

DHA for Brain Health

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We always hear about EPA-DHA from fish oil and its anti-aging, anti-inflammatory properties, but it may be that DHA (docosahexaenoic acid) is the real star of the show. One study showed DHA raised HDLs more than EPA as well as outperformed EPA in reducing triglycerides, Interleukin-18, CRP, and Tumor Necrosis Factor alpha (TNF α). As a bonus DHA increased adiponectin 3.1% vs EPA’s 1.2 %.

We mostly think of DHA for brain health, and we should since our brains are more than 60% fat, and DHA comprises 90% of the omega-3 fatty acids in the brain. Because of its unique spatial characteristics, it takes up more space in the cell membrane, making it more fluid and increases cell transport. DHA is one of the most important fats for synaptic structure. DHA increases transmission of signals from the surface of the membrane, thereby increasing communication.

Dr. Dale Bredesen, author of [The End of Alzheimer’s Program](#), states that DHA also



increases BDNF (brain derived neurotrophic factor), a growth factor that has an anti-Alzheimer’s effect, promoting the survival of new brain cells and protecting existing ones. He shares that “the role of DHA may be especially critical for aging brains since they tend to shrink in size and exhibit increased oxidation and changes in membrane lipid composition.” He suggests aging adults should have their omega-3 index checked, which measures the red blood cell level of both EPA and DHA.

Non ApoE4 gene carriers should aim for 8-10%, and ApoE4 carriers should aim for

greater than 10%. And a goal to shoot for with your omega-6 to omega-3 ratio is 1:1 – 4:1. He also suggested checking homocysteine, because if the level is greater than 7, omega-3 fatty acids don’t have consistent benefit on cognition.

We’ve all heard about apoptosis, a natural cell suicide process the body uses to remove damaged cells. But there’s another self-regulating process that cells use to destroy cancer cells called ferroptosis. Here’s how I understand the process... cancer cells start out utilizing glucose as a source of fuel in what’s commonly called the Warburg effect. But eventually

the cells become too acidic, and they transition to using fats as fuel. The fats are stored in lipid droplets, which protects them from oxidation. But if too many fats are present, the cell becomes overwhelmed and can't bundle and store them. This leaves them open to oxidation. When the fats are polyunsaturated fats and there is enough iron present, they quickly become oxidized and start a process called ferroptosis. In other words, with sufficient iron in the cell, oxidation occurs and kills the cancer cell.

What's interesting is that some fats inhibit ferroptosis allowing cancer cells to proliferate. For example, saturated fats from grain fed animals inhibit ferroptosis and allow unrestricted tumor growth. Some fats especially DHA facilitate ferroptosis.

Sadly, most Americans are deficient in DHA. "For an adult, it's recommended to consume at least 250 mg of DHA per day. But studies show that our diet provides an average of 50-100 mg per day." As you know we get omega-3 fatty acids from flax seeds, chia seeds, fish, walnuts, tofu, shellfish, navy beans, Brussels sprouts, avocados, and from animals that are grass fed.

By the way, ferroptosis is a process that requires a small amount of iron. Yet iron overload is more common than you realize, so it's important to check iron levels.

To supplement DHA, Biotics Research has a suite of the cleanest fish oils on the market. The oils all come from anchovies harvested in an environmentally sustainable fashion. You can see a link to the right for more information on their purity and freshness. Bio-Mega 1000 contains 430 mg of DHA and 570 mg of EPA per capsule. Biomega-3 Liquid contains 1040 mg of DHA and 1450 mg of EPA per teaspoon. That's almost 2500 mg EPA-DHA per teaspoon.

Because the oils are so fresh and have a lemon taste one doctor compared Biomega-3 Liquid to fine wine. A slight exaggeration to be sure but a testimony to their purity and taste. A relatively new product, Biomega-DHA contains 600 mg of DHA and 90 mg of EPA per capsule.

The first thing we want to do is aggressively eliminate bad fats and increase good oils from organic sources. Next, if your goal is prevention, 2 grams of EPA-DHA should be sufficient. However, if your patient is struggling with chronic conditions, the goals are more aggressive as in 3-5 grams. Some studies with concussion suggest even higher doses short term.

Based on our discussion on brain health, you may want to increase your levels of Biomega DHA for brain health and ferroptosis.

Thanks for watching. I look forward to being with you again next Tuesday.