

# Omega-3 fatty acids from fish oils

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More Research— More Reasons to Use Them

Ortho Molecular Products In the past decade, awareness of the disproportionate consumption of omega-6 fatty acids compared to omega-3 fatty acids as well as the health benefits for reversing this trend have grown. With typical Western eating habits, diets rich in omega-3 fatty acids are difficult, but not impossible, to obtain without supplementation. And the increased health benefits of eating more fish, a trend in the right direction, have come with additional concerns about ingesting heavy metals and other contaminants. These points, along with ever increasing publications of scientific research, has led to both the supplemental and therapeutic use of concentrated fish oils in both “alternative” as well as “orthodox” health care practices across the nation.

Whether new or old to the use of omega-3 fatty acids and fish oil- the *British Medical Journal* has just published an excellent review on the use of omega-3 fatty acids and cardiovascular disease. This review (available free online) gives an historical perspective, a review of long-chain polyunsaturated fatty acid metabolism, a summary of the clinical trials on cardiovascular outcomes and outlines possible cardio-protective mechanisms of omega-3 fatty acids. This would be an excellent refresher for you, your staff or even as a handout for patients taking or considering fish oil for cardiovascular reasons.

**Study underway on fish oils and cardiac arrhythmia**

The Study on Omega-3 Fatty acids and ventricular Arrhythmia

(SOFA) trial will soon be completing data collection. The rationale for this trial is primarily to test one of the commonly held assumptions from previous clinical trials; namely that reduced ventricular arrhythmias, attributed to fish oil consumption, is one of the mechanisms by which they decrease cardiac mortality. This multi-center study (Europe) will follow patients who have received an implantable cardioverter defibrillator (ICD) which records all arrhythmic events in a memory chip for telemetric interrogation. Patients will be randomized to receive 2 grams of sunflower oil or fish oil containing approximately 450mg of EPA and 350mg DHA per day for 1 year. Patients consuming fish oil supplements prior to the trial or who regularly consume more than 8 grams of omega-3 fatty acids from fish per month will be excluded from the trial. PubMed: Rationale and design of a randomised controlled clinical trial on supplemental intake of n-3 fatty acids and incidence of cardiac arrhythmia: SOFA.

### **Fish oils while pregnant and nursing**

For some time it has been known that the long chain polyunsaturated omega-3 fatty acids EPA and DHA play an important role in neurodevelopment in infants. We know, for instance, that children perform statistically better on IQ test at age 4 if their mother consumed higher levels of fish oils (specifically DHA) during pregnancy and breast feeding (PubMed).

Also, neurodevelopment as measured by visual acuity at 4 months favors those supplemented with long-chain omega-3 fatty acids (significance only with DHA) when all clinical trials are compared (PubMed).

Maternal DHA levels are also associated with improved infant sleep patterns, a measure of neuron maturity (PubMed).

Fish oil consumption is also noted to prevent preterm labor in women who had preterm deliveries in previous

pregnancies (PubMed).

From what we have just outlined, it is not surprising that conversion to EPA and DHA from the essential fatty acid alpha-linolenic acid improves when young women reach child-bearing age (PubMed).

This however does not necessarily guarantee enough DHA will be available and many now choose to supplement preformed DHA (often along with EPA) during pregnancy and lactation. With the likelihood of increased heavy metal ingestion when consuming commercially available fish, pregnant women would likely benefit more from consuming highly purified fish oil supplements.

#### Additional Articles:

\* Is docosahexaenoic acid (DHA) essential? Lessons from DHA status regulation, our ancient diet, epidemiology and randomized controlled trials J Nutr. 2004 Jan;134(1):183-6

\* Randomised clinical trials of fish oil supplementation in high risk pregnancies. Fish Oil Trials In Pregnancy (FOTIP) Team BJOG. 2000 Mar;107(3):382-95

\* Essential fatty acid status in neonates after fish-oil supplementation during late pregnancy Br J Nutr. 1995 Nov;74(5):723-31.

\* Randomised controlled trial of effect of fish-oil supplementation on pregnancy duration Lancet. 1992 Apr 25;339(8800):1003-7.

\* Maternal docosahexaenoic acid supplementation during pregnancy and visual evoked potential development in term infants: a double blind, prospective, randomised trial Arch Dis Child Fetal Neonatal Ed. 2003 Sep;88(5):F383-90.

\* Maternal fish oil supplementation in pregnancy reduces interleukin-13 levels in cord blood of infants at high risk of

atopy Clin Exp Allergy. 2003 Apr;33(4):442-8.

### **Fish oils- inflammation and cardiovascular updates**

\* Effects of different dietary oils on inflammatory mediator generation and fatty acid composition in rat neutrophils Metabolism. 2004 Jan;53(1):59-65.

\* Dietary fish oil decreases C-reactive protein, interleukin-6, and triacylglycerol to HDL-cholesterol ratio in postmenopausal women on HRT J Nutr Biochem. 2003 Sep;14(9):513-21.

\* N-3 polyunsaturated fatty acids and inflammation: from molecular biology to the clinic Lipids. 2003 Apr;38(4):343-52.

\* Habitual dietary intake of n-3 and n-6 fatty acids in relation to inflammatory markers among US men and women Circulation. 2003 Jul 15;108(2):155-60.

\* Prostaglandin E2 production and T cell function after fish-oil supplementation: response to antioxidant cosupplementation Am J Clin Nutr. 2003 Sep;78(3):376-82

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