

FACULTY



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AptaGrow

**Targeted nutrition for immune support
and growth in fussy eaters aged 1–10 years**

INTRODUCTION

A nutritionally adequate diet, comprising a wide variety of foods from all food groups, is critical to ensure normal growth and development during childhood.^{1,2} However, children in Australia often eat a poor diet in comparison to national dietary recommendations, including lower than recommended intakes of fruit, vegetables, protein and dairy, and higher intakes of discretionary foods with higher sugar, saturated fat and salt contents.^{3,4}

General practitioners (GPs) are commonly the first point of advice about nutrition and feeding concerns for parents of young children,⁵ so are uniquely placed to help ensure adequate nutrition in at-risk populations, such as fussy eaters.

▶ Nutritional risks in fussy eaters

While there is currently no universally accepted definition of fussy eating, Taylor and colleagues (2015) suggested the following: *'unwillingness to eat familiar foods or try new foods, severe enough to interfere with daily routines to an extent that is problematic to the parent, child, or parent-child relationship'*.⁶

This lack of an accepted definition makes accurately determining the prevalence of fussy eating challenging, although one Australian study suggested it occurs in 30% of toddlers.⁷ Generally, the estimated prevalence in young children aged 2–5 years ranges from 6% to 50% and for older children aged 6–12 years, this ranges from 19% to 59%.⁸ Children with certain chronic conditions may be at an increased risk for becoming fussy eaters.⁹ For example, children with autistic spectrum disorder frequently present with selective eating due to sensory sensitivity while those with food allergies or dietary restrictions, such as coeliac disease, can have significant anxiety over the danger of contamination.⁹ Selective eating can also make dietary management more challenging in chronic diseases, such as type 1 diabetes or cystic fibrosis.⁹

AptaGrow is regulated as a Food for Special Medical Purpose (FSMP) in Australia, specially formulated for children who cannot meet their nutritional requirements due to a medical condition, and should be used under medical supervision.

Children who exhibit fussy eating behaviours typically present with the following tendencies.^{6,10–13}

- Eat a limited variety of foods (<20–30 foods in total)
- Will only eat preferred, familiar foods
- Resist trying new foods
- Drink most of their energy intake ('liquid calories' from milk and sweet drinks)
- Distractions used while eating e.g. watching television/smartphone
- Prolonged mealtimes due to eating slowly
- Tendency to skip meals
- Show little interest in food or mealtimes
- Significant mealtime behaviours
- Often have separate meals prepared by parents/caregivers



Practice tips

- Fussy eating is common in young children with an estimated prevalence of 6% to 50% in those aged 2–5 years and 19% to 59% in those aged 6–12 years⁸
- A lower dietary quality and nutrient intake can negatively impact a child's overall nutritional status and may lead to poor health outcomes, such as faltering growth, poor immunity, anaemia, osteopenia and digestive issues^{8,15}
- GPs are commonly the first point of advice about nutrition and feeding concerns for parents of young children,⁵ so are uniquely placed to help ensure adequate nutrition in at-risk populations, such as fussy eaters
- AptaGrow is an age-adapted, nutrient-dense, milk-drink range that can be used to support the immune system and growth in fussy eaters aged 1–10 years as part of a holistic approach to managing fussy eating

Fussy eaters will typically have a diet consisting of lower nutrient quality, quantity and variety of foods, which can impact the child's immune function and growth.^{10,14} Indeed, research has shown that, in general, fussy eaters tend to have similar energy intake to non-fussy eaters of a similar age, but lower intakes of key nutrients, such as iron, zinc, calcium, folate, fibre, and vitamins A, D, E, C, B1, B2, B3 and B6.^{6,8–10,15,16} A lower dietary quality and nutrient intake can negatively impact a child's overall nutritional status and may lead to poor health outcomes, such as faltering growth, poor immunity, anaemia, osteopenia and digestive issues.^{8,15} Furthermore, a longitudinal birth cohort study demonstrated that differences in food and food group intakes as well as nutrient intakes evident at 3.5 years in children who were fussy eaters versus those who were not at age 3 years persisted into adolescence, particularly for vegetable, fruit and meat intakes.¹⁷

Fussy eating can impact not only the child, but the entire family due to family stress, conflict at mealtimes, and a high level of parental concern and frustration.¹⁶ Members of the adult/parent–child dyad significantly influence each other within the feeding dynamic and conversations with healthcare professionals should focus on parental expectations, non-directive feeding practices and the interactions that they have with their children during mealtimes.¹⁸ Parents usually understand the importance of eating a variety of fruit and vegetables and limiting discretionary foods, however, they will often prioritise the short-term goal of getting their child to eat something and maintain a happy feeding experience, rather than the long-term goal of a healthy and varied diet.^{9,19}

Management of fussy eating

Management of fussy eating requires a multifactorial approach including parental reassurance, education to improve the child's diet and eating behaviours, and oral nutrition supplements if the child's diet is found to be nutritionally inadequate.²⁰

Evidence-based strategies and interventions to help address fussy eating⁶

- Eliminate any underlying medical cause (i.e. pain, vomiting, reflux) or delayed oral motor development
- Drink water between meals and avoid filling up on drinks such as cow's milk. Aim to serve drinks separate to main meals and snacks
- Reduce grazing
- Provide smaller, frequent meals
- Role modelling through maximising family meals
- Provide family meals with family-style feeding i.e. allowing children the option of choosing how much they eat from the food provided
- Continue to present previously rejected foods (it may take up to 15 daily presentations before accepted²¹)

The GUMLi study was a multicentre, double-blind, randomised controlled trial in which 160 healthy children in Australian and New Zealand aged 12 months were randomly assigned to receive 300 ml/day of cow's milk (CM) or a growing up milk "Lite" (GUMLi) with reduced protein, added micronutrients and synbiotics as part of a whole diet for 12 months.²² The primary outcome was to evaluate the effect of consuming GUMLi on body composition at 2 years of age compared to CM,²² while secondary outcomes included differences in dietary iron and vitamin D intakes, and iron and vitamin D status.²² Results showed that the use of GUMLi compared to CM was associated with a lower percentage of body fat through lower protein intake without affecting overall energy intake.²² Furthermore, the use of GUMLi compared to CM significantly improved iron and vitamin D intake and status.²³ Although the GUMLi study was conducted in healthy children, the micronutrients of focus (iron and vitamin D) have been identified as 'at risk' nutrients in fussy children.¹⁷

Secondary analysis of the dietary patterns in children enrolled in the GUMLi trial showed that the consumption of GUMLi for a period of 12 months did not affect dietary patterns compared with consumption of an unfortified CM.²² GUMLi was also associated with improved intake of several key micronutrients, including iron and vitamin D, and reduced intake of total protein.²² The authors concluded that the use of GUMLi in moderate amounts could be considered as a strategy to improve total nutrient intakes without affecting overall dietary patterns or displacing other foods in the diet throughout the second year of life.²² Children in the GUMLi group were also found to have higher nutritional adequacy (defined using PANDiet; Probability of Adequate Nutrient Intake Scores) and an increased likelihood of meeting nutrient requirements compared to children randomised to receive CM ($p < 0.0001$), indicating better overall nutrient adequacy and diet quality.²³

Take home messages



One of the key philosophies behind managing fussy eating is understanding the parent-child relationship in the complex process of eating and mealtimes. Key areas to work on with children include:

- Structuring meals and snacks with a routine of three small meals and 2–3 nutritious snacks each day
- Keeping meals to a strict duration of 10 minutes for snacks and 20 minutes for main meals
- Avoiding grazing
- Presenting food in manageable quantities to avoid children becoming overwhelmed
- Adopting family-style serving at the dinner table, so that children have the opportunity to choose how much they will eat
- Not underestimating the power of role modelling during eating occasions
- Building familiarity with new foods through repeated presentations and consistency
- Offering one preferred food at every meal to ensure some volume is eaten
- Avoiding being a short-order cook, make one meal for the family and create variations for your fussy child
- Understanding when it is time to seek further help from a clinician specialising in fussy eating

The role of AptaNut in supporting the immune system and growth

AptaNut is an age-adapted, 0.7 kcal/ml, no added sugar, unflavoured, powdered, nutrient-dense milk drink range, containing 18 vitamins and minerals, prebiotics and probiotics, for fussy eaters aged 1–10 years. There are three AptaNut formulations each tailored to the changing nutritional needs of fussy eaters:



AptaNut is specifically designed as a once-a-day nutrient-dense drink to:

- Address key nutritional deficiencies commonly seen in fussy eaters, including iron, zinc and vitamin D, and support the immune system and normal growth and development,
- Address parents' concerns about their child's nutritional intake, and
- Encourage healthy eating behaviours in parallel with nutrition support.

AptaNut should be consumed as part of a healthy varied diet

AptaNut is designed to be incorporated into a holistic approach to managing fussy eating by encouraging healthy eating behaviours. It's once-a-day recommendation has been formulated to provide a third of the recommended daily intake of key nutrients known to be deficient in fussy eaters, i.e. iron, zinc and vitamin D, in just one low volume serve and is designed not to spoil their appetite.^{2,22–25} This is achieved by offering a supplement with a low energy density (0.7 kcal/ml), age-adapted protein levels, and smaller serve size with a natural milk taste and no added sugar, to encourage healthy eating behaviours and taste preferences in children.

AptaNut should not be used as a meal replacement because it is not nutritionally complete. Instead, it is suggested for children to use AptaNut in-between meals as a snack, or to incorporate AptaNut into their favourite food and drinks for an extra nutritional boost.

Summary of the nutritional composition of AptaNut

Energy content of 0.7kcal/ml which coupled with the small serving sizes enables children to consume fewer liquid calories, without the risk of spoiling their appetite and thereby displacing healthy foods at mealtimes	Protein content that meets on average 33% of the dietary recommendation in just one serve per day	18 vitamins and minerals, designed to provide a third of the recommended daily intake of key nutrients known to be deficient in fussy eaters, i.e. iron, zinc and vitamin D in just one low volume serve
Enriched with key nutrients for growth, including iron and calcium	Patented synbiotic blend with the probiotic, <i>Bifidobacterium breve</i> M-16V, and prebiotics, short-chain Galacto-oligosaccharides (scGOS) and long-chain Fructo-oligosaccharides (lcFOS), supported by 17 clinical studies performed by Nutricia and shown to have an immune-modulating effect	Natural milk flavour with no added sugar, artificial flavours, colours or preservatives

AptaNut recommended intake

The recommended intake of AptaNut is one serve per day, for all age groups. The serving size differs between age groups to account for growing appetites as follows:

1+ years	3+ years	6+ years
175ml (1–3 years)*	175ml (3 years)	200ml (6–8 years)
	200ml (4–6 years)	230ml (9–10 years)

*This volume contributes to a child's overall cow's milk intake, with guidelines recommending no more than 500 mL/d for children aged 1–3 years.²

Course resource centre

Clinical papers

- Lovell AL, Davies PSW, Hill RJ, Milne T, Matsuyama M, Jiang Y, et al. [Compared with Cow Milk, a Growing-Up Milk Increases Vitamin D and Iron Status in Healthy Children at 2 Years of Age: The Growing-Up Milk-Lite \(GUMLi\) Randomized Controlled Trial.](#) J Nutr. 2018;148(10):1570–9.
- Lovell AL, Davies PSW, Hill RJ, Milne T, Matsuyama M, Jiang Y, et al. [A comparison of the effect of a Growing Up Milk – Lite \(GUMLi\) v. cows’ milk on longitudinal dietary patterns and nutrient intakes in children aged 12–23 months: the GUMLi randomised controlled trial.](#) Br J Nutr. 2019;121(6):678–87.
- Lovell A, Milne T, Jiang Y, Chen R, Grant C, Wall C. [Evaluation of the Effect of a Growing up Milk Lite vs. Cow’s Milk on Diet Quality and Dietary Intakes in Early Childhood: The Growing up Milk Lite \(GUMLi\) Randomised Controlled Trial.](#) Nutrients. 2019;11(1):203.
- Matsuyama M, Morrison M, Cao K-AL, Pruilh S, Davies PSW, Wall C, et al. [Dietary intake influences gut microbiota development of healthy Australian children from the age of one to two years.](#) Sci Rep. 2019;9(1):12476.
- Taylor CM, Hays NP, Emmett PM. [Diet at Age 10 and 13 Years in Children Identified as Picky Eaters at Age 3 Years and in Children Who Are Persistent Picky Eaters in A Longitudinal Birth Cohort Study.](#) Nutrients. 2019;11(4):807.
- Wall CR, Hill RJ, Lovell AL, Matsuyama M, Milne T, Grant CC, et al. [A multicenter, double-blind, randomized, placebo-controlled trial to evaluate the effect of consuming Growing Up Milk “Lite” on body composition in children aged 12–23 mo.](#) Am J Clin Nutr. 2019;109(3):576–85.

Government Reports/Guidelines

- [Australian Bureau of Statistics \(ABS\)., National Health Survey: First Results, 2017-2018.](#)
- [Australian Institute of Health and Welfare 2018. Nutrition across the life stages. Cat. no. PHE 227. Canberra: AIHW.](#)
- [National Health and Medical Research Council \(2013\) Australian Dietary Guidelines. Canberra: National Health and Medical Research Council.](#)

Professional associations

- [Australian Paediatric Society.](#)
- [Food Standard Australia New Zealand \(FSANZ\).](#)

Resources for parents

- [Australian Government Department of Health: Get Up and Grow: Caring for Our Kids.](#)
- Nutricia: AptaGrow Product Information
- Nutricia: Resources for Parents including recipes and clinician articles

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