

## Omega-3 Fatty Acids in Seafood

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In my practice, I have noticed a growing number of patients who are aware that omega-3 fatty acids are beneficial for their hearts. Many have been advised to consume more omega-3 fatty acids. Unfortunately, few know which types of food, other than salmon, are the best sources. My vegetarian patients are always surprised to hear that vegetable sources of omega-3 fatty acids (alpha-linolenic acid, aka ALA) are poorly converted to their bioactive cousins, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). In optimal conditions, humans convert no more than 15 percent of ALA to EPA/DHA.<sup>1</sup> Age, obesity, genetics and the typical Western diet reduce this conversion, which is predominantly to EPA. ALA to DHA conversion is under 4 percent.<sup>2</sup>

### Vegetable Sources of Omega-3

#### Fatty Acids as Alpha-Linolenic Acid (ALA)

Source (1 Tbsp)	ALA	EPA/DHA*
Flaxseed oil	7,000 mg	160 mg
Canola oil	1,600 mg	160 mg
Walnut oil	1,400 mg	140 mg
Soy oil	1,000 mg	100 mg
Flax seeds	2,000 mg	200 mg
Walnuts	600 mg	60 mg

\*Using an average of 10 percent conversion ability.

While the cardioprotective effects (especially EPA) of omega-3 fatty acids garner most of the press, there is growing evidence that they enhance brain function (especially DHA) from birth to death.<sup>3,4,5,6</sup> Mozaffarian and Rimm reviewed numerous trials and concluded that omega-3 intake of at least 250 mg/day for low-risk groups and 500-1,000 mg/day for higher risk individuals reduces overall mortality by 17 percent, and death from heart problems by 36 percent.<sup>7</sup>

The perfect food for hearts and minds does have a downside. In the past few years, researchers have begun to take note of rising levels of mercury, polychlorinated biphenyls (PCBs), and dioxins. In my next article, I will address the topic of chemical contamination in seafood in greater detail. The general consensus is that the lives lengthened by the reduction of heart disease in people who consume omega-3 fatty acids from seafood is much greater than the lives lost from cancer caused by high levels of contamination in food from the sea.

### References

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Omega-3 Levels in Seafood<sup>7,8</sup>

Seafood	EPA/DHA**
Anchovies	2,050 mg
Golden Bass	
Atlantic	900 mg
Gulf of Mexico	900 mg
Blackfish	400 mg
Catfish	
Farmed	200 mg
Wild	250 mg
Clams	300 mg
Cod	
Alaskan	300 mg
Atlantic	250 mg
Pacific	150 mg
Black	1,800 mg
Crab	
Dungeness	400 mg
King	400 mg
Snow	500 mg
Halibut	500 mg
Herring	
Atlantic	2,000 mg
Pacific	2,100 mg
Lobster	100 mg
Mackerel	
Atlantic	1,200 mg
King	400 mg
Mahi Mahi	150 mg
Mussels	800 mg
Oysters	
Eastern	700 mg
Pacific	1,400 mg
Pollock (Alaskan)	450 mg
Rockfish	400 mg
Salmon (canned)	
Sockeye (red)	
Pink	1,400 mg
Salmon (farmed)	1,100 mg
Salmon (wild)	2,650 mg
Atlantic	1,400 mg
Chum	800 mg
Coho	1,100 mg
King Chinook	1,700 mg
Pink	1,300 mg
Sockeye (red)	1,200 mg
Sardines	1,000 mg
Scallops	350 mg
Shark	700 mg
Shrimp	300 mg
Snapper	300 mg
Sole	500 mg
Swordfish	800 mg
Trout (Rainbow)	
Farmed	1,100 mg
Wild	1,100 mg
Tuna	
Albacore	850 mg
White (Skipjack)	250 mg

\*USDA serving size tends to vary. In this table, the numbers are calculated based on 3.5 ounces (100 grams). This is not a uniform serving size; for example, a serving of sardines is only 2 ounces, while a serving of salmon is 6 ounces (according to the U.S. Department of Agriculture).

\*\*Rounded to the nearest 50 mg. The levels of omega-3 fatty acids in seafood can vary by up to 300 percent. This is due to the type of food the fish consume, along with the location, age and season they are caught. Human influences, including processing, storage, packaging and cooking, can also affect the amount of omega-3 fatty acids in a given serving of fish.

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2. Mozaffarian D, Rimm EB. Fish intake, contaminants and human health: evaluating the risks and benefits. *JAMA*, 2006;296(15):1885-99.
3. Information available [here](#).

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