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## Jennifer Sygo: Get your omega-3s from the sea

Essential fatty acids: You gotta eat 'em to get 'em

**Jennifer Sygo, National Post**

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As an intelligent reader of the Body & Health page, you are likely aware that eating fish, especially oily fish like salmon, is good for you. But do you know what makes these creatures of the deep so special?

First and foremost is its high content of omega-3 fatty acids. Omega-3 fats, along with their counterpart, omega-6 fats, are considered essential fatty acids (EFAs) because the human body cannot manufacture them. In other words, we have to eat them to get them.

While there are several types of omega-3 fats in the human body, three get the most attention for their critical role in human health: The first, known as alpha-linolenic acid, or ALA, is a plant-derived omega-3 fat. Sources of ALA include flaxseeds and flaxseed oil, walnuts, canola oil, soybean oil and soy products, and there are small amounts found in some dark green, leafy vegetables. The other two critical omega-3 fats, known as eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA) -- don't worry, there won't be a test on the spelling at the end -- are derived from marine sources, primarily fish, and in lesser amounts from some forms of algae.

In the human body, ALA (think: flax) is converted to EPA, then to DHA (think: fish). For this reason, EPA and DHA are actually not technically considered essential, as they can be formulated from ALA if not obtained through the diet. A problem, however, is the relatively poor conversion rate: It has been estimated that only about 5% of ALA actually makes it to DHA, the metabolic end-point. There is also individual variability in the ability to convert ALA; those who consume more dietary trans fats seem to convert ALA less efficiently, as do those with high intakes of omega-6 fats (e.g. from corn, vegetable, sunflower and safflower oils). In contrast, vegans, who by necessity consume only ALA (unless they were to get small amounts of DHA from algae), seem to convert it a bit more efficiently to EPA and DHA.

Why does all of this matter? While all three types of omega-3 fats seem to help protect the heart, many experts believe the evidence shows that EPA's and DHA's role in heart health is greater than that of ALA. While the research (and debate) in this area is ongoing, we do know that EPA and DHA play their own specific role in the maintenance of good health, through reducing inflammation, preventing unwanted blood clots, and in the case of DHA, by supporting the development of the brain, eyes and nervous system.

When it comes to heart health, all omega-3 fats seem to have beneficial effects (though, again, many believe the greatest protection comes from EPA and DHA). Acting as a natural anti-inflammatory (much like taking an aspirin a day), they seem to prevent or stabilize the formation of plaques in the arteries, keeping the wall of the artery (known as the endothelium) more healthy and elastic. Omega-3s may also help control blood pressure and triglycerides (a type of fat that circulates in the blood), both independent risk factors for heart disease. A diet high in omega-3s may also reduce the severity of heart attacks, with a reduced incidence of death after a cardiac event reported in some studies.

All of this raises the question: How much omega-3 is enough? The American Heart Association (AHA) recommends that healthy adults consume 500 mg of EPA plus DHA, per day, from diet or supplements. If the individual has heart disease, that number increases to 1,000 mg (1 g) per day. Since an average 3.5 oz (100 g) serving of oily fish provides about 2,000 mg of EPA plus DHA, that means healthy individuals can meet these recommendations by eating a moderate serving of oily fish every four days, while those with heart disease would require a serving every other day (or a larger serving two to three times per week, as appropriate). Note that individuals with high triglycerides may need to take significantly more than this (usually 3 to 4 g per day, which would usually require taking supplements), but any supplementation regime, especially one with a high dose such as this, should always be undertaken under a physician's supervision.

While there are no specific Canadian guidelines for EPA or DHA (as they are not considered essential), Dietary Reference Intakes for ALA have been established, with an adequate intake (AI) for men being 1.6 g per day, and 1.1 g per day for women.

While at first glance these numbers may seem higher than the EPA-plus-DHA numbers recommended by the AHA, remember that only a fraction of the ALA is converted all the way to DHA.

For those not so keen on fish, next week's column will be devoted to the ins and outs of fish and flaxseed oil supplements, as well as fortified and enhanced foods. We will finally answer the million dollar question: Are omega-3 eggs really worth it?

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