

Nurturing Little Ones: The Vital Role of Vitamin D and Iron in Baby's First Year

Anna M. Cason, RDN
Senior Extension Associate

Courtney Luecking, PhD, MPH, RDN
Assistant Extension Professor

A balanced diet gives our body the vitamins and minerals it needs. But what about the time before babies can eat solid foods? How do they get all the nutrients they need to grow? Human milk and/or infant formula are the only recommended sources of nutrition during a baby's first 4 to 6 months of life.



Many important nutrients are in human milk and added to infant formula. But there are two that call for extra thought. When babies do not yet eat solid foods, or are just starting to, we must think about vitamin D and iron.

Vitamin D

At each stage of life we need vitamin D, even when we are just days old. Vitamin D is a vital nutrient that supports the growth and development of strong bones. During the period of rapid growth in infancy, it is essential to have the nutrients to make a baseline of strong bones. The recommended amount of vitamin D between days after birth until 12 months of age is 400 IU or 10 micrograms per day.

Sources of vitamin D

Babies who are fed only human milk need extra vitamin D starting just a few days after birth. Even if a nursing mother's food has high amounts of vitamin D, it does not pass through the milk in large enough amounts for her baby. Vitamin D supplements are available in liquid forms for infants.

Babies who are fed only infant formula generally do not need a supplement. That is because infant formula is fortified with the amount of vitamin D a baby needs. This means vitamin D is added when formula is made. Babies who are fed both human milk and infant formula may get the recommended



amount from the formula. Experts say a baby who drinks at least 32 ounces of formula per day gets the recommended amount of vitamin D.

Around 4 to 6 months of age, your infant may show signs they are ready to add complementary or table foods to their diet of human milk and/or infant formula. There are some foods you can introduce that have vitamin D. But the amount that babies generally eat does not meet the advised amount for babies drinking human milk. Human milk and formula will continue to be the main source of nutrition and will determine if baby needs a supplement.

Some baby cereals have vitamin D added and can serve as a source as they start eating solid foods. Other foods include fatty fish like canned salmon and tuna, egg yolks, yogurt, some mushrooms, and some red meat. These may not be the first foods you think of for your baby, but you can add them over time as you introduce more complex textures and flavors. Cow's milk and non-dairy milk alternatives also have vitamin D, but you should not add these into an infant's diet until they are at least 12 months of age.

Iron

Iron is another vital nutrient infants need to grow and learn. Iron is needed for brain and muscle development, to carry oxygen through the body, and for immune function. Experts say that infants born full term need 1 milligram of iron for each kilogram of bodyweight. When a baby is born, they have iron stores they can use until about 4 to 6 months of age. Iron then needs to come from either formula, foods, and/or supplements.

It is important to note that infants born early or with a low birthweight may have different nutrient needs. As an example, they may not have the proper store of iron and may need supplementation earlier than 4 months of age. Talk about these considerations and more with your infant's health-care provider.

Sources of iron

Like vitamin D, iron does not pass through human milk in large enough amounts. The American Academy of Pediatrics recommends that babies fed only human milk, or a combination of human milk and infant formula, receive an iron supplement starting at 4 months. When they start eating more food sources of iron, this need may go down.

Infant formula is fortified with iron. Babies who are fed only formula are likely getting the advised amount of iron if they are consuming the recommended amount for their size and age.

When your infant starts to show they are ready to have solid foods, think about iron-rich foods as those first bites. It is recommended to include two sources a day. Some baby-friendly choices are pureed, ground, or mashed beef, chicken, or turkey; mashed

or soft-cooked beans; canned tuna or salmon mixed with yogurt or avocado; and fortified baby cereals. Other plant sources are sweet potatoes, peas, and spinach. When eating plant sources of iron, think about giving them with a source of vitamin C like tomatoes, bell peppers, or citrus fruits to help with absorption. This may look like mashed sweet potatoes with a fruit puree of citrus options or soft, cooked beans with a tomato sauce.

For the first few months of life, babies rely on human milk and/or infant formula to provide the nutrients they need. Infants who are fed only infant formula can usually get the amount of vitamin D and iron they need if they are consuming the right amount for their size and age. Infants who are fed only human milk or a combination of human milk and formula may need additional supplementation. Your baby's health-care provider can help determine if a vitamin D or iron supplement is necessary, and which type is best for your baby. As your baby's diet expands, offer a variety of developmentally appropriate foods to provide the nutrients they need and to help expand their palate.

References

Academy Staff RDNs. (2024 September 17).

4 Infant Supplements to Ask Your Pediatrician About. [Www.eatright.org](http://www.eatright.org). Kids Eat Right. <https://www.eatright.org/health/essential-nutrients/supplements/4-infant-supplements-to-ask-your-pediatrician-about>

American Academy of Pediatrics. (2022 May 24). Vitamin D & Iron Supplements for Babies: AAP Recommendations. HealthyChildren.org. <https://www.healthychildren.org/English/ages-stages/baby/feeding-nutrition/Pages/Vitamin-Iron-Supplements.aspx>

Centers for Disease Control and Prevention. (2024, October 10). Cow's Milk and Milk Alternatives. Infant and Toddler Nutrition. <https://www.cdc.gov/infant-toddler-nutrition/foods-and-drinks/cows-milk-and-milk-alternatives.html>

Centers for Disease Control and Prevention. (2024, April 1). Iron. Infant and Toddler Nutrition. <https://www.cdc.gov/infant-toddler-nutrition/vitamins-minerals/iron.html>

Centers for Disease Control and Prevention. (2024, April 1). Vitamin D. Infant and Toddler Nutrition. <https://www.cdc.gov/infant-toddler-nutrition/vitamins-minerals/vitamin-d.html>

National Institutes of Health. (2024 July 26). Vitamin D. Office of Dietary Supplements-Health Information. <https://ods.od.nih.gov/factsheets/VitaminD-HealthProfessional>

Porto, A., & Abu-Alreesh, S. (2022, August 24). Vitamin D for Babies, Children & Adolescents. HealthyChildren.org; American Academy of Pediatrics. <https://www.healthychildren.org/English/healthy-living/nutrition/Pages/Vitamin-D-On-the-Double.aspx>

Van Elswyk, M. E., Murray, R. D., & McNeill, S. H. (2021). Iron-Rich Complementary Foods: Imperative for All Infants. *Current developments in nutrition*, 5(10), nzab117. <https://doi.org/10.1093/cdn/nzab117>

Educational programs of Kentucky Cooperative Extension serve all people regardless of economic or social status and will not discriminate on the basis of race, color, ethnic origin, national origin, creed, religion, political belief, sex, sexual orientation, gender identity, gender expression, pregnancy, marital status, genetic information, age, veteran status, physical or mental disability or reprisal or retaliation for prior civil rights activity. Reasonable accommodation of disability may be available with prior notice. Program information may be made available in languages other than English. University of Kentucky, Kentucky State University, U.S. Department of Agriculture, and Kentucky Counties, Cooperating.