

# Dairy Every Day Is a Healthy Way to Nourish Brains, Bones, and Bodies

## BACKGROUND

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The first 1,000 days between pregnancy and a child's second birthday are a brief but important window of opportunity to nourish early brain development, help children learn to like healthy foods and set the stage for a lifetime of wellness. As they move through toddler and preschool years, it is imperative to solidify these healthy habits.

Dairy foods can be a nutrition solution for many families. Dollar for dollar, dairy foods are one of the most economical sources of nutrition, which is critical to help meet the nutritional needs of those disproportionately affected by food insecurity and chronic disease. In addition, they come in several textures and varieties, including lactose-free, to meet multiple taste, cultural and health needs. There's likely something even picky eaters will enjoy.

This guide provides evidenced-based background on how dairy foods help nourish brains, bones and bodies.

BRAIN HEALTH

STRONG BONES

IMMUNE HEALTH

GROWTH

**Note:** Individuals are encouraged to obtain personalized health and medical advice from their pediatrician.

# Brain Health

Every parent wants to give their child the best head start possible to reach their full potential. Good nutrition during pregnancy and early childhood provides the building blocks for a child's cognitive abilities, motor skills and socio-emotional development, which in turn impacts their future success in school and economic opportunities later in life.<sup>1</sup>

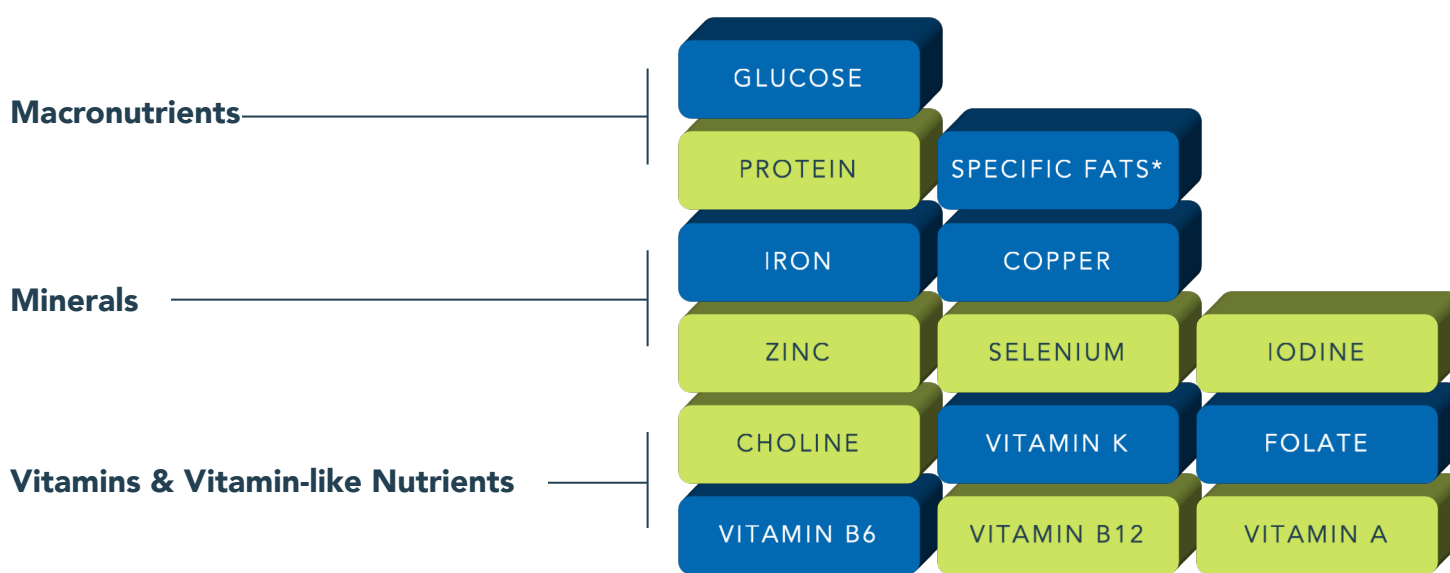
During the first 1,000 days, the brain grows more quickly than at any other time in a person's life. Children need the right nutrients at the right time to fuel the brain's rapid development. Failure to provide key nutrients during this critical period can have lifelong impact on intellectual ability and neurodevelopment.

In its Policy Statement on Advocacy for Improving Nutrition in the First 1000 Days to Support Childhood Development and Adult Health, the American Academy of Pediatrics recognized 14 nutrients that affect early brain development.<sup>2</sup> Dairy foods are a brain health powerhouse, providing 7 of the 14 nutrients important for early brain development.

## 14 BUILDING BLOCKS FOR EARLY BRAIN DEVELOPMENT

**Dairy foods are a brain health powerhouse, providing 7 of the 14 nutrients important for early brain development.**

Nutrients provided by dairy foods



\* Long-chain polyunsaturated fatty acids

# Brain Health

What pregnant and breastfeeding moms eat matters too. According to the 2020–2025 Dietary Guidelines for Americans, women who do not regularly consume dairy products, eggs, seafood, or use iodized table salt may not consume enough iodine—which is essential for neurocognitive development of the fetus.<sup>3</sup>

## KEY POINTS FOR FAMILIES



Dairy every day is a healthy way to benefit brain health.

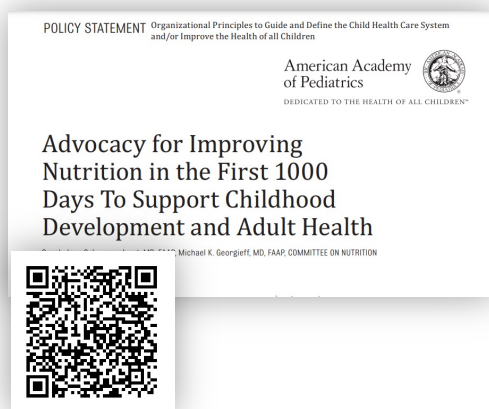


Dairy foods are a brain health powerhouse, providing 7 of the 14 nutrients important for early brain development.



Help nourish baby's brain development with the iodine and other important nutrients found in dairy foods.

## RESEARCH AND RESOURCES



### AAP Policy Statement.

Advocacy for Improving Nutrition in the First 1000 Days to Support Childhood Development and Adult Health.



### Webinar.

Prenatal Nutrition. Dairy's Building Blocks for Baby's Brain Development.

## Strong Bones and Muscles

Bones are the framework for a child's growing body. And the connection between bone health and muscle health cannot be overlooked, as musculoskeletal health is critical for all aspects of life. The American Academy of Pediatrics' Clinical Report on Optimizing Bone Health in Children and Adolescents acknowledges bone health attained in early childhood is the most modifiable determinant of lifelong skeletal health.<sup>4</sup>

The health habits children build early in life can make or literally break their bones as they age. The more bone mass created during childhood and adolescence, the greater the chance of preventing osteoporosis and related injuries later in life. The good news is dairy foods provide more bone-building nutrients than any other food group. The American Academy of Pediatrics, National Institutes of Health and 2020–2025 Dietary Guidelines for Americans recommend eating dairy foods daily to achieve peak bone mass.

### Dairy's bone building nutrients:<sup>5</sup>

#### PROTEIN

Provides the structural matrix of the bone.

#### CALCIUM

Plays a structural role in bone.

#### VITAMIN D

Is required for calcium absorption.

#### PHOSPHORUS

Promotes bone strength and the body's acid-base balance.

#### POTASSIUM

Promotes an alkaline environment helping to preserve calcium in bones.

#### ZINC

Stimulates collagen production, a key component for strong bones.

### KEY POINTS FOR FAMILIES



Building your child's "bone bank" is like saving for their education. Investing in good nutrition now, will pay off with stronger bones in the future.



Dairy foods provide more bone-building nutrients than any other food group.



Bones crave the nutrients found in milk, cheese and yogurt.

### RESEARCH AND RESOURCES



FROM THE AMERICAN ACADEMY OF PEDIATRICS

Guidance for the Clinician in Rendering Pediatric Care

CLINICAL REPORT

**Optimizing Bone Health in Children and Adolescents**

Neville H. Golden, MD, Steven A. Abrams, MD, and COMMITTEE ON NUTRITION

abstract



**AAP Clinical Report.**  
Optimizing Bone Health in Children and Adolescents.

COMPLIMENTARY WEBINAR | MARCH 31 | 12:00-1:30PM CST

NUTRITION AND BONE HEALTH ACROSS THE LIFESPAN





**Webinar.**  
Nutrition and Bone Health Across the Lifespan.

# Immune Health

Healthy immune systems are top of mind for parents and health professionals. Smart habits to help immune health include getting enough sleep, regular exercise, managing stress and eating a healthy diet.

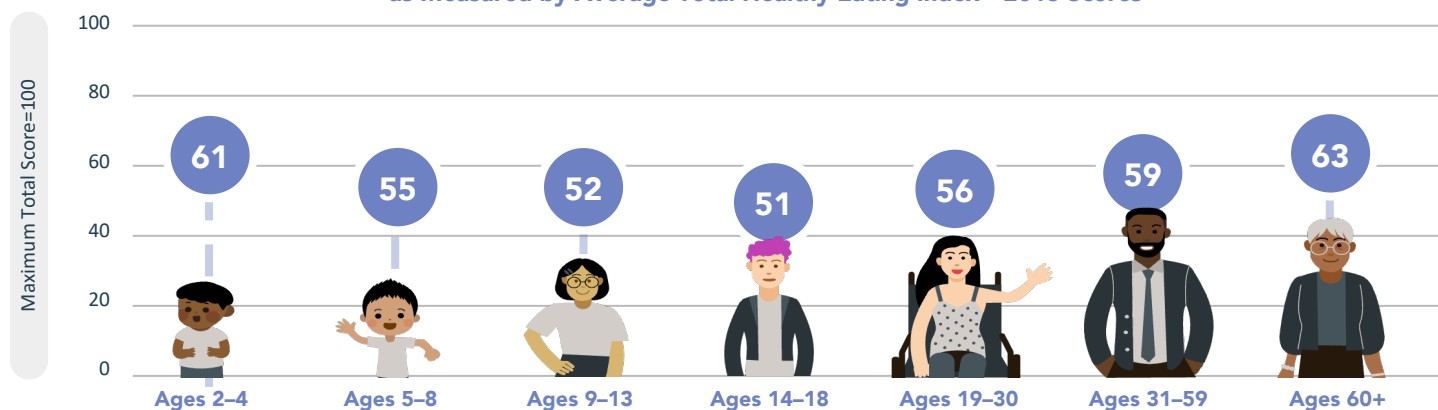
Immune cells require a constant supply of energy and nutrients as they are defending and protecting the body. Nutrients from a variety of foods, including dairy foods, fruits and vegetables, help keep our immune system in check.

## Summary of Action of Micronutrients on Immune Function<sup>6</sup>

Epithelial Barriers	Cellular Immunity	Antibody Production
Vitamin A	Vitamin A	Vitamin A
Vitamin C	Vitamin B6	Vitamin B6
Vitamin E	Vitamin B12	Vitamin B12
Zinc	Vitamin C	Vitamin D
	Vitamin D	Vitamin E
	Folic acid	Zinc
	Iron	Copper
	Zinc	Selenium
	Copper	Nucleotides
	Selenium	Long chain polyunsaturated fatty acids
	Nucleotides	
	Long chain polyunsaturated fatty acids	

Unfortunately, as noted in the 2020–2025 Dietary Guidelines for Americans, children’s diet quality becomes sub-optimal at an early age, with a Healthy Eating Index Score of 61 out of 100. This is especially concerning for Non-Hispanic Black children and Hispanic children because they miss the mark on meeting nutrition recommendations more than their peers.<sup>7</sup>

**Adherence of the U.S. Population to the Dietary Guidelines Across Life Stages,  
as Measured by Average Total Healthy Eating Index—2015 Scores**



**Note:** HEI-2015 total scores are out of 100 possible points. A score of 100 indicates that recommendations on average were met or exceeded. A higher total score indicates a higher quality diet.

**Data Source:** Analysis of What We Eat in America, NHANES 2015–2016, age 2 and older, day 1 dietary intake data, weighted.

# Immune Health

Meeting daily dairy recommendations can help nourish the immune system with these immune-important nutrients:

## PROTEIN

Is the building block of all cells in the body, including immune cells and immune signaling molecules.<sup>8</sup>

## ZINC

Is important for normal immune function and supports normal growth and development.<sup>9</sup>

## SELENIUM

Helps protect healthy cells from damage.<sup>10</sup>

## VITAMIN A

Helps support healthy immune cells.<sup>11</sup>

## VITAMIN D

Helps maintain a healthy immune system.<sup>12</sup>

## VITAMIN B12

Helps support immune cell function and activity.<sup>13–14</sup>

## KEY POINTS FOR FAMILIES



Dairy every day is a healthy way to benefit immunity.





Dairy foods provide nutrients, as part of a healthy diet, important for immune health.



Nourish your child's immune system with the nutrients in dairy foods.

## RESEARCH AND RESOURCES





**nutrients**

*Review*

**Strengthening the Immune System and Reducing Inflammation and Oxidative Stress through Diet and Nutrition: Considerations during the COVID-19 Crisis**

ex Brito <sup>1,2,†</sup>, Giulia Dingee <sup>3</sup>, Sofia Sosa Fernandez Del Campo <sup>1</sup>, I.R. La Frano <sup>1,2,†</sup> and Torsten Bohn <sup>1,\*,†</sup>



### Nutrients Review.

Strengthening the Immune System and Reducing Inflammation and Oxidative Stress through Diet and Nutrition: Considerations during the COVID-19 Crisis.

**COMPLIMENTARY WEBINAR | TUESDAY, AUGUST 24 | 12:00 PM CST**



**TAMING THE FLAME:**

*Dairy and Inflammation*



### Webinar.

Taming the Flame. Dairy and Inflammation.



## Growth and Development



Early childhood is a critical period for growth and development, which require the right balance of nutrients, including high-quality protein, while keeping weight gain on the right track.

At around six months of age, as nutrient-dense complementary foods are introduced, cheese and yogurt are easy ways to familiarize babies to new tastes and textures.

After baby's first birthday, as they transition from breast milk or iron-fortified formula, whole milk and other dairy foods emerge as sources of calories, high-quality protein and other nutrients to build healthy brains, bones, bodies and immune systems. This nutrient bundle makes dairy foods an easy safety net for picky eaters.



60¢

Dollar for dollar dairy foods are one of the most economical sources of nutrition.<sup>15-16</sup>

In fact, three servings of milk can cost as little as \$0.60 a day.<sup>17</sup>

## Growth and Development

Research shows that what children drink—from birth through age 5—can have a big impact on their health. Experts at the American Academy of Pediatrics, the Academy of Nutrition and Dietetics, the American Academy of Pediatric Dentistry and the American Heart Association recommend cow's milk and water as the go-to beverages for children 1–5 years of age.<sup>18</sup> Plant-based alternatives are not recommended due to their wide variability in nutrient content, limited evidence of bioavailability and impact on diet quality and health outcomes. The exception would be unsweetened, fortified soy milk if a child is allergic to dairy milk or to accommodate vegan or certain vegetarian dietary preferences.

### HOW MUCH DAIRY<sup>19</sup>



#### 6–12 months

Introduce yogurt and cheese



#### 1–2 years

Aim for 1½–2 cups a day



#### 2–3 years

Aim for 2–2½ cups a day



#### 4–8 years

Aim for 2½ cups a day



#### 9+ years

Aim for 3 cups a day

### KEY POINTS FOR FAMILIES



Dairy every day is a healthy way to support growth and development.



Milk and water are the go-to drinks for 1–5 year-olds. Milk for nutrition and water for hydration.



Milk at meals provides a safety net for picky eaters.



When you step away from dairy foods you step down nutrition.

### RESEARCH AND RESOURCES

#### CONSENSUS STATEMENT

#### Healthy Beverage Consumption in Early Childhood

Recommendations from Key National Health and Nutrition Organizations

Healthy Eating Research



**Consensus Statement.**  
Healthy Beverage Consumption in Early Childhood.

#### COMPLIMENTARY WEBINAR | DECEMBER 10 | 12:00-1:00 PM CDT

#### CONFIDENTLY NOURISHING CHILDREN: WHAT'S THE DEAL WITH DAIRY?



**Webinar.**  
Confidently Nourishing Children: What's the Deal with Dairy.



# Dairy Every Day Is a Healthy Way to Nourish Brains, Bones, and Bodies

## FREQUENTLY ASKED QUESTIONS

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### What are the healthiest beverages for my baby or young child?

Research shows what children drink from birth until age five makes a difference for their health, both now and in the future. Health experts—including the American Academy of Pediatrics, American Heart Association, Academy of Nutrition and Dietetics and American Association of Pediatric Dentistry—agree that dairy milk and water should be the go-to beverages for children ages 1–5 years. One tip is to encourage young children to drink dairy milk with meals and water in between.



### What about plant-based, non-dairy milks and other beverages?

Children under 5 should avoid plant-based/non-dairy milks,\* caffeinated beverages, sugar and low-calorie sweetened beverages, toddler formula and flavored dairy milk. And 100% fruit juice is an option in limited amounts but is not a daily recommendation.

Restricting sugar-sweetened beverages in early childhood is recommended due to associations with lower diet quality and other adverse health outcomes.

\*In case of a milk allergy; fortified soymilk is the recommendation.

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LEARN MORE HERE



# Dairy Every Day Is a Healthy Way to Nourish Brains, Bones, and Bodies

## FREQUENTLY ASKED QUESTIONS

### When should my baby begin drinking milk?

Here are the recommendations for children 0–5



#### 0–6 months

Breast milk or infant formula only.



#### 6–12 months

Breast milk or infant formula with baby's first bites.

At around 6 months introduce tastes and textures of nutrient-rich foods like yogurt and cheese, eggs, iron-fortified cereal, ground beef and pureed fruits and vegetables to help baby learn to like a variety of healthy foods.



#### 12 months

After baby's first birthday, it is time to add whole dairy milk to fuel brain and growth spurts. Breastfeeding can continue after 1 year if desired.



#### 2–5 years

Switch from whole milk to low-fat or fat-free dairy milk. Think milk at meals and water in between.

## HOW MUCH DAIRY



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#### 9+ years

Aim for 3 cups a day

### What counts as a cup\* of dairy?

\*Can be divided into several servings throughout the day.

#### Milk

- 1 cup/8 ounces

#### Yogurt

- 1 cup/8 ounces (no added sugar)

#### Cheese

- 1½ ounces of hard cheese
- ⅓ cup shredded cheese
- 1 ounce American cheese



### What if my child wants to drink more milk than the daily dairy serving recommendations?

If toddlers drink more than the recommended amount of milk, it may reduce their appetite for other nutritious foods, including iron-rich foods. A helpful tip is to serve milk with meals and water in between. To enhance iron absorption, pair foods high in iron like fortified or enriched whole grains, beans or meats with foods high in vitamin C like strawberries, bell peppers or tomatoes.

LEARN MORE HERE



# Dairy Every Day Is a Healthy Way to Nourish Brains, Bones, and Bodies

## FREQUENTLY ASKED QUESTIONS



### Do I need to delay introducing new foods because I think my baby has food allergies?

It's understandable to be concerned about the development of food allergies. But the 2020–2025 Dietary Guidelines for Americans state there is no evidence to support the prevention of food allergies by delaying the introduction of allergenic foods beyond when other complementary foods are given.

In fact, the opposite might be true. The introduction of potentially allergenic foods during the complementary feeding period is supported by research, pediatrician recommendations and child readiness and may be helpful in reducing the risk of food allergy. In case of a milk allergy; fortified soymilk is the recommendation.



### What are substitutions for dairy if my baby is lactose intolerant?

While some may avoid dairy for tummy troubles, the American Academy of Pediatrics recommends keeping dairy products on the menu for most children with lactose intolerance. Many options exist for lactose intolerance. Products like lactose-free dairy milk and lactose-free yogurt have no lactose, hard cheeses naturally contain very little lactose and yogurt has good bacteria that helps break down lactose.



### What are lactose-free options for my baby?

- Lactose-free dairy milk is real dairy milk just without the lactose.
- Yogurt with good bacteria can help break down lactose, making it easier to digest.
- Hard cheeses (e.g., Cheddar Swiss, Colby, etc.) contain very little lactose.

LEARN MORE HERE

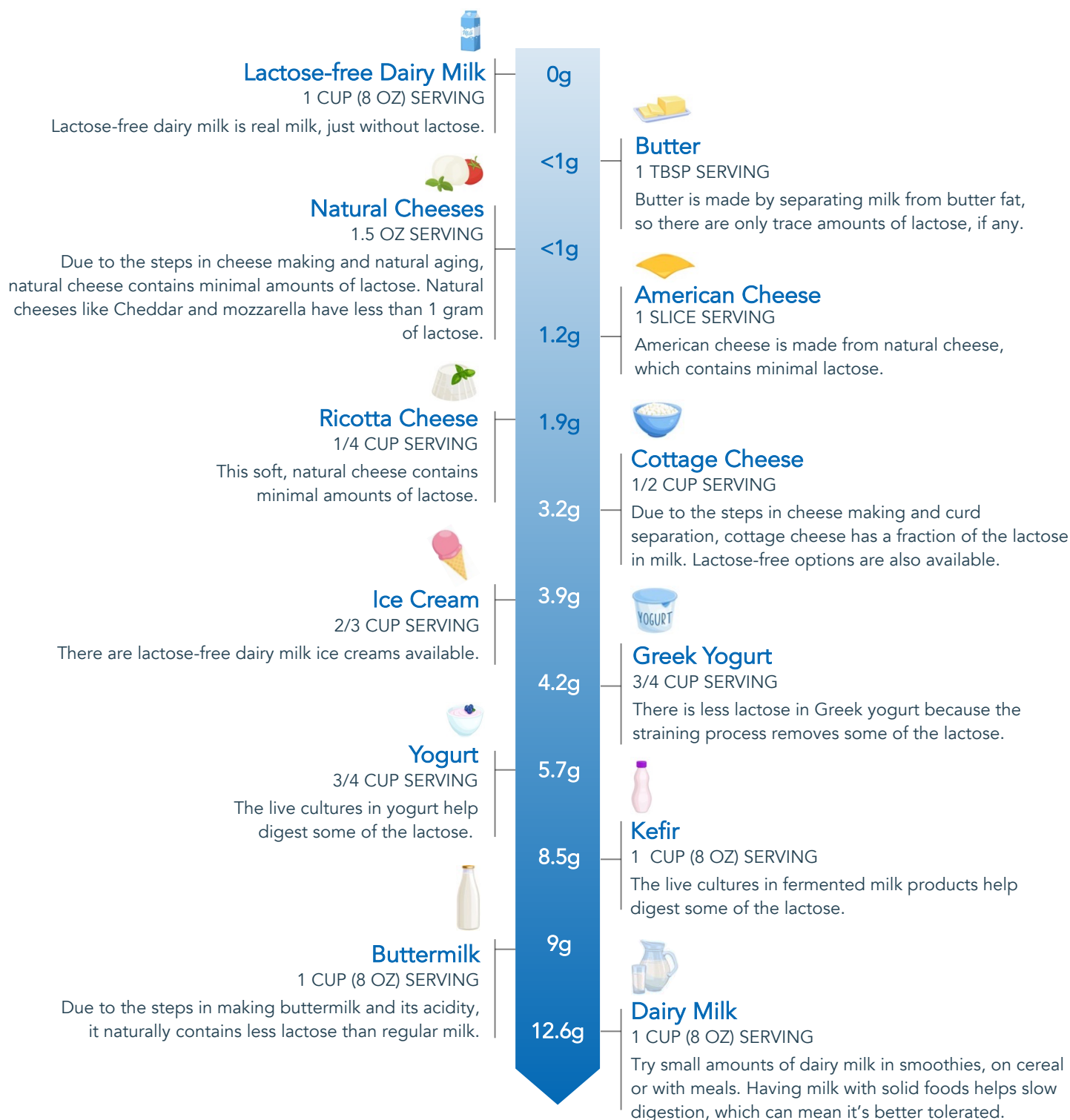


**Note:** Individuals are encouraged to obtain personalized health and medical advice from their pediatrician.

# Enjoy Dairy Foods with Confidence

While lactose intolerance is rare in young children, lactose intolerance doesn't need to mean dairy avoidance. There are a variety of lactose-free and lower-lactose choices that deliver on taste and nutrition.

## Amount of Lactose per Serving From Lowest to Highest



Lactose content based on the Reference Amount Customarily Consumed (RACC) and data from FoodData Central: <https://fdc.nal.usda.gov/>. Accessed October 2022. Ricotta lactose content based on Facioni MS et al. 2020, Di Costanzo M et al. 2020 and Food Standards Australia New Zealand. Detailed data is on file and available upon request.

# Dairy Every Day Is a Healthy Way to Nourish Brains, Bones, and Bodies

## FREQUENTLY ASKED QUESTIONS

### Are there any solutions to help my baby accept/learn to like new foods?

#### Eat family meals

There are many benefits when families eat together, and infants rely heavily on modeling food behaviors of others.

#### Be patient

It can take more than 10 times before an infant accepts a new food flavor or texture.

#### Start small

Just one bite is a great start to increasing exposure and familiarity of new foods.

#### Encourage exploration

Making a mess is part of the learning process.

#### Trust their gut

Toddlers know when they are full, so don't worry about them cleaning their plate—this will distort their innate hunger and fullness cues.

#### Multiple meals and snacks

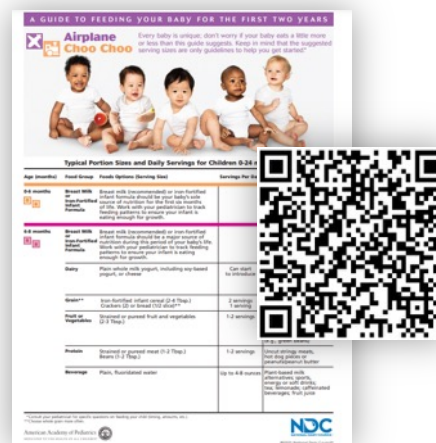
Aim for 3 meals and 2–3 snacks that are 2–3 hours before a meal.

#### Add dairy foods

They are versatile in flavor and texture and can help enhance consumption of other foods groups, acting as a delivery system to help growing children, even picky eaters eat better.

- Beginning at 6 months introduce unsweetened plain yogurt and cheese. Serve plain, unsweetened regular or Greek/Icelandic yogurt with pureed fruits to introduce a variety of tastes and textures at once, like a tart taste balanced with something naturally sweeter like fruit.
- Cottage cheese adds a new texture that can be served with fruit or unsweetened apple sauce as well as with veggies or cooked pasta.
- Melt cheese and top cooked broccoli, cauliflower or carrots and mash or finely chop into bite-sized portions.

### LEARN MORE HERE



Unfortunately, 9 million children in the United States are food insecure.



This toolkit from the American Academy of Pediatrics and the Food Research Action Center will help you screen and intervene to connect families to resources like SNAP, WIC or food pantries, that will help them get the nutrition they need.

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## REFERENCES

1. 1000 Days. The First 1000 Days. Nourishing America's Future. 2016. <https://thousanddays.org/wp-content/uploads/1000Days-NourishingAmericasFuture-Report-FINAL-WEBVERSION-SINGLES.pdf>
2. Sarah Jane Schwarzenberg, Michael K. Georgieff, COMMITTEE ON NUTRITION, Stephen Daniels, Mark Corkins, Neville H. Golden, Jae H. Kim, C. Wesley Lindsey, Sheela N. Magge; Advocacy for Improving Nutrition in the First 1000 Days to Support Childhood Development and Adult Health. *Pediatrics* February 2018; 141 (2): e20173716. 10.1542/peds.2017-3716. <https://publications.aap.org/pediatrics/article/141/2/e20173716/38085/Advocacy-for-Improving-Nutrition-in-the-First-1000?autologincheck=redirected>
3. U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2020-2025. 9th Edition. [https://www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary\\_Guidelines\\_for\\_Americans-2020-2025.pdf](https://www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary_Guidelines_for_Americans-2020-2025.pdf)
4. Neville H. Golden, Steven A. Abrams, COMMITTEE ON NUTRITION, Stephen R. Daniels, Steven A. Abrams, Mark R. Corkins, Sarah D. de Ferranti, Neville H. Golden, Sheela N. Magge, Sarah Jane Schwarzenberg; Optimizing Bone Health in Children and Adolescents. *Pediatrics* October 2014; 134 (4): e1229–e1243. 10.1542/peds.2014-2173
5. Cristina Palacios Ph.D. (2006) The Role of Nutrients in Bone Health, from A to Z, *Critical Reviews in Food Science and Nutrition*, 46:8, 621-628, DOI: [10.1080/10408390500466174](https://doi.org/10.1080/10408390500466174)
6. American Academy of Pediatrics. Committee on Nutrition. Nutrition and Immunity. In *Pediatric Nutrition*. 2019. Pages 1003-1039.
7. U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2020-2025. 9th Edition. [https://www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary\\_Guidelines\\_for\\_Americans-2020-2025.pdf](https://www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary_Guidelines_for_Americans-2020-2025.pdf)
8. Li P, Yin YL, Li D, Kim SW, Wu G. Amino acids and immune function. *Br J Nutr*. 2007;98(2):237-252. doi:10.1017/S000711450769936X <https://pubmed.ncbi.nlm.nih.gov/17403271/>
9. National Institutes of Health Office of Dietary Supplements. Zinc Fact Sheet for Health Professionals. December 7, 2021. <https://ods.od.nih.gov/factsheets/Zinc-HealthProfessional/>
10. National Institutes of Health Office of Dietary Supplements. Selenium Fact Sheet for Health Professionals. March 26, 2021. <https://ods.od.nih.gov/factsheets/Selenium-HealthProfessional/>
11. National Institutes of Health Office of Dietary Supplements. Vitamin A and Carotenoids Fact Sheet for Health Professionals. June 15, 2022. <https://ods.od.nih.gov/factsheets/VitaminA-HealthProfessional/>
12. National Institutes of Health Office of Dietary Supplements. Vitamin D Fact Sheet for Health Professionals. June 2, 2022. <https://ods.od.nih.gov/factsheets/VitaminD-HealthProfessional/>
13. National Institutes of Health Office of Dietary Supplements. B12 Fact Sheet for Health Professionals. March 9, 2022. <https://ods.od.nih.gov/factsheets/VitaminB12-HealthProfessional/>
14. Mikkelsen, K., Apostolopoulos, V. (2019). Vitamin B12, Folic Acid, and the Immune System. In: Mahmoudi, M., Rezaei, N. (eds) *Nutrition and Immunity*. Springer, Cham. [https://doi.org/10.1007/978-3-030-16073-9\\_6](https://doi.org/10.1007/978-3-030-16073-9_6)
15. Drewnowski, A. The contribution of milk and milk products to micronutrient density and affordability of the U.S. diet. *J Am Coll Nutr*, 2011. 30(5 Suppl 1): p. 422S-8S. doi:10.1080/07315724.2011.10719986.
16. Hess JM, Cifelli CJ, Agarwal S, Fulgoni VL 3rd. Comparing the cost of essential nutrients from different food sources in the American diet using NHANES 2011-2014. *Nutr J*. 2019;18(1):68. doi:https://doi.org/10.1186/s12937-019-0496-5. 15.
17. IRI Multi Outlet + Conv 2022, YTD ending 5-22. Based on U.S. average price of unflavored, branded and private label milk, 1 gal.
18. Healthy Eating Research. Technical Scientific Report. Healthy Beverage Consumption in Early Childhood. Recommendations from Key National Health and Nutrition Organizations. September 2019. <https://healthydrinkshealthykids.org/app/uploads/2019/09/HER-HealthyBeverageTechnicalReport.pdf>
19. U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2020-2025. 9th Edition. [https://www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary\\_Guidelines\\_for\\_Americans-2020-2025.pdf](https://www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary_Guidelines_for_Americans-2020-2025.pdf)