

Omega-3 fatty acids are key to a healthier life

By Emily Sohn Special to the Los Angeles Times

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Pregnant women need them for their babies' brains. Kids need them to learn. Adults get healthier hearts from them. The do-it-all nutrients known as omega-3 fatty acids appear to reduce pain in people with rheumatoid arthritis — and may help treat autism, bipolar disorder, depression, Alzheimer's disease, ADHD and prostate cancer.

Even dogs and cats need omega-3s to stay healthy.

So eat more fish. Take fish oil pills (or their vegetarian counterparts). Start buying fortified foods. However you do it, you — like most Americans — could likely benefit from getting more omega-3 fatty acids, specifically DHA and EPA.

"There's very strong, medical-nutrition, literature-based evidence in humans suggesting that the average American would probably have a healthier life, a lower risk of dying from heart disease and improved brain function by consuming more fish, more supplements or more functional foods with DHA and EPA," says nutritional scientist Bruce Holub, of the University of Guelph in Ontario and executive director of the DHA/EPA Omega-3 Institute there.

But keep in mind, omega-3 fatty acids are not just a single nutrient. The term refers to a family of compounds that are naturally abundant in fish, seafood and algae, and it's their surprising chemical variety that may hold the key to improving our health.

Increasing evidence suggests that each type of omega-3 plays a different role. The benefits depend on the amount, one's life stage and specific medical conditions. Such complexity is something that guidelines, at least in the United States, don't yet reflect.

Researchers are still trying to clarify the details, but some health experts already are pushing for clearer recommendations that will help people reap the benefits of omega-3s without wasting money on useless varieties.

"There are strong indications that requirements for many groups should be higher and that there should be specific requirements for different types of omega-3s," says Bruce A. Watkins, professor of food science at Purdue University in West Lafayette, Ind., and director of the International Omega-3 Learning and Education Consortium for Health and Medicine, an educational resource.

The various types

Omega-3 fatty acids are long chains of carbon atoms that bond to each other in different ways to produce molecules with various functions. Out of the five forms that we

consume, the three that matter most to human health are alpha-linolenic acid (ALA), docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA).

Of those three, ALA is the only form that is specified in the United States' official guidelines with a dietary reference intake. According to the Institute of Medicine, men should consume 1.6 grams of the fatty acid a day. Women should get 1.1 grams.

Most Americans easily consume that much. Sources include flax, canola oil, soybean oil, olive oil, walnuts and other plant-based fats, many of which people eat every day. There are 1.3 grams of ALA in a tablespoon of canola oil and 7.6 grams in a tablespoon of flaxseed oil.

The problem is that, on its own, ALA has no known function in the body. The only reason it's required, Holub says, is because the human body can convert a small amount of ALA to DHA and EPA, which are far more essential for healthy brains, hearts and other bodily functions. The amount that gets converted, however, is not nearly enough.

Accumulating evidence now suggests that it is far more important to consume DHA and EPA directly — in amounts ranging from 200 milligrams to 4 grams a day, depending on the person. Salmon, herring, sardines and other oily varieties of fish have large amounts. Seafood, algae and meat have lesser amounts.

Although flaxseed doesn't appear to convey the benefits of fish oil, some algae contain omega-3s that are just as potent as those in fish. Further, fortified products contain omega-3s derived from the aquatic plants.

The health effects

Interest in fish-based omega-3s spiked in the 1970s, when scientists observed that Inuit people of Greenland ate tons of fatty fish but had extremely low rates of heart disease.

Decades later, in a landmark study published in 1999, Italian scientists studied more than 11,000 men who had suffered heart attacks. After 3-1/2 years, a group that took about a gram a day of EPA and DHA were 20% less likely to die than a group that didn't take omega-3 supplements.

In an even larger trial in 2007, Japanese researchers followed more than 18,000 people with high cholesterol for nearly five years and found that those who took 1.8 grams of EPA a day — in addition to cholesterol-lowering medications known as statins — were almost 20% less likely to suffer a major coronary event than people who took statins alone.

Those trials build on hundreds of smaller, more focused studies that clearly link EPA and DHA with heart health. (EPA and DHA are usually measured, and taken, together.)

For example, Holub says, studies show that for every extra gram of EPA and DHA a

person takes per day, triglyceride levels drop by 8%, with benefits showing up in just two weeks. High triglyceride levels are a major risk factor for heart disease in Americans older than 35. Taking 2 to 4 grams of EPA and DHA a day for a couple of weeks could reduce levels in the blood by up to 32% in people with high triglyceride levels.

While EPA and DHA are both essential for heart health — they seem to lower blood pressure, reduce fat levels in the blood, slow the development of clots and avert abnormal heart rhythms, among other things — DHA is the star player in the developing brain and eyes.

Studies show that women who eat at least four servings of fish a week or take supplements of up to 1.1 grams of DHA daily while pregnant have kids with higher IQ scores through age 4. Their babies have lower rates of allergies, better sleep patterns and better vision. DHA-fortified moms also have lower rates of postpartum depression.

How they work

Scientists have yet to work out many of the details about how omega-3s work their magic, but inflammation is probably one clue, at least for some conditions. That would explain why high doses of DHA and EPA on top of more traditional medicines can reduce morning stiffness and joint pain in arthritis patients and can help reduce the amount of pain medication people need to take.

Brain-based disorders are another area of interest. Some studies have found lower blood levels of omega-3s in adults with Alzheimer's and kids with ADHD than in comparable groups without those problems.

"All of these pathologies are about things that have to do with cells misbehaving," says Philip Calder, a nutritionist and omega-3 researcher at the University of Southampton in England. "You can make cells behave more optimally by having enough omega-3 fatty acids. Then tissues behave properly, and you don't have these manifestations of disease."

To some extent, consumers are catching on. In a recent survey of more than 6,000 people who already take supplements, 74% took fish oil or other types of omega-3 supplements last year, making them more popular than multivitamins, found ConsumerLab.com, an independent health-products testing company.

And in 2009, sales of products enriched with omega-3s, omega-6s and omega-9s jumped by 42% compared with 2008, according to market research firm Nielsen.

Looking ahead

To date, however, most Americans don't appear to be getting nearly enough omega-3s.

Americans consume fish an average of only once every 10 days, Holub says, and 50% don't consume fish over a seven-day period. Supplements, meanwhile, are not a universal

dietary staple. As a result, he points out, the average intake of DHA and EPA in the U.S. is an eighth of what people normally get in Japan and a quarter of what many experts now think we need.

Food labels aren't especially helpful. The packaging on a box of granola bars or loaf of bread might tout omega-3s even though they contain a form that doesn't do much in the body or their concentrations of nutrients might be too small to make a difference.

And even when detailed information is available, it's not always clear how much a given individual should get.

Regardless, consumption needs to rise, nutrition experts say.

"Why have societies consumed fish for so many centuries?" Watkins says. "I think we're just beginning to understand the benefits."