

The Importance of Iodine in Prenatal Brain Development

Why is Iodine Important?

Iodine is an essential micronutrient needed to make thyroid hormones, which are important for metabolism, as well as proper brain and bone development during pregnancy and infancy.^{i,ii}

Iodine needs increase by more than 50% during pregnancy and many women of childbearing age are iodine deficient before they even become pregnant.^{iii,iv}

Iodine deficiency is the most preventable cause of intellectual disability.^{vi}

In particular, women who do not regularly consume dairy foods, eggs, seafood or use iodized table salt, may not consume enough iodine to meet increased needs during pregnancy and lactation.^v This is concerning because prenatal iodine deficiency may lead to irreversible neurocognitive defects and lower childhood IQ.ⁱⁱⁱ

Milk, cheese and yogurt are important sources of iodine and pregnant women who do not consume dairy foods may be at risk for iodine deficiency.ⁱ At about 20¢ per 8-ounce serving, milk is an affordable source of iodine and other essential nutrients important for expectant and breastfeeding moms and their babies.

How Much Iodine Do You Need?ⁱ

LIFE STAGE	RECOMMENDED AMOUNT RDA ^A /AI ^B
Pregnant teens and women	220 mcg ^a
Breastfeeding teens and women	290 mcg ^a
Birth to 6 months	110 mcg ^b
Infants 7-12 months	130 mcg ^b
Children 1-8 years	90 mcg ^a
Children 9-13 years	120 mcg ^a
Teens 14-18 years	150 mcg ^a
Adults	150 mcg ^a

What Foods Provide Iodine?^{viii}

FOOD	SERVING SIZE	MICROGRAMS PER SERVING	PERCENT DAILY VALUE (DV) [*]
Cod, baked	3 ounces	158	105%
Low-fat milk (1%)	1 cup	88	59%
Yogurt, Greek, plain, fat-free	6 ounces	87	58%
Iodized table salt	¼ tsp	76	51%
Fish sticks	3 sticks	58	39%
Cottage cheese (reduced fat)	½ cup	39	26%
Pasta, cooked in iodized salt	1 cup	38	25%
Swiss cheese	3 slices**	36	24%
Crab, canned and cooked	3 ounces	32	21%
Egg, hardboiled	1 egg	26	17%
American cheese	3 slices**	18	12%
Cheddar cheese	3 slices**	15	10%
Shrimp, pre-cooked	3 ounces	13	9%
Salmon, baked	3 ounces	14	9%
Soy beverage	1 cup	1.5	1%
Almond beverage	1 cup	<1	1%
Non-iodized sea salt	¼ tsp	<1	1%

^{*}The Daily Value for iodine is 150 mcg for healthy adults and children over the age of 4.
^{**}Cracker sized slice of cheese

At about 20¢ per 8-ounce serving, milk is an affordable source of iodine and other important nutrients.^{vii}



Iodine Action Plan

1. Screen for risk of iodine deficiency.
 - ✓ Ask about consumption of milk, yogurt and cheese. Most dairy alternatives are not good sources of iodine.
 - ✓ Ask about consumption of eggs, fish and seafood.
 - ✓ Ask about salt. Most specialty salts, like sea salt and kosher salt, are not iodized. Check the label to see if the salt is “iodized.”^{vi}
 - ✓ Don't assume processed or restaurant foods are prepared with iodized salt. Food manufacturers almost always use non-iodized salt.ⁱ
 - ✓ Check to see if prenatal vitamin includes iodine.
2. Encourage three daily servings of dairy foods (milk, yogurt, cheese).

What About Supplements?

About half the prenatal multivitamin supplements on the market in the U.S. do not contain iodine.ⁱ If using iodine supplements, remember they have the potential to interact with several types of medications including ACE-inhibitors, potassium-sparing diuretics and anti-thyroid medications.ⁱ

Easy Iodine Ideas

Milk It: Milk provides a powerful package of iodine, vitamin B12 and choline*, all of which support baby's brain development, as well as other important nutrients like protein, calcium and vitamin D. Lactose intolerant? Most people with lactose intolerance can tolerate varied amounts of lactose. Also, lactose-free milk is real milk, just without the lactose.

Get Cultured with Yogurt: Made from the goodness of milk, yogurt is a fermented food that also provides iodine, vitamin B12, protein and calcium. Yogurt's live and active cultures help to digest lactose, plus Greek and Icelandic yogurts have even less lactose because of the straining process.

Say Cheese: Cheeses are also easily accessible sources of iodine, as well as protein, vitamin B12 and calcium. Natural cheeses, such as Cheddar and Swiss, contain minimal amounts of lactose. Avoid unpasteurized cheeses, like Brie and Feta, during pregnancy. Visit [USDairy.com](https://www.usdairy.com) for research, resources and recipes.

Put an Egg on It: Eggs provide 8 essential nutrients including iodine, choline, vitamin B12 and protein. Visit [Egg Nutrition Center](https://www.eggnutritioncenter.com) for additional information.

Go Fish: Fish and seafood can be good sources of iodine, as well as protein, omega-3 fatty acids and vitamin B12. Pregnant and breastfeeding women should choose options lower in methylmercury, like cod and salmon. Learn more at [FDA's Advice About Eating Fish](https://www.fda.gov/food/food-safety-and-inspection-service).

(8% DV for Choline)

ⁱ National Institutes of Health. Office of Dietary Supplements. Iodine Factsheet for Health Professionals. <https://ods.od.nih.gov/factsheets/Iodine-HealthProfessional>. Accessed February 23, 2021.

ⁱⁱ National Institutes of Health. Office of Dietary Supplements. Iodine Factsheet for Consumers. <https://ods.od.nih.gov/factsheets/Iodine-Consumer>. Accessed February 23, 2021.

ⁱⁱⁱ Dietary Guidelines Advisory Committee. 2020. Scientific Report of the 2020 Dietary Guidelines Advisory Committee: Advisory Report to the Secretary of Agriculture and the Secretary of Health and Human Services. U.S. Department of Agriculture, Agricultural Research Service, Washington, DC. <https://www.dietaryguidelines.gov/2020-advisory-committee-report>.

^{iv} Panth P, Guerin G, DiMarco N. A Review of Iodine Status of Women of Reproductive Age in the USA. *Biological Trace Element Research* (2019) 188:208-220 <https://doi.org/10.1007/s12011-018-1606-5>

^v U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2020-2025*. 9th Edition. December 2020. https://www.dietaryguidelines.gov/sites/default/files/2020-12/Dietary_Guidelines_for_Americans_2020-2025.pdf Accessed February 23, 2021

^{vi} Centers for Disease Control. Second Nutrition Report Factsheet. Iodine Levels in Young Women Border on Insufficiency. <https://www.cdc.gov/nutritionreport/pdf/Second-Nutrition-Report-Iodine-Factsheet.pdf>

^{vii} IRI Multi Outlet + Conv 2020, YTD ending 10-4-20. Based on U.S. average price of unflavored, branded and private label milk, 1 gal.

^{viii} USDA, FDA and ODS-NIH Database for the Iodine Content of Common Foods per serving, Release 2 (January 2022). https://www.ars.usda.gov/ARSUSERFILES/80400535/DATA/IODINE/IODINE%20DATABASE_RELEASE_2_DOCUMENTATION.PDF