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Understanding Omega-3 Supplements

,_Diet is essential. The core of the Omega-3 Renewal Plan is increased consumption of omega-3–rich foods and the use of omega-3 fatty acid supplements from two main sources: fish oils and flaxseed oil.

Fish Oil

Most of the clinical data on omega-3 fatty acids involves fish oil and its omega-3 components. Fish oil contains the two primary long-chain omega-3 fatty acids, EPA and DHA (see Chapter 2). DHA is generally incorporated into the cell membranes found throughout the body, but it is found in highest concentration in the retina, brain, and sperm. DHA is crucial for normal brain development and optimal cognitive and visual functioning in the fetus and newborn. The body holds on tightly to DHA; even moderate amounts of DHA in the diet (100–200 milligrams per day of DHA for an adult) appear adequate to sustain healthy levels. However, pregnant and nursing women have higher requirements due to the demands of the fetus and newborn for large quantities of omega-3s. A recent international conference sponsored by NIH recommended at least 300 milligrams per day of DHA for a pregnant or lactating woman.

EPA is the active anti-inflammatory omega-3. In health, the body should be in a non-inflammatory state, achieved by having sufficent quantities of EPA to keep the pro-inflammatory omega-6 arachidonic acid in check. Current evidence is pointing toward EPA as the most mood--promoting agent in fish oil, although further research may show that DHA is important as well. However, there is anecdotal data suggesting that too much DHA relative to EPA may cause a worsening of mood. I therefore recommend using a supplement with as high an EPA content as possible. More systematic studies are required to verify this clinical observation. There are now supplements available with EPA-to-DHA ratios of two-to-one all the way up to seven-to-one. EPA is generally found in nearly twice the concentration of DHA in commonly available over--the-counter fish oil supplements. It is incorporated to a far lesser degree into cell membrane lipids when compared with DHA. However, even this relatively small amount of EPA incorporated into the membrane is extremely important and has strong biological activity in a number of processes in the brain and body. For example, EPA released from the membrane has powerful anti--inflammatory and ion-channel-modulating actions.

The turnover rate of EPA is high, so it must be replenished daily through the diet for optimal function. Besides its action from the membrane, EPA is also active as it circulates in the bloodstream, competing with its omega-6 fatty acid counterpart arachidonic acid in numerous biochemical pathways involving the eicosanoids. Once again, it is this balance between omega-3 fatty acids and omega-6 fatty acids that may be crucial to the observed clinical effects of EPA.

Dosage

If you are using the omega-3 fatty acids for health, mood, or cognitive enhancement, 1 to 2 grams (1000-2000 milligrams) daily of total omega-3 fatty acids (EPA plus DHA) is probably adequate. If you are using them for mood elevation or stabilization, a higher amount is sometimes required.

Our bipolar disorder study, described in Chapter 7, used 9.6 grams of omega-3 fatty acids per day (6.2 grams EPA and 3.4 grams DHA). Clinically, usually 2 to 5 grams of omega-3 per day is adequate.

With the emerging data on EPA, I have begun to use the EPA content alone to calculate dosage requirements. Generally 1.5 to 4 grams per day of EPA is adequate to improve mood in patients with mood disorders. I have no experience using EPA in dosages exceeding 8 grams per day, but higher levels seem to be safe, since the traditional Greenland Eskimo diet consisted of up to 14 grams per day.

Anyone taking an anticlotting agent such as warfarin (Coumadin), or high doses of aspirin and related drugs, should talk to their health-care provider before taking omega-3 and vitamin E so they can be monitored for safety. In addition, anti-_obesity medications that block the absorption of fats, such as Xenical, can also interfere with omega-3 absorption.

Under no circumstances should you lower or discontinue your medication by yourself. In some cases, individuals, working closely with their clinicians, have been able to lower the dosage of their medication. Also, although omega-3 is essential during pregnancy, I strongly recommend that women work with their health-care provider on using the supplements.

If your health-care provider is unfamiliar with the importance of omega-3 and its benefits, you can help to educate him or her and thus benefit others.

Using the Omega-3 Renewal Plan in Depression _and Bipolar Disorder

In cases of moderate or severe depressive symptoms, the Omega-3 Renewal Plan is usually only used in addition to conventional psychopharmacological treatment. In certain individuals with only mild mood symptoms (for both depression and certain mild forms of bipolar disorder), I have used the plan alone, instead of conventional medication. This is justified as long as the -patient's safety and well-being are not compromised. The advantage of using the plan first, instead of conventional mood drugs, lies in its safety and excellent side-effect profile. If increasing the amount of omega-3 fatty acids and implementing the other elements of the Omega-3 Renewal Plan fail to relieve mood symptoms, conventional medications (antidepressants and/or mood stabilizers) can then be tried.

I have also treated individuals who have moderate or severe mood symptoms with the Omega-3 Renewal Plan when conventional medications were not an option. For example, some individuals will not use conventional medications based on their religious or philosophical beliefs. Others have not responded to even multiple trials of conventional drugs, and some patients cannot tolerate standard mood drugs due to severe side effects. In these cases, it may be justified to use the Omega-3 Renewal Plan alone. However, in my practice, I have observed that conventional medications are sometimes more useful following the implementation of the Omega-3 Renewal Plan. This may be because some previously difficult-to-treat patients respond favorably to conventional medications once their brain is provided with an adequate amount of omega-3 fatty acids to function and respond normally. This restoration of response to conventional medication can occur even if the omega-3 fatty acids themselves do not seem to be reducing the mood symptoms. This clinical observation of restoration of response requires scientific confirmation.

Another favorable aspect of the omega-3 fatty acids is their compatibility with the whole range of psychiatric medications, other prescription and non-prescription medication, and most herbal treatments. The omega-3 fatty acids can be safely mixed with whatever medication you may be currently receiving. The only known exceptions may be blood thinners, such as high-dose aspirin (or similar drugs, such as ibuprofen) or warfarin (Coumadin). Because the omega-3 fatty acids tend to inhibit platelet action, combining the omega-3 fatty acids with a medication that may promote abnormal bleeding may increase the risk of bleeding even further. However, no case of such an interaction has ever been reported, and the danger of bleeding from an interaction between the omega-3s and a blood thinner would likely be extremely small with ordinary dosages

of fish oil and blood thinners. A recent study confirmed this by demonstrating that low-dose aspirin used to prevent heart attack posed no hazard to someone receiving even large dosages of omega-3 fatty acids. Individual responses can vary. There have been reported cases of hypomania and mania, particularly with flaxseed oil (ALA). It is unclear if these reactions were due to the flaxseed oil or were part of that person's pattern of mood cycling. Either way, close monitoring of mood and health is indicated. You should never self-treat depression or bipolar disorder. Work with your health-care provider.

Choosing a Fish Oil Supplement

There are literally dozens of omega-3 dietary supplements available in health-food stores, pharmacies, Web sites, and catalogs. Omega-3 supplements are available in a variety of concentrations and characteristics. These supplements range from the highest pharmaceutical quality formulations to products of poor quality containing oxidized fish oil and possibly other contaminants.

The producers process the fish oil using various methods and ship the bulk oil to distributors, who purchase the bulk oil and encapsulate it, usually in gelatin capsules. In some cases, retailers purchase the capsules already made and put their own label on the bottles. Some oils are produced and encapsulated under nitrogen, while some are exposed to oxygen during their manufacture.

Most fish oil supplements found in health food stores and pharmacies contain only 30 percent omega-3 fatty acids, usually with a ratio of EPA to DHA no greater than two to one. This means that it would take thirty 1000-milligram capsules per day to match what we used in our bipolar study! This number is obviously impossible for most people to tolerate due to the daunting number of capsules to swallow, the cost, and the high likelihood of a fishy repeat. These 30 percent supplement capsules are not ideal, but until recently were the only readily available form of fish oil. The remaining 70 percent of the fish oil in these low-concentration preparations is mainly omega-9 fatty acids (such as oleic acid), some omega-6 fatty acids, cholesterol, and other lipids.

To reduce the number of capsules required per day or get a higher amount of EPA and DHA in a smaller capsule size, it is well worth the search for a more highly concentrated product. There are several high-quality concentrated fish oil supplements ranging from 50 percent omega-3 content to more than 90 percent omega-3 content.

After our study showed that fish oil could elevate and stabilize mood, many other clinicians and I began using omega-3 fish oil supplements in our clinical work. In response to the feedback we received from people taking omega-3 supplements, it became clear that many wanted to take fewer and smaller capsules, and desired a high concentration supplement without a fishy aftertaste. I approached several fish oil manufacturers and distributors urging them to produce such a supplement. No one was interested. Finally, in response to the repeated requests from people across the country, Harvard psychiatrist and fellow omega-3 researcher (and my wife) Carol A. Locke, M.D., decided to create a highly concentrated (more than 90 percent), pharmaceutical quality omega-3 supplement. She formulated the product, known as OmegaBrite, to have a high EPA to DHA ratio, and to be manufactured under nitrogen. In addition to this product, there are other high quality, pharmaceutical-grade supplements available. Table A-4 within Appendix A contains a listing of several high quality omega-3 supplements, along with their characteristics. I encourage the reader to try different supplements in order to determine which products best suit you and your family's needs.

Table 14-1 describes a number of characteristics to consider when choosing an omega-3 dietary supplement.

The source of the fish is also important. Antarctica has cleaner waters than many other regions used for fish catches. Anchovies from Antarctica are very small fish, high in omega-3 fatty acid content (and in coenzyme Q10 and other nutrients) and very low on the food chain.