

The logo features a stylized orange icon of a spoon and a fork intertwined, with a green caduceus symbol integrated into the design. To the right of the icon, the word "Nutrition" is written in orange, "FOR" in small green letters, and "Families" in large green letters.

# Nutrition FOR Families



Physicians Association for Nutrition USA  
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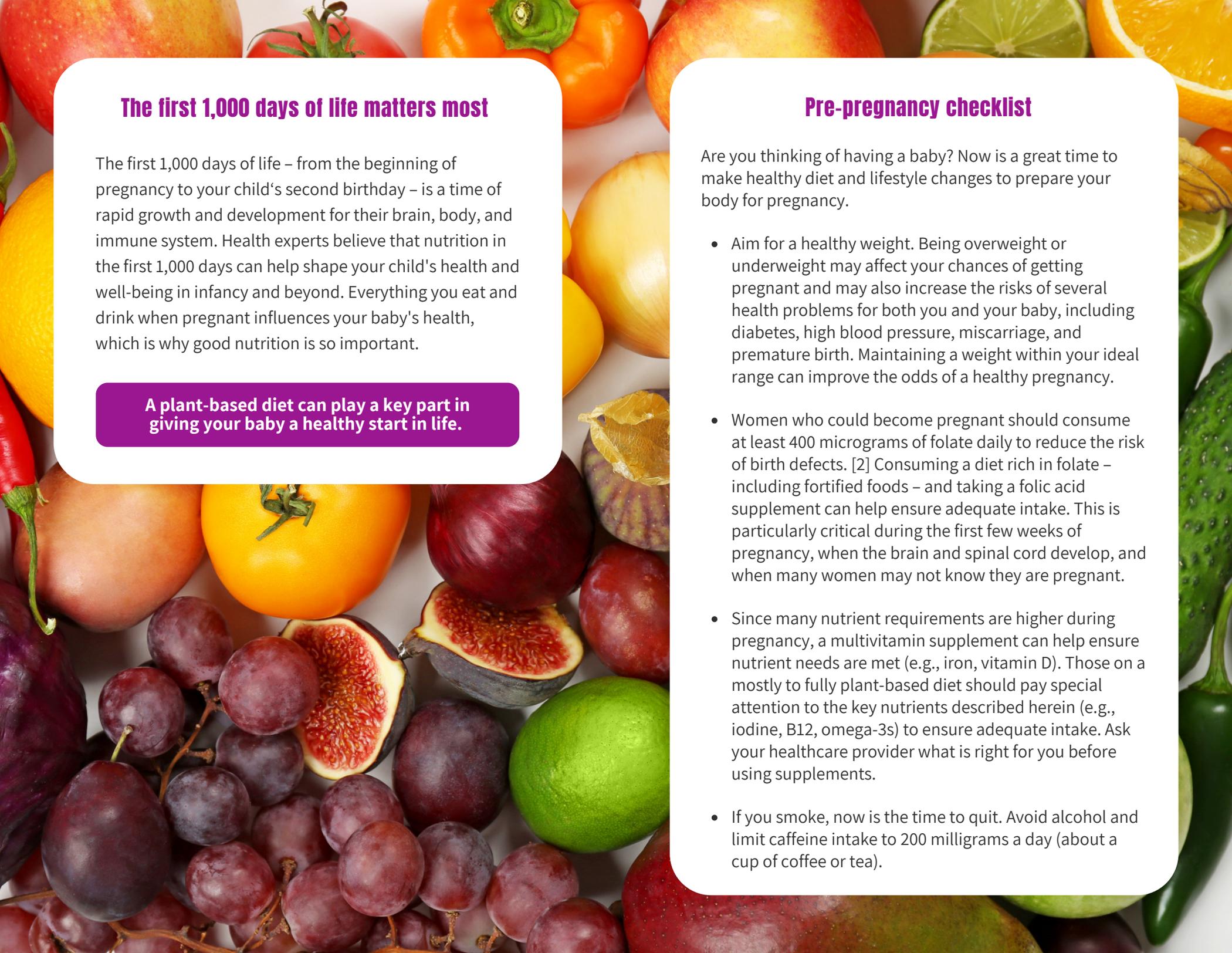


**Your Guide to a Healthy  
Plant-Based Pregnancy**



Eating well during pregnancy is especially important for supporting you and your baby's health. Nutrition organizations, including the Academy of Nutrition and Dietetics, agree that a well-planned plant-based diet is healthy and safe for pregnant and breastfeeding women. [1] The key is eating a variety of nutritious plant foods and paying attention to critical nutrients. This guide provides practical advice for following a plant-based diet to support a healthy pregnancy.

The material provided is for informational purposes only and is not medical advice. Consult your healthcare provider before making any dietary changes or taking any supplements.



## The first 1,000 days of life matters most

The first 1,000 days of life – from the beginning of pregnancy to your child’s second birthday – is a time of rapid growth and development for their brain, body, and immune system. Health experts believe that nutrition in the first 1,000 days can help shape your child’s health and well-being in infancy and beyond. Everything you eat and drink when pregnant influences your baby’s health, which is why good nutrition is so important.

**A plant-based diet can play a key part in giving your baby a healthy start in life.**

## Pre-pregnancy checklist

Are you thinking of having a baby? Now is a great time to make healthy diet and lifestyle changes to prepare your body for pregnancy.

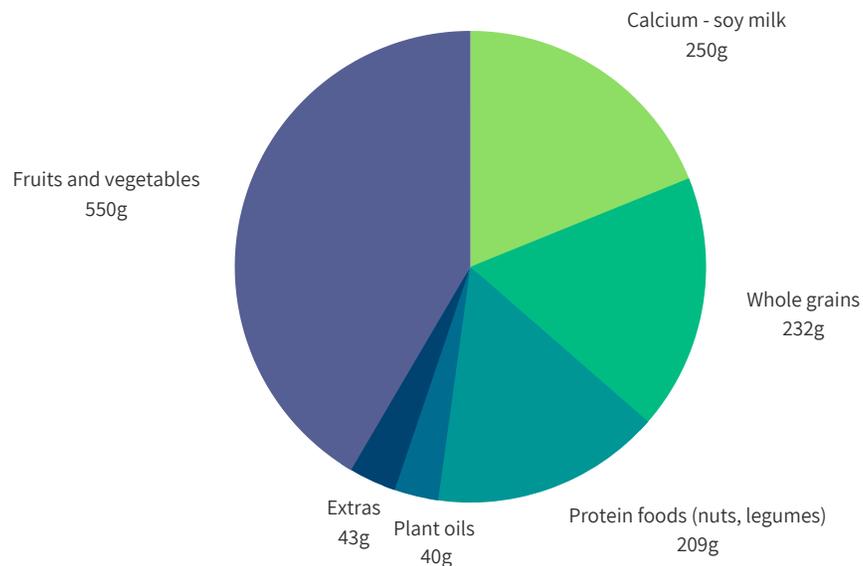
- Aim for a healthy weight. Being overweight or underweight may affect your chances of getting pregnant and may also increase the risks of several health problems for both you and your baby, including diabetes, high blood pressure, miscarriage, and premature birth. Maintaining a weight within your ideal range can improve the odds of a healthy pregnancy.
- Women who could become pregnant should consume at least 400 micrograms of folate daily to reduce the risk of birth defects. [2] Consuming a diet rich in folate – including fortified foods – and taking a folic acid supplement can help ensure adequate intake. This is particularly critical during the first few weeks of pregnancy, when the brain and spinal cord develop, and when many women may not know they are pregnant.
- Since many nutrient requirements are higher during pregnancy, a multivitamin supplement can help ensure nutrient needs are met (e.g., iron, vitamin D). Those on a mostly to fully plant-based diet should pay special attention to the key nutrients described herein (e.g., iodine, B12, omega-3s) to ensure adequate intake. Ask your healthcare provider what is right for you before using supplements.
- If you smoke, now is the time to quit. Avoid alcohol and limit caffeine intake to 200 milligrams a day (about a cup of coffee or tea).

## What is a plant-based pregnancy diet?

A plant-based diet consists mostly of whole, minimally-processed plant foods. While many plant-based eaters avoid all animal products (e.g., meat, dairy, eggs, and fish), others may consume these foods occasionally. Since most nutrient needs – including many vitamins, minerals, and protein – increase during pregnancy, a balanced, plant-based pregnancy diet means getting adequate amounts of food from each food group.

The following table provides the recommended amounts of each food group to help meet nutrition requirements. Since food comes in various shapes, sizes, and densities, it can take different amounts of food to get enough nutrients from each group. For example, 1 tablespoon of peanut butter provides the same amount of protein as ¼ cup of beans because peanut butter is more densely packed together. The term “ounce-equivalents” is used to compare the nutritional value of these foods. In other cases, such as with fruits and vegetables, the term “cup-equivalents” is used to compare foods.

See the “Resources” section for more information on what counts as a cup or ounce for each food group, and for food plan recommendations based on factors such as age, sex, weight, and trimester of pregnancy.



## Food groups and amount recommended to meet daily nutritional needs\*

### Grains 6.5-10.5 ounce-equivalents

- 1 slice of bread, tortilla, or flatbread (30 g)
- ½ cup cooked pasta, rice, or cereal (70 g)
- 1 ounce dried pasta or rice (30 g)
- 1 ounce ready-to-eat (e.g., breakfast) cereal (30 g)
- 1 cup flaked cereal (50 g)

At least half should be whole grains. Look for iron- and zinc-fortified products when not using whole grains.

### Plant proteins 4-7 ounce-equivalents

- ¼ cup cooked beans or tofu (50 g)
- ½ ounce nuts or seeds (15 g)
- 1 Tablespoon nut/seed butters (15 g)
- 1 ounce tempeh (30 g)
- 1 ounce of many plant-based meat alternatives (30 g)
- 6 Tablespoons hummus (90 g)

Include a wide variety of plant foods to obtain all of the necessary essential amino acids required to make proteins in the body.

### Calcium-enriched soy milk and products 3 cup-equivalents

- 1 cup fortified soy milk (250 mL)
- 1 cup fortified soy yogurt (170 g)

Check labels for added calcium and other ingredients (e.g., sugar content) in plant-based products.

### Vegetables 2.5-3 cup-equivalents

- 1 cup raw, cooked, or juiced (250 mL)
- 2 cups leafy salad greens (70 g)
- ½ cup dried (80 g)

Focus on red, orange, and dark green vegetables.

### Fruit 1.5-2.5 cup-equivalents

- 1 medium fruit
- 1 cup raw fruit (160 g)
- 1 cup fruit juice (250 mL)
- ½ cup dried fruit (80 g)

Focus on whole fruit.

### Oils

- 1.5-2.5 Tablespoons plant oil (e.g., olive, canola) or margarine (20-40 mL)

Although plant oils are not a food group, they are included in recommendations as they provide healthy fats. Many other whole plant foods, such as avocados, nuts, and seeds also provide healthy fats.

\*Servings are general estimates and calculated based upon the Dietary Guidelines for Americans [2] for the 1800-2800 calorie range of “Healthy Vegetarian Dietary Patterns for Ages 2 and Older,” legumes were placed fully into the protein group, and values may be rounded. Grams of oil were converted to tablespoons to simplify. [MyPlate.gov](https://www.myplate.gov) also was used to expand equivalent foods for each group. Metric conversions are general estimates taken from multiple entries in the USDA “FoodData Central” database or, when not listed, by averages of data provided by multiple manufacturers. Note that recommendations may vary for different countries due to the data selected for calculations.

## Top tips for a healthy plant-based pregnancy

### Meet your energy needs

Extra calories are not needed during your first trimester. However, you should consume an additional 350 to 450 calories per day in your second and third trimesters, respectively. Your calorie needs may differ if you are carrying multiples or begin your pregnancy overweight or underweight. Speak with your healthcare provider about personalized recommendations.

### Increase food safety awareness

Avoid raw sprouts and unpasteurized juice to reduce your risk of foodborne illnesses. It can be harmful to consume certain animal foods: raw seafood; undercooked meats, including deli meats and hot dogs not cooked to 165F (74C); unpasteurized dairy; and cheeses made from unpasteurized milk. Many types of seafood contain elevated levels of mercury, which is harmful to humans, especially developing babies. See the “Resources” section for more information.

### Monitor your weight gain

How much weight you gain in pregnancy can affect the health and birth weight of your baby. Your recommended weight gain range depends on your pre-pregnancy weight and other factors, such as whether you are carrying multiples. Speak with your healthcare provider about personalized recommendations for pregnancy weight gain.

Pre-pregnancy BMI*	Total pregnancy weight gain <sup>†[2]</sup>
Underweight (<18.5)	28-40 lbs. (13-18kg)
Normal weight (18.5-24.9)	25-35 lbs. (11-16kg)
Overweight (25-29.9)	15-25 lbs. (7-11 kg)
Obese (30+)	11-20 lbs. (5-9 kg)

\*Find your BMI at <https://www.nal.usda.gov/fnic/dri-calculator>  
†Weight gain recommendations are for singleton pregnancies.

### Keep active

Aim for at least 30 minutes of physical activity every day. Walking, cycling, swimming, and yoga are all great forms of exercise.

### Stay hydrated

During pregnancy, around 13 cups (about 3 liters) of total fluids are necessary per day, with approximately 10 cups (2.4 liters) coming from drinking water and other beverages. [3]

## Key nutrients

Eating a variety of plant-based foods will provide most of the nutrients your body needs to support you and your growing baby. Pay attention to nutrients that may be difficult to get in adequate amounts from your diet, including folate, iron, B12, and calcium. Taking a multivitamin supplement, such as a prenatal vitamin while pregnant, may help you get many essential nutrients.

**Consult your healthcare provider before starting a new diet or taking supplements.**

Nutrient	Why it is needed	Good plant-based sources
Vitamin B12	Brain and nervous system development and health, supports DNA and red blood cell production	Plant foods are not reliable sources of vitamin B12 unless they are fortified. Foods with added vitamin B12 include some plant milks and yogurts, plant-based meat alternatives, cereals, and nutritional yeast.  A B12 supplement is often needed if on a mostly or fully plant-based diet.
Calcium	Muscle contraction, blood clotting, bones and teeth	Tofu made with calcium, calcium-fortified plant milk and yogurt, calcium-enriched 100% fruit juice, tempeh, edamame, dark leafy greens, white beans, calcium-rich mineral water (>400mg calcium/liter)  Calcium can be challenging to get from the diet and intake is often insufficient. [2] Eating a wide variety of calcium-rich or fortified foods or taking a supplement may help to meet calcium needs.
Choline	Needed for brain and spinal cord development, nerve cell health, cell communication, supports fat metabolism	Tofu, soy milk, peanuts, quinoa, broccoli, cabbage, Brussels sprouts
Vitamin D	Works with calcium to form bones and teeth, supports immune system and cell growth	Vitamin D-fortified foods (100% juice, plant milks), mushrooms exposed to UV light  The skin can produce vitamin D when exposed to sunlight. However, low vitamin D intake is common, and a vitamin D supplement may be needed. [2]

Folate/ Folic acid	Essential for fetal brain and spinal cord development, may reduce risk of birth defects; involved in red blood cell and DNA production	Whole and fortified cereals and grains, sunflower seeds, dark green leafy vegetables, seaweed, beans, soy, lentils  Folic acid is critical for a developing baby. To reduce the risk of birth defects, folic acid supplements are often recommended. [2] Eating fortified foods and consuming a diet rich in folate can also help to ensure adequate intake.
Iodine	Essential for fetal brain development, involved in growth and metabolism	Iodized salt, seaweed,* some multivitamin supplements  It is critical that a source of iodine be in the diet for proper fetal development. Switching to iodized salt (but not adding extra salt to the diet) or using supplements are potential sources. [2] Note that many prenatal vitamins do not contain iodine. [2]  *Caution: some types of seaweed contain iodine levels that exceed recommendations.
Iron	Critical for growth and development, energy production, and red blood cells that transport oxygen	Iron-fortified cereals and grains, whole grains, beans, lentils, seaweed, potatoes, dark leafy greens, dried fruits, pumpkin seeds  Pair iron-rich foods with vitamin C sources, such as citrus and tomatoes, for better absorption. Soaking (possibly followed by sprouting) legumes and grains before cooking, and fermenting grains (as in sourdough bread), can also increase iron absorption from food.  Iron needs are high in pregnancy, iron-deficiency anemia is common, and iron can be challenging to get from the diet. [2] Iron supplements may be needed. [2]
Omega-3 fats	Brain, nervous system and eye development, anti-inflammatory actions	Chia seeds, walnuts, walnut oil, flaxseeds, flaxseed oil  Fortified foods and supplements containing omega-3 fats (e.g., EPA, DHA), such as those made from algae, can be a good source of these necessary fats. During pregnancy and breastfeeding, 200 to 300 mg of DHA per day is sometimes recommended. [4,5]
Zinc	Tissue growth, supports immune function, vitamin A transport, and wound healing	Nuts and seeds, zinc-fortified cereals and grains, wheat germ, beans, soy, peas, peanut butter  Sprouting beans, chickpeas, and lentils helps increase zinc absorption. Be sure to cook sprouted foods before eating to reduce the risk of foodborne illness.

## Nutrition recommendations for breastfeeding moms

Breastfeeding can be challenging, and many new moms benefit from the support of a lactation coach, their family, and other women. Breast milk provides babies with nutrients as well as immune-boosting compounds not always found in infant formula. Breastfed babies tend to have lower rates of infection, illnesses, allergies, and sudden infant death syndrome (SIDS). [5] Moms may also benefit from breastfeeding, including lowered risks of breast and ovarian cancer. [5]

However, many women may be unable to produce a full milk supply, may be unable to pump and store milk safely due to family or workplace challenges, or may choose not to breastfeed. Breast milk may also be unavailable, as in the case of adoption. If human milk is not available, babies should be given an iron-fortified infant formula, designed to meet the needs of growing infants. Babies should not be given homemade formula, cow's milk, or plant milks to substitute for commercial infant formula because these do not provide the nutrients required for infants to grow and develop.

If you choose to breastfeed, the American Academy of Pediatrics [5] and World Health Organization (WHO) [6] recommend breastfeeding exclusively (no water, formula, or food) until your baby is about 6 months old and continued breastfeeding until at least their first birthday. You can choose to breastfeed beyond one year if you and your baby desire. The WHO advocates for breastfeeding for up to two years and beyond. [6]

Nutrition recommendations while breastfeeding are similar to those for a plant-based pregnancy diet. Eat a variety of nutrient-rich foods, especially those listed in the "Key Nutrients" table. Consider asking your healthcare provider if supplements – such as iron, vitamin B12, D, and calcium – are needed, particularly if your diet is mostly to fully plant-based. In addition, staying hydrated is vital to producing breast milk, which is 90% water. While breastfeeding, you will need about 16 cups (3.8 liters) of fluid per day, with around 13 cups (about 3 liters) from beverages. [3] Drinking a large glass each time you breastfeed will help keep you hydrated.

See the “Resources” section for more information on and support for breast and formula feeding.

## Daily requirements for key nutrients <sup>†</sup>[2,7]

Nutrient	Females not pregnant	Pregnant	Breastfeeding
Vitamin B12 (micrograms)	2.4	2.6	2.8
Calcium (mg)	1000-1300*	1000-1300*	1000-1300*
Choline (mg)	400*-425	450	550
Vitamin D (IU)	600	600	600
Folate (micrograms)	400	600	500
Iodine (micrograms)	150	220	290
Iron (mg)	15*-18	27	9-10*
Omega-3 fats (total from all types, grams)	1.1	1.4	1.3
Zinc (mg)	8-9*	11-12*	12-13*

<sup>†</sup>Nutrient requirements reflect the U.S. recommendations. These values may vary for different countries due to differences in data selected for calculations.

\*Nutrient needs for girls 14 to 18 years old; those without an asterisk are for older women.

**Good nutrition in pregnancy is essential for you and your baby. A plant-based diet gives your baby the building blocks for a lifetime of good health!**

Visit Physicians Association for Nutrition USA's website, [www.pan-usa.org](http://www.pan-usa.org), for additional resources on:

- Breastfeeding
- Safely storing and handling breast milk and infant formula
- Cleaning and sanitizing bottles and other infant feeding items
- Infant growth and development stages, including when they are ready for solid foods
- Signs your child is hungry or full
- Reducing the risk of choking at mealtimes
- Food portion sizes and serving sizes for children
- Personalized food group recommendations to meet nutritional needs, based on age, weight, gender, and other variables
- Mercury in seafood and recommendations to limit exposure
- Organizations we trust for health and nutrition advice
- Plant-based books and other resources
- Nutrient Library for detailed information on key nutrients



1. Melina V, et al. Position of the Academy of Nutrition and Dietetics: Vegetarian Diets. *J Acad Nutr Diet*. 2016 Dec;116(12):1970-1980.
2. U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2020-2025*. 9th Edition. December 2020. Available at [DietaryGuidelines.gov](http://DietaryGuidelines.gov).
3. Institute of Medicine. 2005. *Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/10925>.
4. Koletzko B, et al. World Association of Perinatal Medicine Dietary Guidelines Working Group. The roles of long-chain polyunsaturated fatty acids in pregnancy, lactation and infancy: review of current knowledge and consensus recommendations. *J Perinat Med* 2008;36(1):5-14.
5. American Academy of Pediatrics. Executive Summary: Breastfeeding and the Use of Human Milk. *Pediatrics* 2012; 129(3) 601.
6. World Health Organization. Breastfeeding. 20 Feb 2018. <https://www.who.int/news-room/facts-in-pictures/detail/breastfeeding>. Accessed August 2021.
7. Iodine. NIH Office of Dietary Supplements. Fact Sheet for Health Professionals. Updated March 2021. <https://ods.od.nih.gov/factsheets/Iodine-HealthProfessional/>

Physicians Association for Nutrition (PAN) empowers health professionals, the public, and policymakers with evidence-based knowledge that whole food, plant-based nutrition promotes health and prevents and treats disease.

PAN's Nutrition for Families program supports health professionals and families on the health benefits of a plant-based diet from pregnancy through infancy, childhood, and adolescence, with a particular focus on the first 1,000 days – pregnancy and the first two years of life.

Learn more about PAN and Nutrition for Families at [www.pan-usa.org](http://www.pan-usa.org).