

NEW AND OBSOLETE FISH OIL SUPPLEMENTS

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The Power of Fish Oil: Omega-3 Series Essential Fatty Acids

Several studies in peer-reviewed medical literature indicate that fish oil supplementation at oral dosages required to achieve significant health benefits is unacceptable to many individuals (NEJM, 334, 24, 1557-60, 1996). Regular fish oil capsules or liquids have an unpleasant taste or aftertaste, even when deodorized or flavored; and they can cause flatulence, heartburn, bad breath, repeated belching and diarrhea. It is time to reappraise the formulation and delivery of oral fish oil supplements.

Omega-3 fatty acids, found in fish oil, have emerged as the most potent and versatile nutraceuticals in the dietary supplement industry. Despite thousands of scientific publications showing the disease treatment capabilities of Omega-3 fatty acids, residual arguments exist about "treatment claims" and practitioners of conventional medicine have been slow to adopt the therapeutic advantage with these essential nutrients.

My reasoning highlights the enigma of modern medicine where dietary supplements cannot be used to prevent or treat disease, at law, but increasing numbers of people and their health-care givers take supplements to prevent and treat disease. If ever there was "terra firma" in making health claims, the essential nature of Omega-3 fatty acids faces little scientific challenge against their obvious benefits.

Altered Omega-6 to Omega-3 Ratios in the Diet

There are several classes of essential fatty acids (EFA), including those of the Omega-3, 6 and 9 series. Population studies imply that there is an excess of Omega-6 fatty acids (vegetable oils) in many western diets. In addition, there is a widespread actual or relative dietary deficiency of Omega-3 fatty acids in industrialized nations. Much debate has centered on the health implications of altered, dietary ratios of Omega-6 to Omega-3 fatty acid diet. Many people have a diet with a ratio of Omega-6 to Omega-3 EFA intake up to 25 to 1, but an optimal ratio of these essential fatty acids is arguably 1 to 1 (Omega 6 to 3). So abundant are Omega-6 fatty acids in the diet that even people who take fish oil supplements may not be correcting abnormal ratios of EFA intake into proposed, healthy ranges.

There has been a huge dietary shift in the Omega-6:3 EFA, dietary ratio over the past century, with Omega-6 (vegetable oil), per capita intake increasing from a couple of pounds per year to more than 25 pounds per year. Omega-6 EFA deficiency is practically non-existent in western society and it makes dietary supplement combinations of Omega-3 and 6 EFA redundant in most cases. Dietary shifts towards Omega-6 EFA tends to push the body to make pro-inflammatory hormones (certain eicosanoids) which, in simplistic terms, helps to promote chronic inflammatory disease.

Fish Oil Has a Litany of Health Benefits

Without denying the essential nature of several types of EFA, it is the active components of fish oil (eicosapentanoic, EPA and docosahexanoic acid, DHA) that have most relevant health benefits. Essential fatty acids can affect favorably both the clinical course and natural history of many diseases, including but not limited to: inflammatory disorders, cardiovascular disease, hormonal upset, altered immune function (both immunosuppression and auto-immunity states), arthritis, depression, neurological disorders or degenerations etc....to name a few.

The apparent panacea health benefits of fish oil are due to the powerful effects of EFA (especially EPA and DHA) on cell membrane structure and function. A key to understanding the anti-inflammatory effects of EPA is to recognize how this particular fatty acid is changed in the body to create anti-inflammatory, “signalling” hormones (eicosanoids). Certain forms of eicosanoids are powerful anti-inflammatory agents which control favorably many stages of the inflammatory process.

Many inflammatory diseases are treated by drugs with onerous side-effects (e.g. steroids, aspirin and NSAID), but fish oil, rich in EPA, is often worth a try as a first-line option in many circumstances. Confusion exists on the relative advantages of EPA over DHA supplementation. I have referred to EPA as the Emperor of EFA because it is readily convertible to DHA and it exerts added anti-inflammatory actions. (Holt S, Combat Syndrome X, Y, Z..., Wellness Publishing, Little Falls, NJ)

Reliable Sources of Omega-3 Fatty Acids

While I do not challenge the healthful nature of vegetable sources of Omega-3 fatty acid “precursors”, there is a widespread, inappropriate belief that these precursor sources are reliable sources of active Omega-3 fatty acids. They are not! Bioactive effects of Omega-3 fatty acids supplementation cannot be achieved consistently with simple dietary change (e.g. the Zone) or the use of alpha-linolenic acid (ALA) precursors (e.g. flax or walnut oils etc.) In many individuals, ALA is often not much more than 2% convertible to EPA or DHA over a 24 hour period. This critical biochemical conversion of ALA is impaired by chronic disease, alcohol, saturated or trans fatty acid intake, caffeine, diabetes mellitus, Metabolic Syndrome X and advancing age. Nutritional co-factors, e.g. B3, B6, Mg, Zn and Vitamin C are required for essential fatty acid metabolism; and EFA are great utilizers of Vitamin E.

Targeted Delivery: Enteric-Coated Fish Oil Emerges

There is no doubt that grandmother was right when she had us all “choke on the end of the spoon” of cod liver oil, but modern nutraceutical technology can now be applied effectively to provide optimal ways of supplementing the diet with fish oil. There are several pharmaceutical or nutraceutical factors that govern the best way to deliver oral fish oil, but the dietary supplement industry has been slow to recognize advancing technology. Cod liver oil should be avoided in circumstances of co-existing fat soluble vitamin supplementation, especially to avoid excess Vitamin A intake.

Many clinical trials of Omega-3 EPA supplementation in diseases or disorders show that higher dosages are necessary to achieve health effects (range 4 to 10g/day).

Taking significant amounts of fish oil supplements in regular gel capsules or liquids is fraught with side effects. Much self-administered fish oil supplementation occurs at ineffective dosages in liquids or plain, soft gel capsules, where many problems exist including: spontaneous decomposition of oils, inadequate bioavailability and poor patient compliance.

It is now clear that fish oil liquids and regular capsules have major disadvantages for the bioactive use of fish oils, for several reasons. Enteric coating of fish oil capsules is to be preferred because of its many advantages.

This enteric-coated dosage form has made many regular fish oil supplements obsolete, because it overcomes many of the limitations that exist with regular fish oil capsules and liquids.

Enteric coating can be undertaken with a targeted delivery system where the active Omega-3 fatty acids, EPA and DHA, are protected from the destructive hydrolysis of fatty acids by gastric acid in the stomach and delivered to their site of maximal absorption in the small intestine. Targeted delivery enhances oral bioavailability (increasing the amount of active EPA and DHA absorbed into the body).

Successful therapeutic studies of fish oil in the treatment of inflammatory disease, published in the peer-reviewed medical literature, have utilized enteric coated fish oil with targeted delivery. These studies describe the ability to give high dosage fish oil with good patient compliance and less side effects. Statements that fish oil is only enteric coated because the oil is oxidized or that fish oil is “readily” absorbed with ease are “fairy tales”. More than a decade ago researchers stated in a landmark study published in the New England Journal of Medicine that enteric coated preparations of fish oil result in the following: “*the frequency of side effects is reduced, compliance increases, and long-term treatment becomes feasible for many patients*” (NEJM, 334, 24, 1557-60, 1996). I developed the first enteric coated fish oil supplement in the U.S. dietary supplement market, in the early 1990’s, in collaboration with Nabil Rezik.

Therapeutic or Health Tips on Fish Oil Use

Ask a person how much fish oil they take and consider that less than 2 grams of a higher potency (preferably enteric coated) fish oil (at least 600mg of EPA and 400mg of DHA) is often insufficient for the desired health benefits, especially when taken in regular gel or liquid forms.

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