fish vs. flax

All essential fatty acids are not created equal—get the inside scoop on the important differences between fish and flax oils

By Jonny Bowden, PhD, CNS

Unless you’ve been living under a rock, you probably already know how great omega-3 fats are for you. These “wellness molecules” are associated with healthier brains and hearts, improved mood, lowered inflammation, fewer cardiac arrhythmias, reduced joint pain, lowered triglycerides, and healthier skin and hair. What’s not to like?

You probably already know that the best sources of omega-3s are fish oil and flaxseed oil. But you might be wondering, which is better?

It’s start at the beginning. It’s entirely true that omega-3s are found in both flaxseed oil and fish oil. But omega-3s are a category (with three members), like the (much larger) category of professional basketball players. And while all professional ballplayers are pretty darn good (especially compared to you and me), not all of them are Kobe Bryant. And so it is with omega-3s.

The dirty little secret about omega-3s is that the two found in fish and the one found in flax are quite different and may be anything but equal in their effects on human health. The two omega-3s in fish oil are like Kobe Bryant and Shaquille O’Neal—the one in flaxseed oil is a very talented young fellow who may or may not grow up to be a star.

Flaxseeds and flaxseed oil contain a particular omega-3 fat called ALA (alpha-linolenic acid) and DHA (docosahexaenoic acid). The vast majority of the research on the health benefits of omega-3s has been done on DHA and EPA. They are the true superstars of the small omega-3 kingdom. The health benefits of ALA (found in flaxseed) are less clear. (Currently, a large randomized dietary intervention study called the Alpha Omega Trial is testing the relative effects of ALA and EPA/DHA on heart disease, but the results won’t be in till late 2010.)

To give you an idea of the controversy, consider the following: Recently, the European Union instituted new labeling rules that established levels at which omega-3s must be present in food for them to bear the legend “source of omega-3s” or “high in omega-3s.” These new labeling rules drew stern criticism from a prominent group of scientists studying omega-3s. Why? Because the scientists feared that food manufacturers would take advantage of the fact that most people couldn’t distinguish among the various omega-3s. They feared that manufacturers would add plant-based ALA to products such as energy bars and cereals, allowing them to legally claim these products were “high in omega-3s.” But scientists feared that this would be misleading to the public, since the benefits of ALA are not as well documented as the benefits of EPA and DHA.

Now don’t get me wrong—it’s not that flaxseed oil—with its high concentration of ALA isn’t a good fat—it most certainly is. And it’s not that there aren’t huge differences in quality among flaxseed oils. It’s simply that the omega-3 in flaxseed oil, ALA, hasn’t been convincingly shown in research to be as powerful a health modulator as the two omega-3s found in fish.

Proponents of flaxseed oil like to point out—quite correctly, I might add—that the body can actually take the ALA found in flaxseed and convert it into the more “valuable” fatty acids, DHA and EPA. It does this by the action of enzymes known as elongases and desaturases, and the end result is that some of that ALA you consume in flaxseed oil actually does get converted to EPA and DHA.

The big question is how much actually gets converted. And the answer is—not so much. There’s a range of figures shown in various studies on conversion, but the consensus is that it’s never higher than 9 percent and usually considerably less. Truth be told, the actual percentage is a little squishy. Some studies have shown that consuming a lot of ALA does indeed boost blood levels of EPA, but hardly moves blood levels of DHA. This is important,
because DHA is one of the most important fats for the brain. Both EPA and DHA keep cell membranes nice and fluid, which is one of the reasons that fish oil, which contains both EPA and DHA right out of the box, is so protective of the heart.

One thing that works against the conversion of ALA into DHA and EPA is, believe it or not, vegetable oil. Omega-6 fats—which are predominant in most vegetable oils (such as corn, cottonseed, soybean, safflower, and sunflower oils)—actually work to prevent the conversion of ALA into DHA and EPA. Interestingly, saturated fat does not seem to have this dampening effect. One study on ALA conversion concluded that with "a background diet high in saturated fat, conversion [of ALA] ... is approximately 6 percent for EPA and 3.8 percent for DHA, [but] with a diet rich in omega-6, conversion is reduced by 40 to 50 percent."

This can be a real dilemma for the average vegan or vegetarian, who is extremely unlikely to be consuming a "background diet high in saturated fat" and very likely to be consuming a ton of omega-6s from vegetable oils in her diet. A vegan or vegetarian who is getting all her omega-3s from plant foods or flaxseed oil should be very careful to reduce the amount of omega-6 fats in her diet while boosting the amount of flaxseed oil consumed. The ideal ratio of omega-6s to omega-3s in the human diet is somewhere between 4:1 and 1:1. Most Americans consume a ratio of around 20:1. Since omega-6s are pro-inflammatory and omega-3s are anti-inflammatory, this ratio isn't healthy—whether you're a vegetarian or not.

So if you put a gun to my head and asked me to choose between flaxseed oil and fish oil, I'd have to go with the fish oil. The research on DHA and EPA is too compelling, and the research on ALA alone—while it does exist—is just not as strong and clear. That said, flaxseed oil still has valuable properties of its own. Flax contains plant chemicals called lignans, which have profound anticancer effects. Oils such as Barlean's Highest Lignan Flax Oil provide these lignans in addition to ALA, and products like Barlean's Forti-Flax contain a trifecta of valuable compounds: lignans, omega-3s, and fiber to boot!

All things considered, it seems to me fish oil is the better choice for nonvegetarians. But vegetarians can get a great deal of value from flaxseed oil, provided they use it correctly. Forget about one or two capsules; take at least 1 to 3 tablespoons. That way you'll be sure to get at least 0.5 gram of EPA and DHA. And cut back on the vegetable oils high in omega-6s. Which, come to think of it, is a good idea for everyone—vegetarian or not.

product examples

EUROPHARMA VECTOMEGA (WHOLE FOOD OMGA-3 DHA/EPA COMPLEX) features salmon extracted via a patented chemical-free process. One to two tablets daily is all you need.

BARLEAN'S TOTAL OMEGA 3-6-9 SWIRL IN ORANGE CREAM tastes just like the popular ice cream treat and provides a balanced ratio of fish, flax, and borage oils.

COUNTRY LIFE OMEGA-3 1000 MG FISH BODY OILS with marine-source EPA and DHA omega-3s are purity tested for PCBs and other toxins.

RENEW LIFE NORWEGIAN GOLD ULTIMATE FISH OILS SUPER CRITICAL OMGA have 1,025 mg of omega-3s per gelcap and vitamin D3 for maximum strength omega-3 support.