

Plant-Based Milks Don't Meet Toddlers' Nutrient Needs

Analysis by [Dr. Joseph Mercola](#)

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STORY AT-A-GLANCE

- › Plant-based milks significantly reduce essential nutrients in toddlers' diets, even when fortified; research modeling a seven-day menu found calcium, vitamin B2, and B12 intake fell by around 50% when cow's milk was replaced with non-fortified plant drinks
- › Studies of children in the U.K., Spain and the U.S. link higher ultraprocessed food intake to faster weight gain, more body fat and poorer metabolic markers. These effects appeared from the preschool years into early adulthood, and in one study they held even after accounting for total calories
- › Most pediatric guidelines strongly advise against using plant-based beverages as milk replacements for children under 2 years old due to nutritional inadequacy and other health risks
- › Plant-based milks are ultraprocessed foods that contain additives like gums and emulsifiers, whereas grass fed cow's milk provides unique nutrients linked to reduced disease risks
- › Raw, grass fed milk offers living enzymes, beneficial bacteria and immune-supporting compounds that ultraprocessed plant drinks do not provide for growing toddlers

More and more parents are choosing plant-based drinks for their toddlers, often because they think they're making a healthier or more sustainable choice. Whether it's almond, oat or soy, these alternatives are showing up in sippy cups across the U.S. —

and often replacing cow's milk entirely. But just because something is labeled “plant-based” or “dairy-free” doesn't mean it's nutritionally complete, healthy or developmentally appropriate for young children.

This is especially important during the vulnerable window between 12 and 24 months, when a child's brain, bones and body are growing at a rapid pace. Every bite and sip matters. And when key nutrients are missing, it quietly undermines that growth in ways most parents don't see coming.

If you've ever questioned whether a plant-based drink is a safe swap for milk — or if you're already relying on one without knowing the full impact — you're not alone. That's exactly what researchers have started to investigate, and the findings are eye-opening. Let's take a closer look at what happens when plant-based drinks replace cow's milk in toddlers' diets.

Most Plant-Based Drinks Fail to Meet Toddlers' Nutritional Needs

A German study published in the *Journal of Health, Population and Nutrition* set out to understand what happens when you swap cow's milk for plant-based alternatives in children's diets.¹ Researchers substituted only the daily serving of cow's milk with common plant-based options like soy, oat and almond drinks, while keeping the rest of the diet unchanged. Their goal was to measure the nutritional fallout from this single swap.

- **The study included common store-bought drinks and child-specific formulas** — Six drinks were analyzed: basic soy, oat and almond drinks; fortified versions of soy and almond drinks; and two products marketed specifically for toddlers.

This included a soy-based “growing-up” drink and a dietetic soy formula for infants with milk intolerance. These represented typical items found in German markets and closely mirrored what parents actually purchase for young children.

- **Most plant-based drinks caused a sharp drop in important nutrients** — Daily intake of calcium, vitamin B2 (riboflavin), vitamin B12 and iodine fell by around 50% when non-fortified plant-based drinks were used.² That means swapping out cow's milk cut these important nutrients in half, even in an otherwise well-balanced meal plan.
- **Nutrient bioavailability is a problem in many plant-based drinks** — Even when drinks are fortified, the minerals and vitamins added are often less bioavailable than those found naturally in milk. That means your body absorbs less of what's listed on the label. So, even if numbers on the label seem high, the actual amount your child's body uses is often far lower.
- **Parents need better tools to assess these swaps** — Researchers warned that parents can't accurately assess the impact of swapping cow's milk for plant-based alternatives.

Most drinks look healthy on the surface and include marketing claims like “dairy-free” or “source of calcium,” but few truly match [milk's nutritional profile](#). Even a small change in a toddler's daily diet has ripple effects on their long-term growth, bone health, immune function and brain development.

For clarity, this study didn't involve physically swapping milk for plant-based drinks and then checking nutrient levels in children. Instead, it used a theoretical model based on the Optimized Mixed Diet (OMD), which is a guideline diet for children in Germany.

The researchers created scenarios where they replaced all fluid cow's milk (219 g/day) in the OMD's 7-day menu with different plant-based drinks (soy, oat, almond, fortified or non-fortified). They then calculated the nutrient intake for that 7-day menu to see the immediate effect of the swap.

In other words, this wasn't a real-world experiment measuring levels in children over time — it was a nutritional analysis of what would happen to nutrient intake if milk was fully replaced in the diet, based on the nutrient content of the drinks.

Doctors Urge Parents to Rethink Plant-Based Drinks for Toddlers

A 2021 commentary published in JAMA Pediatrics reviewed recommendations on plant-based beverage intake for infants and young children and found widespread agreement among health authorities: most plant-based drinks are not suitable substitutes for cow's milk in children younger than 2.³

- **Most pediatric guidelines advise against plant drinks for toddlers** — Across high-income countries, including the U.S., Canada and Australia, official dietary guidance strongly advises parents not to use plant-based beverages as replacements for milk in kids under 2.
- **Frequent or total replacement of milk with plant-based drinks is a red flag for nutrient deficiencies** — Doctors were urged to ask parents directly how often plant-based drinks are used and whether they fully replace cow's milk. This is because frequent substitution raises the risk of serious nutritional gaps.
- **Dozens of real-world cases show serious consequences from near-exclusive use of plant-based beverages in infants** — Near-exclusive use is particularly risky. A 2017 Spanish review included in the featured commentary analyzed 164 plant beverages and found at least 30 published cases of nutritional disease in children (4 to 22 months old) who drank almost nothing but plant beverages.⁴ Each type of drink was linked to a characteristic problem:
 - soy beverage and rickets (caused by soft, weakened bones)
 - rice beverage and kwashiorkor (severe protein deficiency)
 - almond beverage and metabolic alkalosis (protein deficiency, a dangerous condition that disrupts the body's acid-base balance and impairs breathing and organ function)

The author concluded that plant beverages are not a nutritional substitute for cow's milk.

- **Soy contains antinutrients** — Although soy drinks have the highest protein content among plant-based options, soy's bioavailability — or how much protein the body actually uses — is reduced by plant-based antinutrients.

Other studies linking plant-based milks alternatives to nutrient shortfalls include a Canadian study of more than 5,000 children ages 2 to 6, which linked each daily cup of non-cow milk to slightly shorter height.⁵ Another study of 2,831 young children found lower vitamin D levels in those drinking plant-based milk.⁶

Plant-Based Milk Is Just Another Ultraprocessed Food

It's also important to realize that **plant-based drinks** are ultraprocessed foods, meaning they've been heavily modified from their original form and typically contain additives like gums, emulsifiers, synthetic vitamins and artificial flavorings. While many people switch to plant-based drinks thinking they're more natural, the processing involved strips away beneficial compounds and introduces additives your child doesn't need.

In adults, ultraprocessed diets, including plant-based ones, are associated with increased disease risk. For example, an observational study published in The Lancet Regional Health Europe followed 126,842 adults (ages 40-69) and examined the health impact of different types of plant-based foods.

While every 10% increase in whole, unprocessed plant foods, like fruits and vegetables, lowered cardiovascular disease risk by 7% and heart disease-related death by 13%, plant-based ultraprocessed foods had the opposite effect. Each 10% increase in these foods was linked to a 5% higher risk of heart disease and a 12% increase in the risk of dying from it.⁷ Observational studies on children have also raised concerns, especially when it comes to excess weight. Examples include:

- **The Avon Longitudinal Study of Parents and Children (ALSPAC)**, published 2021, involving 9,025 children. This U.K. birth cohort followed children from age 7 to 24, a median of about 10 years. Children in the top fifth of ultraprocessed food intake got about 68% of their food by weight from ultraprocessed products. Compared with

children in the bottom fifth (about 23%), they gained body mass index (BMI), body fat, weight and waist size faster every year into early adulthood. Body fat was measured by DXA scan rather than self-report.⁸

- **The Childhood Obesity Risk Assessment Longitudinal Study (CORALS)**, published 2024, involving 1,426 children. Spanish preschoolers ages 3 to 6 with the highest ultraprocessed food intake had higher BMI, waist circumference, fat mass and fasting blood sugar, and lower HDL ("good") cholesterol. Replacing 100 grams of ultraprocessed food with unprocessed or minimally processed food was associated with lower BMI and blood sugar.⁹
- **The Growing Right Onto Wellness (GROW) trial, secondary analysis**, published 2023, involving 595 children. Researchers followed U.S. preschoolers from low-income households for 36 months. Three-year-olds eating about 1,300 calories a day from ultraprocessed foods, compared with those eating about 300, had BMI z-scores (BMI adjusted for age and sex) that were 1.2 units higher at follow-up. For 4-year-olds the difference was 0.6. These results held after accounting for total calories, suggesting the source of calories mattered, not just the amount.¹⁰

Whole-Fat Dairy Delivers Rare Nutrients That Support Total-Body Health

Unlike ultraprocessed plant drinks, milk from grass fed cows is naturally rich in essential nutrients and requires minimal processing — especially when it's raw. Whole milk contains healthy fats, protein, calcium and fat-soluble vitamins in a form your child's body can actually use. It's a complete food, not a lab-engineered imitation. When you compare ingredient labels, it becomes obvious which product is closer to what nature intended.

Whole dairy products from grass fed cows are a primary source of odd-chain saturated fatty acids (OCFAs). These unique fats are not produced by your body and must be obtained through food.

- **Unique dairy fats are linked to lower risks of chronic diseases** — Higher blood levels of OCFAs have been associated with reduced risks of Type 2 diabetes, cardiovascular disease, obesity, fatty liver, inflammation and even overall mortality.¹¹ You don't get these benefits from almond, soy or oat drinks.
- **Raw, grass fed milk boosts gut and immune health naturally** — When sourced from organic, pasture-raised cows, raw milk also offers living enzymes, beneficial bacteria and immune-supporting compounds that support digestion and help protect against illness. That's something no ultraprocessed product delivers. Just be sure to choose milk from farmers who don't use iodine-based disinfectants to avoid **excess iodine** in your child's diet.

What to Do if Your Toddler Is Drinking Plant-Based Milk

If you've been giving your toddler plant-based drinks thinking they're just as good as — or better than — cow's milk, you're not alone. It's a common choice, especially if you're avoiding dairy yourself or assuming organic almond or oat milk is safer. But as you've seen in the research, most of these drinks don't supply the nutrients your child needs to grow strong and stay healthy. My recommendation? Avoid using plant-based drinks in place of real milk. This is especially important during the growth window between 12 and 24 months. Most of these drinks lack the calcium, B12 and B2 toddlers need — and they don't absorb nutrients from plants as easily as from milk. Plus, soy milk adds another layer of risk due to exposure to estrogenic compounds that affect reproductive development.

If you've already been giving plant-based drinks daily, don't panic. The body responds quickly to good nutrition. The sooner you make the switch, the more support you give your child's bones, brain and immune system during the years they need it most.

FAQs About Plant-Based Milk for Toddlers

Q: Are plant-based milks safe for toddlers as a replacement for cow's milk?

A: No. Most plant-based drinks fail to provide the essential nutrients found in cow's milk. These include calcium, vitamin B12 and vitamin B2, and iodine, all of which are needed for proper growth, brain development, and immune function during early childhood.

Q: What's the problem with plant-based milks being ultraprocessed?

A: Ultraprocessed foods are heavily altered and often loaded with gums, emulsifiers and synthetic nutrients.

Q: How does raw, grass fed milk support gut and immune health in toddlers?

A: Raw milk from grass fed cows contains natural enzymes, beneficial bacteria and immune-boosting compounds that are destroyed during pasteurization. These elements support healthy digestion, nutrient absorption and immune function. It's a living food, unlike plant-based drinks that rely on synthetic additives to mimic nutrition. Choosing raw milk from farms that avoid iodine-based disinfectants also prevents unnecessary iodine overload in your child's diet.

This article is for informational purposes only and does not constitute medical advice. Decisions about what to feed an infant or young child should be made with your pediatrician, particularly where a child is not breastfed or has a diagnosed intolerance.

Sources and References

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