Omega-3 Fatty Acids (N-3 FA)
Part 2

I wanted to start out the second part of the O3FA postings by talking about environmental toxins and fish because I have to confess that I was always confused about the true facts about toxins and fish consumption. There is no doubt that high fish oil intake through the consumption of large amounts of fish may present a risk for increased environmental toxin exposure. Let's begin by talking about Mercury. Mercury may come from coal-fired power plants, waste incinerators, and mining operations as well as other sources. Once airborne, the pollutants fall to the ground in rain or snow and get into the water supply and are converted by bacteria to methylmercury which is toxic to humans. Large and older fish have accumulated more mercury then younger small fish. Also predatory fish near the top of the food chain tend to accumulate more mercury. Mercury poisoning by fish consumption has resulted in in neuropsychiatric signs and symptoms including numbness in the mouth and extremities, ataxia, auditory impairments, and most importantly, severe neurologic damage to children born to mothers with toxic mercury exposure. Despite this information, the totality of the evidence supports that the benefits of fish oil exceeds the potential risks, including intake in women of childbearing age with the exception of a few species. It needs to be clear that these recommendations only apply to fish oil intake through the consumption of fish. With regard to fish oil intake though select fish oil supplements, testing has shown that the level of mercury and other environmental toxins is very low or negligible. This occurs for two reasons. First oxidized mercury is only water soluble and insoluble in oil and thus would not be expected to represent a significant toxicity risk with the intake of fish oils. Second, selected fish oil supplements undergo extensive purification processes to remove toxins and with the prescription fish oil preparations undergoing even more rigorous regulatory processes.

PCBs, Organocholorine pesticides , the most common one being DDT, and dioxin has also found their way into the water supply and ultimately fish consumption has been associated with toxicities from these agents. Dioxin is the primary component of Agent Orange which was used as a defoliant in the Vietnam War and is considered a carcinogen. Manufacturers of selected fish oil supplements have implemented purifications and quality controls designed to reduce the risk of exposure to these toxins. Thus, O3FA supplements may be preferable to fish consumption as a therapeutic source of O3FA.

The caveat to all this is that the Nutrceutical industry is largely unregulated. Although the FDA designates O3FA supplements as "generally regarded as safe", they are not subject to premarket review and approval requirements like prescription medicines. Some fish oil manufacturers elect to pursue "USP-Verified" marks on their label which indicates compliance with standards set by the US Pharmacopeia (USP) which is a independent, not-for-profit, organization established in 1820 that has set the legally recognized standards for identity, strength, quality, packaging, purity, and labeling. Many physicians are unaware of USP monographs. The USP is also involved with the verification of products through the voluntary Dietary Supplement Verification Program. The presence

indicates that the USP has rigorously tested and verified the supplement. The O3FAs that I take and give to my patients are USP certified. Some manufacturers make the false claim the their O3FA is “pharmaceutical grade” when they have not gone through the rigorous processes and oversight required to receive approval as a prescription pharmaceutical so beware of this misleading statement. When I am asked if a particular brand of O3FA contains excessive vitamins or toxins to pose a health risk, I answer by saying that it depends on the operating and purification processes each company uses. The only way to know is if it is “USP-Verified”. The only thing that one must know is that this labeling does not address the efficacy of a supplement. For efficacy information a label needs to state the amount of EPA and DHA within the O3FA and then the proper dose can be determined. In my office, I show patients five of the most common brands and although they same 1000mg per tablet, if one looks on the back of the label, there is usually about 300mg of EPA and DHA. So when I tell patients to take 4000mg, they would need to take about 12 pills although the front says 1000mg. One would think they only need to take 4 pills. This is misleading. I generally encourage one to take my highly concentrated liquid which contains 3200mg per teaspoon if they are treating high Triglycerides or 2-3 of my 500mg tablets if they are using fish oil for only Cardiovascular clinical benefits.. Please beware of this problem especially if the N- 3FAs are being used to treat hypertriglyceridemia. There is no evidence that anything less than 4000 my daily can impact high triglycerides and low doses are to be totally discouraged. Furthermore, the ONLY FDA recognized and assayed N- 3 FA product is Lovaza. If there is no response to any N-3 FA product within 8 weeks when treating hypertriglyceridemia, it should be abandoned as therapy.