



FISH OIL & OMEGA 3 FATTY ACIDS

We see and hear every day that we need to be consuming fish oil and omega 3 oils. There is a lot of confusion on what they are, how they work and why we need to take them. In this newsletter, I will explain what you need to know about them.

First of all, **fish oils and omega 3 oils are not the same thing**. Fish oil is a good source of omega 3 fatty acids which are the important health promoters. Fish oil contains a number of other chemicals beside the omega 3 fatty acids. A patient brought in a supplement which she had purchased and the label stated there was 1000mg of fish oil. I looked at the label and it stated there was 300mg of omega 3 and the rest of the ingredients were not even listed. The health benefit comes from omega 3 and not necessary the other ingredients. There are a number of omega 3 fatty acids which I will discuss later, only some of them give the health benefits you hear about. The two important ones are EPA and DHA. This supplement only listed the 300mg as omega 3 and gave no listing for EPA and DHA. By not knowing what was beneficial, she purchased a product which was inferior and would not provide the benefits she was hoping to receive.

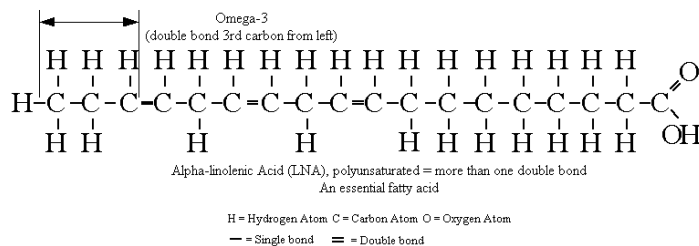
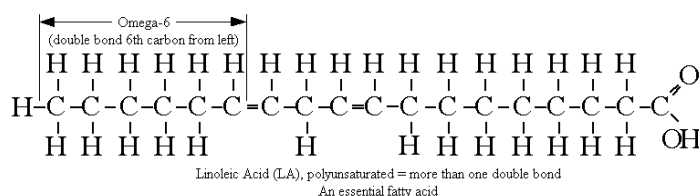
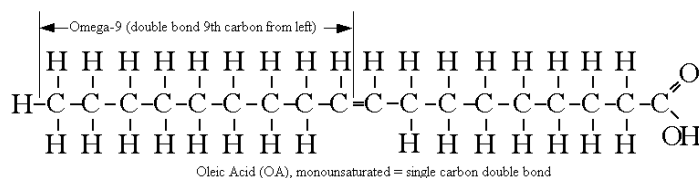
Secondly, you need to get **omega 3 oils which come from oily fish that live in cold and deep water**. Sardines, anchovies and herring are the best sources. The reason you want them as a source for your fish oil is these fish live in less polluted waters and thus have less toxic chemicals. They also are low on the food chain. What this means is they eat microalgae not other fish. The omega 3s actually come from the algae. They are not made by the fish. The omega 3s are stored in the fat of the fish. Larger fish eat the smaller fish and accumulate the omega 3s in this way. They also accumulate environmental poisons which are also stored in the fat with the omega 3s such as PCB's, dioxin, chlordane and mercury. This process is called bioaccumulation. The bottom line is they are more toxic to us. The fatty fish that are in this category are salmon, mackerel, founder and albacore tuna.

Thirdly, you need to know **what the purification and quality control standards your source uses in taking out the heavy metals like mercury and the chemical pollution like PCBs**, how often do they test their products and what pollutants they test for. The products we recommend meet the highest standards for purity on the market. This, of course, does increase the cost. As they say, you get what you pay for.

Fourthly, **what are omega 3s anyway?** Omega 3 fatty acids are essential polyunsaturated fatty acids. That is a mouthful! "Essential" refers to the fact that our bodies cannot make them. They have to come from our food. Therefore, they are essential for us to eat. At one time, they and other essential fatty acids were called Vitamin F. "Poly" means many and "unsaturated" means that there are double bonds between carbon atoms. The "poly" part is easy. It means there is more than one. The double bond is harder to explain. Fatty acids are made up of a number of carbon atoms bonded together in a chain. Carbon atoms have the possibility of bonding with four other atoms. When two carbon atoms have two bonds with each other, this is called a

double bond. It does not have all of the bonds it could have with other atoms. This is called unsaturated because there could be a possibility of another atom sharing the bond instead of the double bond. When all four bonds are with different atoms, it is called saturated. You will see the terms “saturated or unsaturated” fats. This is where it comes from. Saturated fats are found in meat and butter. These are solid at room temperature. Unsaturated fats are less stable and are liquid at room temperature. These are primarily vegetable oils. All foods have a combination of saturated, mono unsaturated and polyunsaturated fats.

What makes it omega 3 or omega 6? These are chemical terms and it refers where the first double bond occurs on the carbon chain starting at the omega end. The carbon chain has two ends. One is called the omega end. You count the number of carbons from that end till you find the first double bond. In the case of the omega 3, it is the 3rd carbon. Likewise, omega 6 and 9 refer to the first double bond appearing at the 6th and 9th carbon.



Fifth, the ratio of the amount of omega 3 to omega 6 in our diet is very important for our health. It turns out that omega 6 fatty acid end products are pro-inflammatory and pro-blood clotting. Neither of these is good for us especially with respect to our heart and blood vessels. Omega 3 end products are anti-inflammatory and anti-blood clotting. These are protective to our heart and blood vessels. In fact, their anti-inflammatory properties are helpful for a number of inflammatory conditions including arthritis. The average American diet has a ratio of omega 6 to omega 3 of 30:1 to 10:1. This makes the American diet pro-inflammatory. The closer ratio is to 1:1 the better.

Sixth, the **sources of omega 6 fatty acids** are the vegetable oils such as: corn, canola, sunflower, olive, evening primrose, borage, black currant seed, safflower and pumpkin seed. **Sources of omega 3 oils** are: fish (salmon is the highest in commonly eaten fish), krill, flax seed, walnuts, chia seeds and eggs (fed with special diets- Christopher eggs). It should be noted that all these sources contain both omega 6 and omega 3 fatty acids, but the predominance is stated as either omega 6 or 3.

Seventh, **omega 3 fatty acids are a family of fatty acids** with differing carbon chain lengths and the number of double bonds. Alpha linolenic acid (ALA) is an 18 carbon chain and considered a short chain omega3. It is what is found in vegetable sources of omega 3s such as flax seed, chia seed and walnut. It, however, is not responsible for the health benefits I am about to discuss. They come from two long chain omega 3s eicosapentaenoic acid (EPA), a 20 carbon chain and docosahexaenoic acid (DHA), a 22 carbon chain. Just remember EPA and DHA. They are found in fish and krill oils. They are not in the plant sources. ALA can be converted to EPA and DHA, but the conversion is very inefficient only 5% and it is blocked by omega 6 acids that compete for the conversion enzymes. **The bottom line is you need to know how much EPA and DHA are in the foods you eat and supplements you take. You also need to decrease the amount of omega 6 acids you are consuming to have a better ratio between omega 3 and omega 6 to get as close to a 1:1 ratio as possible.**

Eight, **the health benefits of omega 3 fatty acids, EPA and DHA are many.**

Cardiovascular Disease (CVD):

1. Reduces incident of cardiac death and sudden death from heart attacks within 3 months after starting to take supplements
2. Reduces risk factors for CVD like high triglycerides and LDL (bad cholesterol) and low HDL (good cholesterol)
3. Reduces blood pressure and can be used in conjunction with other blood pressure medications to enhance their effects

Immune System Function: They improved immune system maturation in infants and decreases allergies

Brain Health: Play a key role in structure, function and protection against damage in the brain

1. DHA is necessary for brain development in pregnancy, infancy and childhood. 8% of the brain is omega 3s. You need to take them during pregnancy and give them to your children.
2. Helps memory in elderly patients with dementia and may prevent the development of Alzheimer's disease. EPA is especially important for adults and DHA in children.
4. Improves focus, learning and behavior in children with ADHD and Autism
5. Improves depression and is helpful with bipolar disease

Anti-inflammatory:

1. Omega 3s have been shown to be as effective as non-steroidal anti-inflammatory drugs such as ibuprofen without the dangerous side effects
2. They are helpful with eczema in adults, but especially in children as well as asthma
3. The anti-inflammatory effects protect the brain from oxidative stress

Anti-aging and Anti-cancer:

1. Omega 3s decrease DNA aging by protecting telomeres at the ends of the DNA which causes cell aging
2. Omega 3s cause cancer cells to age and die like normal cells

Nine, **how much do you need to take?** I take 1400mg of EPA and 900 mg of DHA PER DAY

- Studies showed decreased aggression in autistic kids with 840 EPA / 700 DHA

- Studies showed ranges of 1000-3000 mg EPA/1000-1500 mg DHA are effective for improving symptoms of depression, aggression and other mental disorders in adults
- American Heart Association recommends 800-1000 mg omega 3s for heart disease prevention after an initial episode and 2000-4000mg for high triglycerides
- The American Medical Association in their journal, JAMA, 1/20/2010 recommends omega 3s for primary prevention of initial heart attacks and secondary prevention for those who have had a heart attack.
- Studies show that 3800 mg EPA and 2000 mg DHA is helpful in rheumatoid arthritis
- Pregnant women should take 650 mg of EPA/DHA with at least 300 mg of DHA

Ten is the **possible drug interactions of taking omega 3s and fish oils.**

1. In theory, there may be some concern in taking omega 3 and fish oils, because they have an effect of reducing blood clotting. If you are taking drugs which decrease blood clotting or thin the blood such as: aspirin, anti-coagulants (blood thinners) such as warfarin (Coumadin®) or heparin, anti-platelet drugs such as clopidogrel (Plavix®) and non steroidal anti-inflammatory drugs (NASIDs) such as ibuprofen (Motrin® and Advil®) and naproxen (Naprosyn® and Aleve®), you need to consult with your physician about their interaction before taking them.

Eleven, **I do not recommend cod liver oil as a source of omega 3s.** Cod liver is a source of omega 3s, but It is made from the livers of the cod fish which contains high levels of Vitamin A and D. One tablespoon contains 400-1200 IU of Vitamin D and 4000- 30,000 IU of Vitamin A. The ratio of Vitamin D to Vitamin A should be 5:1. Vitamin A in this high dosage can be toxic and impair Vitamin D's functions. As a result of this, I do not recommend cod liver oil as a source of omega 3s.

The bottom line is that everyone should be taking omega 3s and/or eating at least two 6 oz servings of wild caught fish like salmon a week. Farm raised fish have a higher content of contamination than wild caught. Tilapia and Atlantic salmon are not good choices because they are farm raised and have high amounts of omega 6s. For pregnant women and breast feeding mothers, supplements are preferable because of the reduced risk of mercury and other environmental contaminants.

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