Scientific Support

CRITICAL: Fish oil / krill / marine oil SPONTANEOUSLY OXIDIZES (becomes rancid)…

A.J. Hulbert, PhD: DHA from fish oil / krill / marine oils with its 6 double bonds, contains 5 bis-allylic bonds and is therefore ***320 times more susceptible to oxidative attack*, that is, becoming rancid, than monounsaturated oleic acid (18 :1) as found in olive oil, which has no bis-allylic hydrogens in its chain**. The oxidation rate is nonlinear.

A saturated fat membrane containing just 5% DHA (fish oil) is 16 times more susceptible to peroxidative damage. [Hulbert AJ, et al., "Life and death: metabolic rate, membrane composition, and life span of animals." [*Physiological Reviews.* 2007;87(4):1175–1213; Hulbert AJ. Metabolism and longevity: is there a role for membrane fatty acids? *Integrative and Comparative Biology.* 2010;50(5):808–817.]

Fish oil's DHA is 7 *times more susceptible* to peroxidative damage than LA (Parent omega-6), Parent omega-6 is the most significant fatty acid by both weight and functionality in the cell's bilipid membrane. *The shifting of the body's antioxidants required to combat this physiologic insult causes a shortage elsewhere.* Could this be a cause of the extreme rise in Alzheimer's? YES. The brain is loaded with DHA, and you aren't told that the required antioxidants for the brain are being re-directed! Even more shocking is the small amount of ***DHA needed daily is a mere 3.8 mg/ day*** [Umhau, J., et al. (National Institutes of Health), "Imaging incorporation of circulating docosahexaenoic acid into the human brain using positron emission tomography," *J Lipids Research*, Vol. 50, 2009, pages 1259-1268] You aren't told this fact, either. This fact should cause the medical community great concern. Keeping tissue fluid in frigid waters like is required for cold water fish is not a physiologic concern of humans with a body temperature of 98^0F).

[Hulbert AJ,et al., “Life and death: metabolic rate, membrane composition, and life span of animals.” *Physiological Reviews.* 2007;87(4):1175–1213.]

SCIENCE: Lipid physiology makes the following clear: (a) Marine oil's **EPA/DHA spontaneously oxidizes at room temperature and more rapidly at normal body temperature—no level of antioxidants can stop this deleterious effect**. (b) Fish oil blunts the insulin response and raises resting blood glucose levels. (c) Fish oil decreases critical prostacyclin (PGI_2) in patients with atherosclerosis—a very bad outcome. (d) Fish oil rapidly decreases arterial compliance—increasing “hardening of the arteries.” (e) In contrast to researcher's expectations, fish oil accelerates CANCER metastases (spreading) in animals. (g) Fish oil's EPA/DHA do nothing to increase cellular and tissue oxygenation; to the contrary, marine oils increase inflammation. (h) Marine oil consumption impairs mitochondrial functionality, making it an *anti-* antiaging substance.

Many in the medical profession are unaware of or are not acknowledging **the lipid science unequivocally showing the great harm that marine/fish oils often recommended supraphysiologic amounts of EPA/DHA cause**.

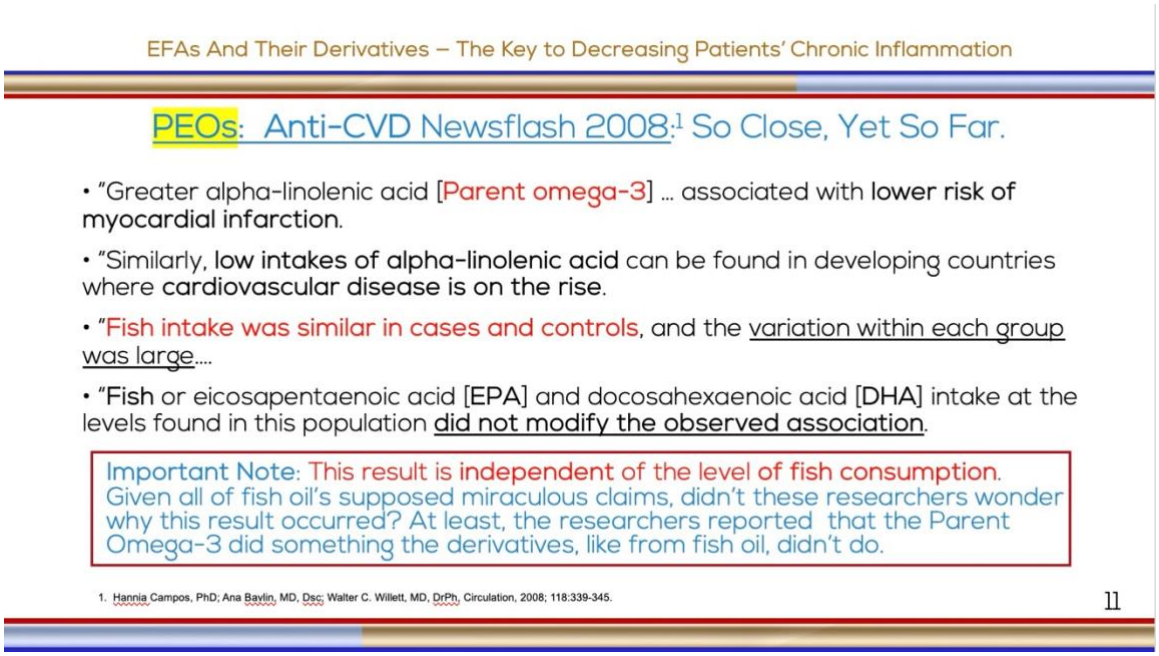
There is a lot about **plant-seed oils** in the news. Most of it negative, demonstrating **a naïve understanding of biochemistry—this was all known in 2009. (*See* below)**

1. #1 is the vast difference between UNPROCESSED (organic) and PROCESSED (adulterated) plant seed oils. Also, you MUST understand the difference between “PARENTs” and DERIVATIVEs.” This was published in 2013. [Anton SD, et al., “Differential effects of **adulterated versus unadulterated forms of linoleic acid** on **cardiovascular health**,” *J Integr Med*, **2013**; 11(1): 2–10.]

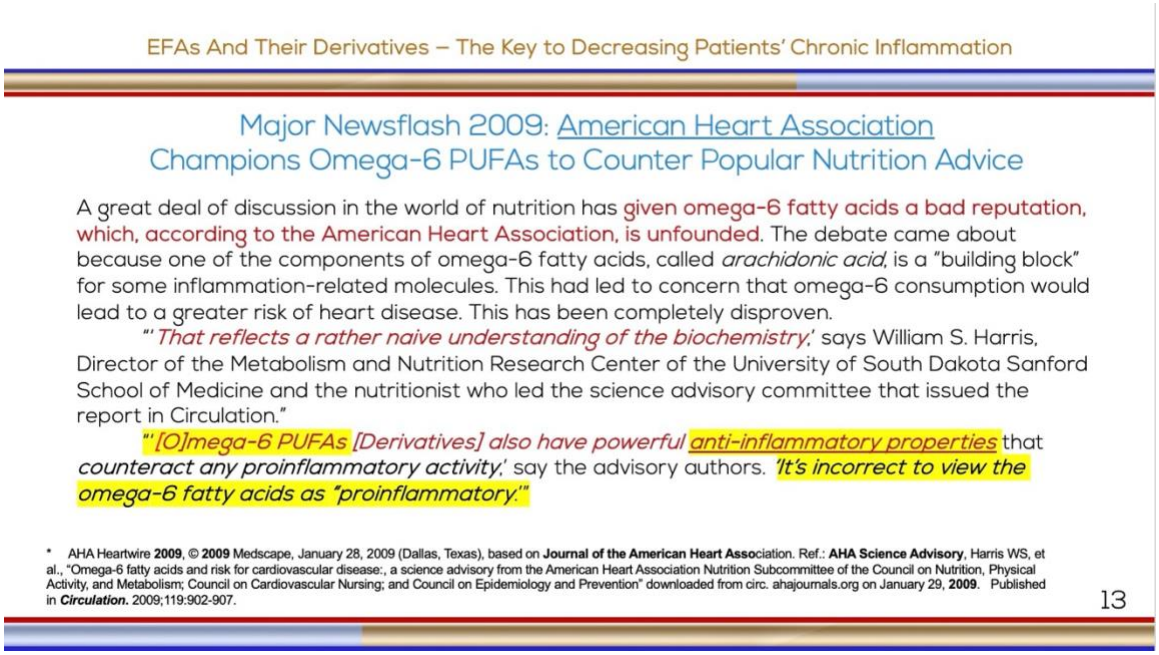
It is important to separately address the erroneous assertion that PolyUnsaturated Fatty Acids (PUFAs) are harmful to your health. Those that attack PUFAs wholesale—with no differentiation between the heart-disease / cancer-causing PROCESSED cooking oils and ORGANIC UNPROCESSED cooking oils—need to revisit foundational works by Professor Spiteller and others that scientifically show the opposite conclusion. From Professor Spiteller:

Heating produces toxic products such as cholesterol oxides. If they are consumed—not produced in the body—they cause deleterious effects. **Professor Gerhard Spiteller, former Chairholder of Biochemistry, Institute of Organic Chemistry at the University of Bayreuth, Germany**, has investigated EFAs and their degradation products—specifically, the influence of these substances on the physiology of mammals. He, too, concluded that ***consumption of oxidized PUFA****-cholesterol* ***esters [from consumption / eating of PROCESSED / adulterated cooking oils]*** *is responsible for the initial damage to endothelial cells* and that cholesterol oxidation products are incorporated into LDL cholesterol in the liver (Spiteller G. Is atherosclerosis a multifactorial disease or is it induced by a sequence of lipid peroxidation reactions? *Annals of the New York Academy of Sciences.* 2005;1043:355–366)

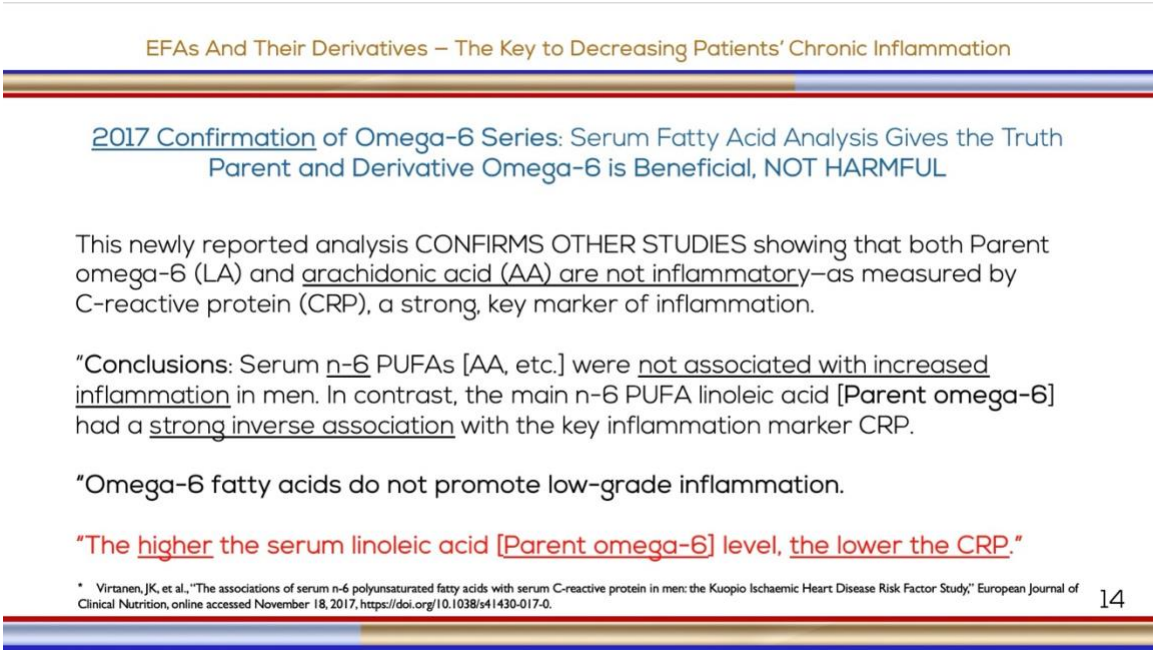
Newsflash 2008: "PARENT" omega-3 is very good for the heart REGARDLESS of the amount of fish / marine (including krill oil). A superb medical journal article from Harvard's esteemed Dr. Willet, et al.



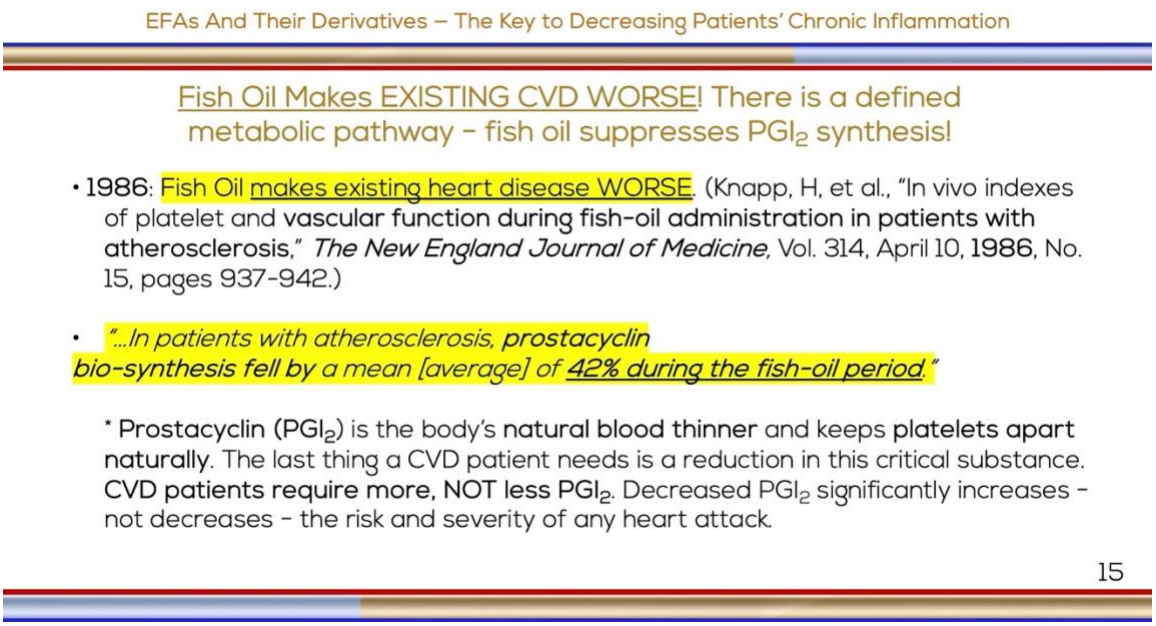
In 2009, The American Heart Association stated that Omega-6 PUFA are NOT inflammatory.



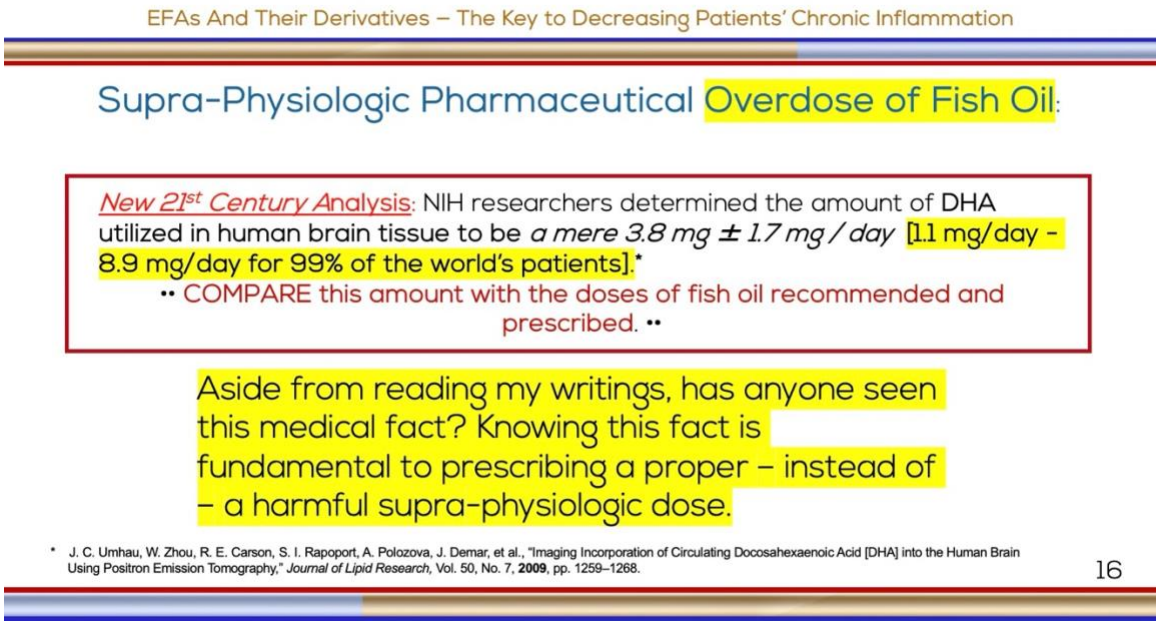
Reported in 2017:Parent omega-6 is NOT inflammatory; in fact, the greater the Parent omega-6 the LOWER the INFLAMMATION.



The New England Journal of Medicine (1986): Marine oils (like fish and krill) make existing heart disease WORSE

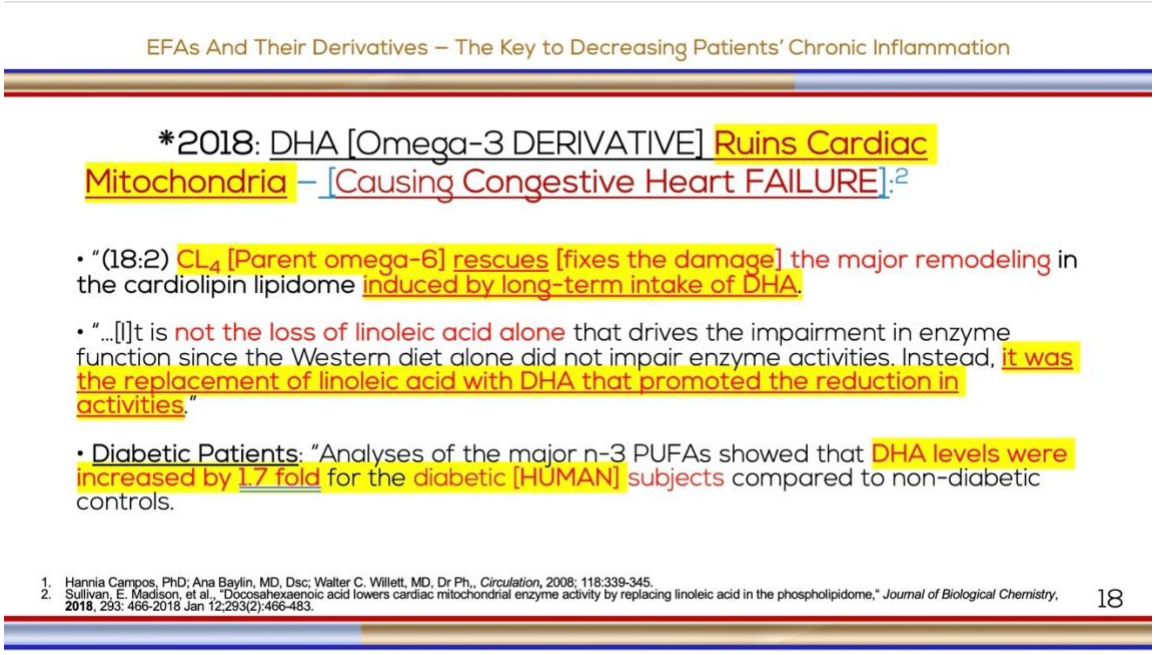


An insignificant amount of EPA/DHA is required by the brain. Compare what is needed to the overdose you are likely being told is needed…



DHA from fish / krill / marine oils DAMGES the Heart's mitochondria (energy producers). This will lead to congestive heart failure. Read the last quote from the superb *Journal of Biological Chemistry.*

The article clearly states that the marine oils CAUSE the critical Parent omega-6 to get displaced. **ADDING back the critical Parent omega-6 RESCUES the marine-oil-causing (fish / krill, etc.) damage**.



People speak a lot about the mitochondria. Cardiolipin is all Parent omega-6, NOT omega-3. In the area of EFAs, Rodent physiology is the same as humans. You will PREMANENTLY DESTROY your mitochondria by listening to the wrong advice.