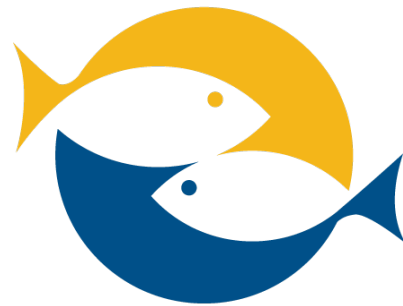


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**Seafood for Healthy People and Planet:
Nourishing Our Brains, Restoring Our Oceans**



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Seafood Supports Expectant Mom and Baby Nutrient Needs

Susan E. Carlson, PhD, AJ Rice Professor, University of Kansas Medical Center

Objectives

- Recommendations for seafood intake in pregnancy
- Nutrients in seafood associated with brain development
- Recommendations for DHA (or DHA+EPA) in pregnancy and how they are supported by seafood intake
- Vitamins and minerals provided by seafood; vitamins and minerals low in the diet of US pregnant women; effect on seafood of addressing low intake of some vitamins and minerals
- Summary



Human Health: Eating for Brain Health

Seafood Supports Expectant Mom and Baby Nutrient Needs

SEAFOOD IS A SUPERFOOD FOR PREGNANCY AND LACTATION

It contains good to excellent amounts of nutrients required for optimal development, including brain development.

Seafood advice to women who are in their childbearing years, pregnant or lactating

Guidance from the US Dietary Guidelines for Americans (USDG) and the American College of Obstetricians and Gynecologists (ACOG) for Seafood Intake

- **USDG: Women who are pregnant or breastfeeding consume between 8 and 12 ounces per week of a variety of seafood from choices that are lower in mercury.**
- **ACOG: Women who are pregnant or planning to be are advised to consume 8-12 ounces of seafood per week.**

www.fda.gov/food/consumers/advice-about-eating-fish; American College of Obstetricians and Gynecologists. Nutrition during pregnancy. Frequently asked questions 2022

Seafood Supports Expectant Mom and Baby Nutrient Needs

What nutrients provided in seafood are most associated with healthy brain development?

- DHA
- Iron
- Iodine
- Choline
- Selenium
- Vitamin D
- Magnesium

Seafood is the best dietary source of DHA+EPA per ounce consumed

What are the recommendations for DHA + EPA in pregnancy?

US pregnant women consume ~80 mg DHA/day from food

Organization	Amount of DHA or DHA+EPA per day for women of childbearing age (general population)	Amount of DHA or DHA+EPA per day during pregnancy
Food and Agriculture Organization (FAO) of the United Nations, 2010 (49)	250 mg DHA+EPA	At least 200 mg DHA/d toward total 300 mg n-3 EPA+DHA
AFFSA, France, 2010 (62)	250mg DHA/500mg DHA+EPA	250mg DHA/500mg DHA+EPA
European Food Safety Authority 2010 (59)	250mg DHA+EPA	250 mg DHA+EPA + additional 100-200 mg DHA
International Society for the Study of Fatty Acids and Lipids 2004 (63)	At least 500mg DHA+EPA	At least 200 mg DHA*
Perinatal-Lipid-Intake-Working-Group 2007 (56)	-	At least 200 mg DHA
Chinese Nutrition Society 2014 (64)	250-2000mg DHA+EPA	250 mg EPA+DHA of which 200 mg should be DHA

*A recent update suggests some women need 1000 mg/d to prevent early preterm birth <34 wks.

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How do individual sources of seafood compare to the recommendation for 200-300 mg/day DHA+EPA in pregnancy?

DHA+EPA/day if 8 ounces/wk

- Lobster 25 mg/d
- Tilapia 44 mg/d
- Shrimp 50 mg/d
- Scallops 100 mg/d
- Tuna (canned) 200 mg/d
- Trout (farmed) 263 mg/d
- Salmon (wild) 428 mg/d
- Salmon (farmed) 514 mg/d

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In addition to DHA, seafood is an excellent source of vitamins and minerals, including those most important for optimal infant brain development (highlighted in red).

- Iodine
- Choline
- Selenium
- Vitamin D
- Iron
- Magnesium
- Zinc
- Calcium
- Potassium
- Vitamin B12
- Thiamin
- Niacin

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Many of those nutrient are low in the diet of pregnant women and intake is low even with supplements

Two key groups stand out as particular problems associated with brain development and maternal hypertension/pre-eclampsia

	Less than EAR or AI for diet	% <EAR or AI with diet+supplements
Iodine	55%	50%
Choline	84%	83%
Selenium	8%	6%
Zinc	34%	7%
Iron	83%	13%
Vitamin D	28%	9%
Potassium	52%	52%
Magnesium	38%	29%
Calcium	28%	18%
Vitamin A	25%	1%

Sarah Crawford et al., Nutrients 2023; 15 (14):3228; doi:10.3390/nu15143228



Seafood Supports Expectant Mom and Baby Nutrient Needs

8 oz of salmon/week could address a high proportion of nutrients needs to support mom and baby, especially those not met by diet and supplements.

	EAR/AI in pregnancy	Ave daily amount assuming 8 oz/wk farmed salmon*
Iodine	160 ug/d	64 µg (40%)
Choline	450 mg/d	500 µg (111%)
Iron	22 mg/d	1.6 mg (3%)
Zinc	9.5 mg/d	6 oysters = 33 mg
Calcium	800 mg/d	92 mg (12%)
Magnesium	290 mg/d	68 mg (23.%)
Potassium	2.6 g/d	0.8 g (31%)
Vitamin D	10 ug/d	30 µg (300%)
Vitamin A	550 ug/d	71 µg (13%)
Selenium	60 µg	106 µg (177%)

*Values should be considered approximate as they are derived from various published sources

Summary

- Consuming 8 to 12 ounces of a variety of seafood per week could easily provide 200-250 mg/day DHA+EPA for women in their childbearing years who are or could become pregnant.
- Choline and iodine dietary intakes are poor and not well provided by prenatal supplements. 8 ounces of seafood/week could meet the AI for choline and half the EAR for iodine.
- Ca, K, Mg intakes are low in many pregnant women and associated with hypertension and preeclampsia. 8 oz of farmed salmon alone could provide ~12-31% of their need.
- Seafood may be particularly important for meeting vitamin D intake of pregnant women given the disconnect between intake and vitamin D status.

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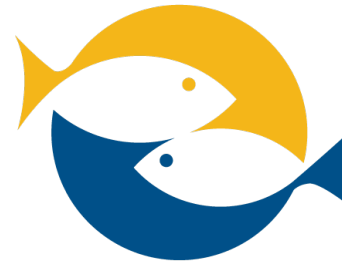
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Conclusion

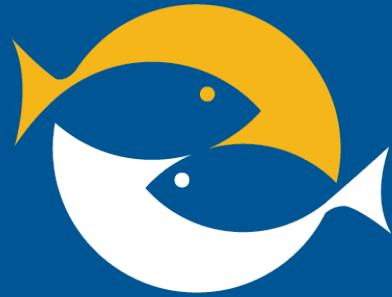
Seafood is an important source of nutrients for women who are pregnant or planning pregnancy

Thank you

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