpro Soya Growing Up Drink	15.5	11.9	10.2
SMA Little Steps Plantygrow Plant-Based Growing Up Drink	14.7	11.3	9.7
Alpro Oat Growing Up Drink	11.1	8.5	7.4
SMA Pro Growing up Milk	8.1	6.2	5.4
Aptamil 3 Toddler Milk	7.4	5.6	4.9
Aptamil Advanced 3 Toddler Milk	7.0	5.4	4.6
Cow & Gate 3 Toddler Milk	7.0	5.4	4.6
SMA Little Steps Growing Up Milk	6.8	5.2	4.5
Kendamil Goat Toddler Milk Stage 3	6.6	5.1	4.4
SMA Advanced 3 Growing Up Milk	6.2	4.8	4.1
Kendamil Toddler Milk Stage 3	6.2	4.8	4.1
Nannycare 3 Growing up Goat Milk	5.9	4.5	3.9
Kendamil Organic Toddler Milk Stage 3	5.7	4.3	3.7
Aptamil 4 Toddler Milk	NA	3.9	3.4
Cow & Gate 4 Toddler Milk	NA	3.3	2.9
Koko Kids Free from Milk	3.6	2.7	2.4
HiPP 3 Growing Up Milk	1.9	1.4	1.2
HiPP 4 Growing up Milk	NA	0.1	0.1

[10] Including non-milk-embedded lactose

[11] To aide comparisons between products given that manufacturers suggest different portion sizes of between 300ml and 450ml, the daily free sugar intake has been calculated based on a daily portion size of 350ml/day. (While conservative, in the context of these products being used in place of milk, this also aligns with SACN recommendations to give a minimum of 350ml milk daily or two servings of dairy produce (SACN, 2023)). For PaediaSure Shake we use the manufacturer's recommended daily portion of 225ml.

Increased risk of overweight, obesity and associated non-communicable disease

The consumption of excess free sugars is associated with health risks among young children, including increasing the risk of dental caries, fostering a preference for sweet tastes and obstructing the regulation of energy intake, which can lead to excessive weight gain.

The consumption of excess free sugars can stimulate excessive postprandial hypoglycemia and insulinemia, which are linked to risks of obesity, type 2 diabetes, and coronary heart disease (Brand-Miller et al, 2013). In addition, the consumption of 'growing up' and 'toddler' milks and drinks may displace animal milk, which is lower in sugar than 'growing up' and 'toddler' milks and drinks, has a composition which may be protective against the development of insulin resistance associated with type 2 diabetes and heart disease (De Araújo et al, 2021).

'Growing up' and 'toddler' milks and drinks may also provide a significant proportion of total dietary energy among young children despite being discretionary. Formula milks (follow-on formula and 'growing up' milks) provide 10% of total dietary energy among children aged 12 to 18 months at a population level (27% of total dietary energy intake in consumers) (Lennox et al, 2013). This means they are the second largest contributor to total dietary energy intake, surpassed only by milk, which provides 19% of total dietary energy intake for 12–18-month-olds (SACN, 2023). This is problematic because of their high free sugar content and subsequent provision of energy without essential micronutrients, compromising the nutrient quality of the diet (see Appendix 6).

Increased risk of dental caries

A higher intake of free sugars among children aged 1 to 5 is linked to an increased risk of dental caries during childhood and adolescence (SACN, 2023). In addition, the risk of cavities rises when milk is consumed from a bottle at night, especially when a child is lying on their back. This position reduces salivary flow, diminishing the effectiveness of salivary bicarbonate in neutralizing plaque acids (SACN, 2023). In contrast, cows' milk contains factors which protect against dental caries including the buffering capacity of protein components, calcium and phosphate (Moynihan, 2000).

Development of fussy eating behaviours

Formula milk consumption beyond the recommended 12 months may also be related to and potentially exacerbate picky eating behaviours. In a UK twin study, children given formula past 12 months were found to have significantly lower levels of food responsiveness and food enjoyment as well has higher food fussiness than those not given formula past 12 months. The researchers reported that the formula milk seemed to act as a substitute for solid foods rather than to supplement it (Syrad et al, 2015).

Development of a preference for sweet tastes

The change from breastmilk or infant formula to cows' milk involves a taste transition for infants who should become accustomed to a less sweet taste in their main milk drink. This is because the naturally occurring sugar in breastmilk and cows' milk is lactose, which is not a free sugar in this form, and has beneficial effects on gut physiology including prebiotic effects, softening of stools, and effective absorption of water, calcium and sodium (Koletzko et al, 2005). Naturally occurring lactose does not give milk an overly sweet taste. In contrast, 'growing up' and 'toddler' milks and drinks are typically sweet due to their high levels of free sugars. This means that toddlers given these discretionary formulas instead of less sweet cows' milk (the recommended main milk drink from one year for non-breastfed children) will experience a different and less preferable taste transition if they are being weaned off formula (First Steps Nutrition Trust, 2021). In addition, the consumption of sweet milk does not accustom young children to the tastes of unprocessed and minimally processed foods that should form the basis of a healthy diet in childhood.

Effect on the gut microbiota

Lastly, products marketed as 'growing up' and 'toddler' milks and drinks contain a mixture of other ingredients such as sweeteners, flavourings, emulsifiers, antioxidants, thickeners and added nutrients[12], which may affect long-term health and disease through the gut microbiota. The full consequences are not yet understood, as there has been little scrutiny of the impact of additives on health outcomes at a population level, and none on infants and young children.

Box 2 The environmental impact of 'growing up' and 'toddler' milks and drinks

The environmental impacts of consuming discretionary 'growing up' and 'toddler' milks and drinks, which are ultraprocessed, should also be considered alongside nutrition and health risks. The production, processing, transport and consumption of ultraprocessed products results in excessive use of energy, land and water and generates unnecessary waste – all with detrimental impacts on the environment (Seferidi et al, 2020). Making powdered milk (an ingredient in all 'growing up' and 'toddler' milks) requires over nine times more water, four times more raw milk and energy, and three times more fuel than preparing milk for consumption as a liquid (Foster et al, 2007).

[12] While fortification might be seen as useful to support the intake of certain micronutrients that may be lacking in the diet, the consumption of 'growing up' and 'toddler' milks does not consistently improve micronutrient status among young children, see Appendix 6.

5. Marketing of ‘growing up’ and ‘toddler’ milks and drinks

In the absence of regulation, ‘growing up’ and ‘toddler’ milks and drinks are extensively marketed, giving parents the perception that commercial milk formula products are necessary for children over 12 months of age (Conway et al, 2023a).

Products are predominantly branded and packaged to resemble existing series of infant and follow-on formula milks (see Figure 1). This gives parents the impression that there is a natural progression from stages 1 to stages 2, 3, and potentially 4. In a recent study, 39% of infant formula product labels and 78% of follow-on-formula labels were found to include adverts for ‘growing up’ and ‘toddler’ milks (Conway et al, 2023).

Sophisticated and pervasive marketing strategies are used to promote commercial milk formula consumption (Baker et al, 2023; Hastings et al, 2020; Rollins et al, 2023; van Tulleken et al, 2020; WHO, 2022). The most common strategies used to promote 'growing up' and 'toddler' milks in the UK are as follows (Conway et al, 2023):

- 68% of products featured text and images on their labels which may idealise the use of formula or suggest a product was equivalent to breastmilk. Half also included nutrition claims for little-known nutrients such as oligosaccharides, considered by the European Food Safety Agency as a non-essential addition to commercial milk formula, but used to portray similarity to breastmilk. For example, “*a patented formulation containing our blend of scGOS/lcFOS* *short-chain galacto-oligosaccharides / long-chain fructo-oligosaccharides*[13].”
- 100% of products were labelled with nutrition claims, with an average of 5.4 claims per pack.
- 84% of products were labelled with health claims from the Great Britain Nutrition and Health Claims Register.[14] These include claims for bone, cognitive and visual development, and for physiological processes such as the functioning of the immune system.
- 72% of products referred to love, care or support for parents or babies, which are known to be appealing to mothers and build trust in a commercial milk formula company brand. This is emphasized by the provision of information sign-posting parents to further sources of brand advertising, including their website, telephone line, parent clubs and support lines, which was found on 68% of products.

Although research does not yet extend to plant-based ‘growing up’ and ‘toddler’ drinks which are very new to the market, they are marketed using similar strategies used to promote 'growing up' and 'toddler' milks, including the use of health and nutrition claims (Figures 2 and 4).

[13] Nutricia website https://www.nutricia.co.uk/hcp/pim-products/aptamil-growing-up-milk-with-pronutra-1-2-years-powder.html

[14] The Great Britain Nutrition and Health Claims (GB NHC) Register is a database held by the Department of Health and Social Care that lists all ‘approved health claims. https://www.gov.uk/government/publications/great-britain-nutrition-and-health-claims-nhc-register

Figure 4. Examples of nutrition and health claims used to promote 'growing up' and 'toddler' milks and drinks

"Source of Calcium, vitamin D and protein. Calcium, vitamin D and protein is needed for normal growth and development of bone in children" (Alpro, 2024)

"enriched with… Vitamin D to support the normal function of the immune system" (Aptamil, 2024)

"Made from cows' milk, it provides more of those nutrients that toddler diets may be lacking, including iron, calcium and vitamin D" (Cow & Gate, 2024)

"Enriched with Iron to help support normal cognitive development and Omega 3 & 6† and iodine to help support normal growth" (SMA, 2024)

"We add whey protein to our recipe to adjust the naturally high casein content of cows' milk… This adjusted ratio more closely resembles breastmilk. Whey protein is more easily digestible…" (Kendamil, 2024)

"Packed with essential vitamins and minerals, and a recipe that is low in sugar and a source of protein" (Koko, 2024)

"Based on more than 60 years of breastmilk research, it contains the nutrients needed to help support your toddler's diet, such as Calcium and vitamin D." (HiPP, 2024)

Box 3. Marketing exploits and undermines normal feeding behaviors

Marketing exploits parental anxiety about fussy eating by increasing concerns over nutrient intake and promoting 'growing up' and 'toddler' milks as a solution, appealing to children with their sweet taste profiles. It is well known that young children from around 12 months of age often reject new foods and need a diverse diet with foods offered multiple times to encourage acceptance (NHS, 2024). Evidence from Australia shows that the formula industry leverages these normal feeding behaviors to market 'growing up' and 'toddler' milks (Swan, 2024). Research conducted in the UK found that parents who use formula past 12 months of age do so because they perceive their child to have a poor appetite (Syrad, 2015). In the UK, 'toddler' milk is advertised with claims such as, "g*rowing up milk is a practical way to help toddlers achieve their recommended nutrient intakes"* (Cow & Gate, 2024). Claims such as these may undermine public health advice and making it harder for families to model healthy dietary

Most UK families with infants have been exposed to ‘growing up’ and ‘toddler’ milk marketing. An evaluation of parents’ perceptions of marketing of infant milks in 2019, revealed that 90.3% of mothers with a baby aged 0-12 months of age had seen an advert for toddler milk (Brown et al, 2020). Research also indicates that caregivers trust marketing claims (Conway et al, 2023). As a result, ‘growing up’ and ‘toddler’ milk marketing is effective, shaping beliefs, and influencing infant feeding decisions (Conway et al, 2023; Mintel, 2022). Marketing exploits and undermines normal feeding behaviours (see Box 3).

In a market survey of 727 UK mothers of 1–3-year-olds undertaken by Which? in 2012, nearly half reported using toddler milks as ‘it was the next stage of formula’ so they moved on automatically (EUR-lex, 2016a). Marketing claims were also a reason for using toddler milks; 40% of mothers agreed that toddler milks contain ‘nutrients appropriate to development for this age,’ 32% that they have more nutrients than cows’ milk, and 27% were concerned that their baby was ‘not getting enough nutrients from food.’

These findings are supported by more recent research in other high-income countries. A US study examined how nutrition and health claims impact parental beliefs and perceptions about a toddler milk product and showed similar trust in marketing claims among caregivers (Richter et al, 2022). Participants exposed to ‘brain development’ or ‘immunity-related’ claims were more likely to believe that ‘toddler milk’ was as healthy or healthier than cows’ milk and had higher intentions to give their child toddler milk. Similarly, 60% of participants in a US survey of 1,645 caregivers believed that toddler milks provide nutrition that they do not get from other foods. The same research found that participants were more likely to serve toddler milks if they agreed with marketing claims (Romo-Palafox et al, 2020). In Australia regulated nutrition claims on ‘growing up’ and ‘toddler’ milks significantly increased parental perceptions of product healthiness (McCann et al, 2022). Counter-marketing has been shown to be an effective strategy to change intentions on toddler milk use (see Box 4).

Box 4. Counter-marketing as an effective strategy to change intentions on toddler milk use

A viable public health strategy to alter caregiver attitudes toward toddler milks was researched in the US among parents of children between the ages of 9 and 36 months (Harris et al, 2022). Caretakers of young children were shown counter marketing videos to dispel common misconceptions that have been perpetuated by the formula milk industry's intensive marketing. Videos included information on the healthfulness of toddler milks, including information about product ingredients, what qualifies as a “sugary drink,” and misleading marketing messages that imply health benefits. The counter marketing videos significantly reduced caregivers’ overall positive attitudes to toddler milks and their intentions to serve them to their children. They also significantly increased intentions to serve more plain milk.

6. Cost of 'growing up' and 'toddler' milks and drinks relative to cows' milk and plant-based milk alternatives

'Growing up' and 'toddler' milks are considerably more expensive than cows' milk (see Table 3). In the UK, families could spend an extra £14.12 on average per month (between £4.68 and £31.85) to purchase 'growing up' or 'toddler' milk in place of cows' milk. The price of plant-based growing up and toddler drinks is more variable but generally more expensive than plant-based milks. The higher prices of these products place an avoidable burden on family budgets, decreasing the amount of household income available for purchasing the unprocessed and minimally processed nutrient-dense foods that are necessary to support optimal growth, health and development in early childhood.

Table 3: Cost of drinks marketed as 'growing up' and 'toddler' milks and drinks available in the UK compared to cows' milk (and plant-based milks) (July 2024)[15]

Product	Cost per 100ml	Recommended daily portion size (ml)	Cost per day	Cost per week	Cost per month (30 days)
Cows' milk	**£0.11**	**350**	**£0.37**	**£2.60**	**£11.15**
PaediaSure Shake	£0.64	225	£1.43	£10.03	£43.00
Kendamil Toddler Milk Stage 3	£0.20	350	£0.70	£4.89	£20.94
Aptamil Advanced 3 Toddler Milk	£0.32	350	£1.13	£7.88	£33.75
Nannycare 3 Growing up Goat Milk	£0.29	350	£1.02	£7.17	£30.71
SMA Advanced 3 Growing Up Milk	£0.29	350	£1.00	£6.99	£29.96
Kendamil Goat Toddler Milk Stage 3	£0.35	350	£1.22	£8.55	£36.64
Aptamil 3 Toddler Milk	£0.24	350	£0.84	£5.91	£25.31
SMA Pro Growing up Milk	£0.22	350	£0.76	£5.29	£22.68
Aptamil 4 Toddler Milk	£0.22	350	£0.76	£5.29	£22.66
Kendamil Organic Toddler Milk Stage 3	£0.25	350	£0.87	£6.11	£26.17
Cow & Gate 3 Toddler Milk	£0.19	350	£0.66	£4.59	£19.69
HiPP 3 Growing Up Milk	£0.16	350	£0.56	£3.94	£16.88
HiPP 4 Growing up Milk	£0.18	350	£0.63	£4.38	£18.75
SMA Little Steps Growing Up Milk	£0.15	350	£0.54	£3.77	£16.14
Cow & Gate 4 Toddler Milk	£0.15	350	£0.53	£3.69	£15.83
Plant-based drinks					
Coconut, oat and soya drinks	**£0.20**	**350**	**£0.70**	**£4.90**	**£21.00**
SMA Little Steps Plantygrow Plant-Based Growing Up Drink	£0.40	350	£1.38	£9.68	£41.48
Koko Kids Free from Milk	£0.20	350	£0.70	£4.90	£21.00
Alpro Oat Growing Up Drink	£0.21	350	£0.74	£5.15	£22.05
Alpro Soya Growing Up Drink	£0.21	350	£0.74	£5.15	£22.05

[15] We calculated costs based on the volume of powder that would be achieved by reconstituting the powder based on the scoop weight and the standard of 1 scoop to 30ml of water (or 1 scoop to 38ml of water for PaediaSure Shake) and recalculating to the cost of powder that would then be present in 100ml of made-up product. Costs per day or per week have been based on the rounded cost per 100ml, recalculated to the daily or weekly volume of milk based on average intakes of 350ml per day (225ml per day for PaediaSure Shake, as recommended). The cost of cows' milk is based on the price of 2 pints of semi-skimmed milk from Tesco. Purchasing larger volumes makes the cost difference even higher. These costs are our estimates based on the best information we have available and are given as a guide.

7. Conclusions and recommendations

‘Growing up’ and ‘toddler’ milks and drinks are widely available and extensively marketed in the UK, despite public health guidance advising that these products are unnecessary. Although entirely discretionary after 1 year of age, and expensive, formulas including ‘growing up’ and ‘toddler’ milks are the top source of free sugars in the diets of 12-to-18-month-olds. Their consumption is likely to result in young children having significantly more than the recommended maximum 5% energy intake from free sugars, especially when maltodextrins are included. In addition, they displace more nutritious, minimally processed and unprocessed foods essential for optimal growth, health, and development, starting with breastmilk. Despite this, manufacturers often use misleading nutrition and health claims to promote their products as there are no specific regulations governing the marketing or labelling of ‘growing up’ and ‘toddler’ milks and drinks.

The Scientific Advisory Committee on Nutrition has advised that the Government take measures to decrease the consumption of free sugars among young children in response to data showing excessive intakes in the UK. Reducing the consumption of ‘growing up’ and ‘toddler’ milks would support SACN’s recommendations and should be a priority for the Department of Health and Social Care. See page 2 for recommendations.

Appendix 1. Plant-based ‘growing up’ and ‘toddler’ drinks

The increase in availability of plant-based ‘growing up’ and ‘toddler’ drinks reflects a shift in consumption patterns in the general population away from cows’ milk towards plant-based alternatives (Wall et al, 2023). This is reflected in the rapidly expanding range of plant-based ‘growing up’ and ‘toddler’ drinks available on the market.

As is the case for all ‘growing up’ and ‘toddler’ milks, the energy density and nutrient content of plant-based drinks is highly variable, and dependent on plant type, processing procedures, added ingredients such as sugar and sweeteners, and fortification (Wall et al, 2023). This is in part due to water being the main ingredient. This poses potential nutritional concerns as these drinks are not nutritionally equivalent to cows’ milk.

Plant-based ‘growing up’ and ‘toddler’ drinks are marketed as suitable for children where an alternative to cows’ milk is required for medical, ethical or dietary reasons. However, these products are associated with the same health risks as those that use an animal-milk base; they are a source of excess free sugars (and salt), and there is limited evidence to show that fortification improves micronutrient status of children. Current NHS recommendations are that (non-breastfed) young children who do not consume animal milks are given an appropriate unsweetened, fortified plant-based milk alternative (NHS, 2023). There is currently no definitive advice on what specific plant base to choose, and SACN and the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) are currently consulting on a draft report “Assessing the health benefits and risks of consuming plant-based drinks” (SACN, 2024).

Appendix 2. Salt in ‘growing up’ and ‘toddler’ milks and drinks

In 2003, SACN established target average salt intakes and reference nutrient intakes for young children. This was done in response to research showing early exposure to dietary sodium may predispose children to developing higher blood pressure later in life (SACN, 2003). The target average salt intake recommended was 2g/ day for children 1-3 years of age. This average is being exceeded; 18-47-month-olds consume an estimated 2.7g/day and an estimated 76% of children consume above target salt intake (SACN, 2023).12–18-month-olds consume an estimated 2.3g/day, and formula milks (mostly follow-on formula and ‘growing up’ milks) are estimated to provide 4.9% of their daily salt intake (Lennox et al, 2013). As ‘growing up’ and ‘toddler’ milks are a discretionary product, this could be avoided.

To reduce salt intake among young children, the Codex Standard (*CXS 156-1987*) mandates that drinks for children aged 12 months to 3 years should have a maximum sodium content of 60 mg/100 kcal and should not contain added salt. Both Alpro Oat Growing Up Drink and Koko Kids Free from Milk, which includes sea salt, exceed this limit.

Appendix 3. Labelling of sugar contents in ‘growing up’ and ‘toddler’ milks and drinks

EU Regulation No. 1169/2011 on the provision of food information to consumers (EU FIC) Annex I states that the sugar contents of all products must be labelled. The definition of sugar is all monosaccharides and disaccharides present in food but excludes polyols. This aligns with Swan’s 2018 definition of free sugars (Swan et al, 2018), which includes fruit and vegetable juices and purées, added lactose, galactose and sugars naturally present in soya, rice and oat drinks.

However, it is not possible to use these labels to compare the free sugar contents of different ‘growing up’ and ‘toddler’ milks and drinks as labels do not specify how much sugar is from naturally occurring sources (intrinsic lactose), and maltodextrins are not included. Instead, we compare the carbohydrate contents of ‘growing up’ and ‘toddler’ milks and drinks to cows’ milk and unsweetened plant-based drinks respectively, as this allows us to calculate not only what proportion of sugars may be added (extrinsic) lactose, but also to consider maltodextrins.

Some 'growing up' and 'toddler' milks report a higher 'sugar content' than our calculations of free sugar because they include lactose from milk and galacto-oligosaccharides in their figures. Galacto-oligosaccharides are a functional component of breastmilk and are often added to these products but are only present in much lower quantities in cows’ milk.

Appendix 4. Maltodextrins

Maltodextrins are frequently used as a low-cost source of carbohydrates in 'growing up' and 'toddler' milks and drinks. They are produced by breaking up the carbon chains (partial hydrolysis) from the starch in maize (corn), potato, rice, or tapioca. When these carbon chains are further broken down into even shorter chains, the resulting carbohydrate is called glucose syrup rather than maltodextrins. Both maltodextrins and glucose syrup are produced through the hydrolysis of starch, and maltodextrins may also be labelled as starch hydrolysate on ingredient lists.

The sweetness of the final product is determined by the extent of hydrolysis (length of the carbon chains into which it has been broken up). Therefore, maltodextrins can be almost flavourless or slightly sweet, whereas glucose syrup, with much shorter chains, will taste significantly sweeter.

Maltodextrins are commonly used as an ingredient in a wide variety of processed foods as they are easily digestible and have beneficial technological properties. However, their widespread use is considered controversial because of how they behave when eaten.

- Maltodextrins have a much higher glycemic index than sucrose (table sugar) meaning they can have a more significant effect on raising blood sugar levels than sugar can.

- Although less potent than sucrose, maltodextrins can increase acidity in the oral cavity, impacting tooth enamel and potentially contributing to the development of cavities (Al-Khatib et al 2001; Grenby and Mistry 2000).

- Maltodextrins have also been associated with relatively poor Lactobacillus and Bifidobacterium growth relative to galacto-oligosaccharides and lactulose (Watson et al, 2013).

In the UK, maltodextrins are not labelled as added or free sugar in food products because they are not included in the Public Health England 2018 definition of free sugars (Swan et al, 2018). Maltodextrins are regarded for regulatory purposes as ‘added sugars’ in the US, Canada, New Zealand, and Australia (Jones and Scapin, 2023). In Australia and New Zealand, foods containing maltodextrins cannot claim to have ‘no added sugars. In Canada, digestible maltodextrins are regarded as a ‘sugars-based ingredient,’ and in the US, food labels must list the mono and disaccharides that maltodextrins contribute as added sugars.

Appendix 5. Estimated volumes of free sugar and maltodextrins intake from 'growing up' and 'toddler' milks and drinks (June 2024)

Free sugars include extrinsic lactose.

Product	Sugars present	Daily portion size (ml)	Free sugar intake per 100ml (g)	Free sugar intake per day (g)	Free sugar intake per week (g)	Free sugar intake per month (g)
PaediaSure Shake	Hydrolysed corn starch, sucrose, maltodextrin	225	8.3	19	131	560
Alpro Soya Growing Up Drink	Maltodextrin, Raw Cane Sugar, Fructose	350	8.2	29	201	861
SMA Little Steps Plantygrow Plant-Based Growing Up Drink	Hydrolysed flour, maltodextrin, corn starch	350	7.8	27	191	819
Alpro Oat Growing Up Drink	Oat, maltodextrin	350	5.9	21	145	620
SMA Pro Growing up Milk	Lactose, maltodextrin	350	4.3	15	105	452
Aptamil 3 Toddler Milk	Lactose, maltodextrin	350	3.9	14	96	410
Aptamil Advanced 3 Toddler Milk	Lactose, maltodextrin	350	3.7	13	91	389
Cow & Gate 3 Toddler Milk	Lactose, maltodextrin	350	3.7	13	91	389
SMA Little Steps Growing Up Milk	Maltodextrin	350	3.6	13	88	378
Kendamil Goat Toddler Milk Stage 3	Lactose	350	3.5	12	86	368
SMA Advanced 3 Growing Up Milk	Lactose	350	3.3	12	81	347
Kendamil Toddler Milk Stage 3	Lactose	350	3.3	12	81	347
Nannycare 3 Growing up Goat Milk	Lactose	350	3.1	11	76	326
Kendamil Organic Toddler Milk Stage 3	Lactose	350	3	11	74	315
Aptamil 4 Toddler Milk	Lactose, maltodextrin	350	2.7	9	66	284
Cow & Gate 4 Toddler Milk	Lactose, maltodextrin	350	2.3	8	56	242
Koko Kids free from Milk	Concentrated apple juice	350	1.9	7	47	200
HiPP 3 Growing Up Milk	Lactose	350	1.0	4	25	105
HiPP 4 Growing up Milk	Lactose	350	0.1	0	2	11

Appendix 6. Fortification of ‘growing up’ and ‘toddler’ milks

The nutrient content of cows’ milk is relatively consistent over time, providing an important source of protein, iodine, calcium, vitamins A, B vitamins, zinc and iodine for young children (on average 38% of the total riboflavin intake, 36% of the total calcium intake, 20% of the total zinc intake and 47% of the total iodine intake at population level) (First Steps Nutrition Trust, 2021). In contrast, the energy density and nutrient content of different ‘growing up’ and ‘toddler’ milks is highly variable, posing potential concerns as these milks are not nutritionally equivalent.

‘Growing up’ and ‘toddler’ milks can make a significant contribution to the micronutrient intake of those consuming them as they are fortified with a range of micronutrients, including vitamins A, C, D and B12, iron, zinc and iodine. As such, UK dietary guidance recommends that children aged 6 months to 5 years, consuming 500ml of formula milk per day, are not given dietary supplements as they may be at risk of excess intakes of some micronutrients (SACN, 2023) (noting it also recommends that formula milks are not given after 1 year of age).

Secondary analysis of NDNS data (year 2008 to 2019) among children aged 18-47 months (SACN, 2023) who were meeting or exceeding the daily recommended intake for zinc, iron and vitamin A, showed that formula milks (including follow-on formula, ‘growing up’ and ‘toddler’ milks) contributed significantly to intakes of zinc, iron and vitamin A:

- 10.1% to mean zinc intake (cows’ milk provides 15.5%)
- 10.7% to mean iron intake (though food sources are recommended to meet this requirement (NHS, 2024)).
- 8.5% to mean vitamin A intake (cows’ milk provides 11.5%)

Although ‘growing up’ and ‘toddler’ milks are making an appreciable contribution to micronutrient intakes in young children, this poses several concerns. Firstly, fortification of ‘growing up’ and ‘toddler’ milks is voluntary and unregulated. This means that, unlike the micronutrient contents of cows’ milk, which remains relatively consistent, the micronutrient contents of different ‘growing up’ and ‘toddler’ milks is variable. In addition, the bioavailability of some micronutrients varies significantly when used as a fortificant and so the amount that can be absorbed is difficult to determine (First Steps Nutrition Trust, 2021). This is reflected by the paucity of evidence that fortification of ‘growing up’ and ‘toddler’ milks consistently improves micronutrient status in young children. For example, in their recent review of evidence on Feeding Children aged 1 to 5 years, the Scientific Advisory Committee on Nutrition concluded that there was ‘limited’ evidence from systematic reviews that vitamin D fortification of formula milk improves vitamin D status or decreases the risk of vitamin D deficiency in children (SACN, 2023).

References

Al-Khatib G, Duggal M, & Toumba K. (2001). An evaluation of the acidogenic potential of maltodextrins in vivo. J. Dent. 29:409–414.

Alpro. (2024) Alpro Oat Growing Up Drink 1-3+ [Online] Available on 30.7.24 at: https://www.alpro.com/uk/products/drinks/growing-up/oat-growing-up-drink

Aptamil, Nutricia. (2024) Aptamil® 3 & 4 Toddler Formula Milks: 12 Months + [Online] Available on 30.7.24 at: https://www.aptaclub.co.uk/products/milk-formulas/aptamil/12-24-months.html

Baker P, Smith J, Garde A, et al. (2023). The political economy of infant and young child feeding: confronting corporate power, overcoming structural barriers, and accelerating progress. *Lancet (London, England)*, *401*(10375), 503–524.

Baker P, Smith J, McCoy D, et al. (2020). First-food systems transformations and the ultra-processing of infant and young child diets: The determinants, dynamics and consequences of the global rise in commercial milk formula consumption. *Maternal & Child Nutrition*, (July), 1– 18.

Brand-Miller J, Atkinson F & Rowan A (2013). Effect of added carbohydrates on glycemic and insulin responses to children's milk products*. Nutrients*, **5**, 2-31.

Brown A, Jones S, & Evans E. (2020) Marketing of infant milk in the UK: what do parents see and believe? A report for First Steps Nutrition Trust: London.

Conway, R. et al. (2023). Content analysis of on-package formula labelling in Great Britain: use of marketing messages on infant, follow-on, growing-up and specialist formula', Public Health Nutrition, 26(8), pp. 1696–1705.

Conway R, Ritchie I, Esser S, et al. (2023a). Perceived influence of commercial milk formula labelling on mothers' feeding choices in Great Britain: a qualitative study. *Archives of disease in childhood*, *108*(12), 1008–1013.

Cow & Gate, Nutricia. (2024) Cow & Gate Toddler Milk (1-2 years) (Powder) [Online] Available on 30.7.24 at: https://www.nutricia.co.uk/hcp/pim-products/cow-gate-growing-up-milk-1-2-years-powder.html

De Araújo T, de Moraes M, Magalhães V, et al (2021). Ultra Processed Food Availability and Noncommunicable Diseases: A Systematic Review. International Journal of Environmental Research and Public Health, 18(14), 7382.

EUR-lex (2016). Report from the Commission to the European Parliament and the Council on young child formulae. [Online] Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52016DC0169

EUR-lex (2016a). Young-child formulae: background information. Accompanying the document Report from the Commission to the European Parliament and the Council on young child formulae. [Online] Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016SC0099

European Food Safety Authority (2013). *Scientific opinion on nutrient requirements and dietary intakes of infants and young children in the European Union.* [Online] Available at: http://www.efsa.europa.eu/en/efsajournal/pub/3408.htm
First Steps Nutrition Trust (2021). Plant-based milk alternatives in the diets of 1–4 year-olds.

Grenby T, & Mistry M. (2000). Properties of maltodextrins and glucose syrups in experiments in vitro and in the diets of laboratory animals, relating to dental health. The British journal of nutrition, **84**(4), 565–574.

Harris J, Phaneuf L & Fleming-Milici F. (2022). Effects of Sugary Drink Countermarketing Videos on Caregivers' Attitudes and Intentions to Serve Fruit Drinks and Toddler Milks to Young Children. *American Journal of Public Health* **112**, no. S8: pp. S807-S816.

Hastings G, Angus K, Eadie D et al. (2020) Selling second best: how infant formula marketing works. *Glob Health,* **16**, 77.

Hipp. (2024) HiPP Organic 3 Growing up Baby Milk Powder from 12 months onwards (4 x 600g) [Online] Available on 30.7.24 at: https://shop.hipp.co.uk/formula-milks/all-hipp-formula-milks/growing-up-milk/hipp-organic-3-growing-up-baby-milk-powder-from-12-months-onwards-4-x-600g.html

Jones, A and Scapin T (2023). Supporting evidence informed policy work on added sugar. Prepared for the Victorian Health Promotion Foundation (VicHealth). [Online] Available at: https://www.georgeinstitute.org/sites/default/files/documents/VicHealth-George-Institute-policy-work-on-added-sugars-v3-Aug-2023.pdf

Kendamil. (2024) Classic Toddler Milk [Online] Available on 30.7.24 at: https://kendamil.com/products/classic-toddler-milk

Koko. (2024) Koko Kids M{LK [Online] Available on 30.7.24 at: https://www.kokodairyfree.com/products/growing-up-milk/

Koletzko B, Baker S, Cleghorn G, et al (2005). Global standard for the composition of infant formula: Recommendations of an ESPGHAN coordinated International Expert Group. *Journal of Pediatric Gastroenterology*, 41, 584-599.

Lennox A, Sommerville J, Ong K et al (eds) (2013). Diet and Nutrition Survey of Infants and Young Children, 2011.

McCann J, Woods J, Mohebbi M, et al. (2022). Regulated nutrition claims increase perceived healthiness of an ultra-processed, discretionary toddler snack food and ultra-processed toddler milks: A discrete choice experiment. Appetite, **174**, 106044.

Mintel (2022). UK Baby Food and Drink: Mintel Marketing Report. Mintel.

Mintel (2024). The future of baby milk and food: Trends and strategies for brands. [Online] Available at: https://www.mintel.com/insights/food-and-drink/the-future-of-baby-milk-and-food-trends-and-strategies-for-brands/

Moynihan P (2000). Foods and factors that protect against dental caries. Nutrition Bulletin, **25**: 281-286.

Monteiro C, Cannon G, Moubarac J, et al. (2017). The UN Decade of Nutrition, the NOVA food classification and the trouble with ultra-processing. *Public Health Nutrition*, **21**(1), 5– 17.

NHS (2023). *What to feed young children*. [Online] Available at: https://www.nhs.uk/conditions/baby/weaning-and-feeding/what-to-feed-young-children/

NHS (2024). Start for Life. Feeding over 12 months. [Online] Available at: https://www.nhs.uk/start-for-life/baby/weaning/what-to-feed-your-baby/over-12-months/#drinks

Pomeranz J, Romo M, & Harris J. (2018). Toddler drinks, formulas, and milks: Labeling practices and policy implications. *Preventive Medicine*, **109**, 11– 16.

Richter A, Duffy E, Smith Taillie L, et al (2022). The Impact of Toddler Milk Claims on Beliefs and Misperceptions: A Randomized Experiment with Parents of Young Children. *Journal of the Academy of Nutrition and Dietetics,* **122**(3), 533–540.e3.

Rollins N, Bhandari N, Hajeebhoy N, et al. (2016). Why invest, and what it will take to improve breastfeeding practices? *The Lancet*, **387**(10017), 491– 504

Rollins N, Piwoz E, Baker P, et al (2023). Marketing of commercial milk formula: a system to capture parents, communities, science, and policy. *Lancet (London, England)*, **401**(10375), 486–502.

Romo-Palafox MJ, Pomeranz JL, Harris JL. (2020) Infant formula and toddler milk marketing and caregiver's provision to young children. Matern Child Nutr. Jul;16(3):e12962. doi: 10.1111/mcn.12962

Scientific Advisory Committee on Nutrition. (2023). SACN report: feeding young children aged 1 to 5 years. [Online] Available at: https://www.gov.uk/government/publications/sacn-report-feeding-young-children-aged-1-to-5-years

Scientific Advisory Committee on Nutrition. (2024). Scientific Advisory Committee on Nutrition. [Online] Available at: https://www.gov.uk/government/groups/scientific-advisory-committee-on-nutrition#announcements

SMA. (2024) LITTLE STEPS® Growing Up Milk [Online] Available on 30.7.24 at: https://www.smahcp.co.uk/formula-milk/little-steps-growing-up-milk

Swan G, Powell N, Knowles B, et al. (2018) A definition of free sugars for the UK. *Public Health*

Nutr. **21**(9):1636-1638.

Syrad H, van Jaarsveld C H M, Wardle J, Llewellyn C H. (2015) The role of infant appetite in extended formula feeding. *Arch Dis Childhood.* 100 (8): 758-62

van Tulleken C, Wright C, Brown A, et al. (2020). Marketing of breastmilk substitutes during the COVID-19 pandemic. *Lancet (London, England)*, **396**(10259), e58.

Wall R, Clegg M, & Stergiadis S. (2023). Changes in the declared nutrients and price of plant-based milk alternatives in UK supermarkets between 2020 and 2023, *Proceedings of the Nutrition Society*, **82**(OCE5), p. E356.

Watson D, O'Connell Motherway M, Schoterman M, et al. (2013). Selective carbohydrate utilization by lactobacilli and bifidobacteria. *J. Appl. Microbiol.* **114**, 1132–1146.

World Health Assembly (2016). Ending inappropriate promotion of foods for infants and young children. [Online] Available at: https://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_R9-en.pdf

World Health Organization. (2022). How the marketing of formula milk influences our decisions on infant feeding. [Online] Available at: https://www.who.int/publications/i/item/9789240044609]

World Health Organization. (2019). WHO/UNICEF information note: cross-promotion of infant formula and toddler milks. [Online] Available at: https://www.who.int/publications/i/item/WHO-NMH-NHD-19.27

World Health Organization. (2013). Information concerning the use and marketing of follow-up formula [Online] Available at: https://repository.globethics.net/bitstream/handle/20.500.12424/217841/WHO_brief_fufandcode.pdf?sequence=1&isAllowed=y