Is Fish Oil Good Or Bad?

READERS SUMMARY:
1. Is it correct to believe that omega 6's are always bad?
2. What are the pathways these fats travel and what do they really do?
3. Do we need some type of ratio for optimal health?
4. What are the normal ratio's of O6/O3 in certain organ's?
5. Why is knowing what your current O6/O3 ratio critical to your Optimal Health?

Today I was getting ready for the **Ancestral Health Symposium** and I struck up a conversation with two UCLA students on the Santa Monica Pier. After about ten minutes, I realized that before today's meeting I had to discuss omega six fats. These two bright kids had the clear impression that omega 6 fats were always pure evil for optimization. I asked them where they got that idea and they told me they got it from popular paleo blogs and books (paleo solution and primal blueprint) they had read and it was reenforced by their peers. I told them both that they just motivated me to go back to my hotel early and begin a new blog before today's first ever Ancestral Health Symposium. So here it goes.

Fish oil never beats the Epi-paleo Rx. **Ever.** A modern microwaved world creates a massive need of DHA and this is why omega 6's are placed in our cell membranes. It is not a diet problem, it is an environmental epigenetic effect.

Many times we hear in the paleo world talk about the wonderful things omega three fats do for us. We also hear about the many bad things that omega six oils can do to us. We rarely hear about why O6 fats are good, or in fact, necessary for proper function. Well, they are folks!!!! In fact, we need them in **EXCESS** as compared to O3 fats! Most invoke the standard American diet (SAD) argument because a processed food diet has 25-40 to one ratio of omega 6 to three ratios compared to an

ancestral diet as outlined by *Cordain et al*. This information is true, to some degree, but the story has many nuances that one needs to understand for optimal health, in my view. Lets take a look at some of the data we should be mindful of.

What exactly are the paths that EFA travel in humans? Is the pathway of all omega six fats inflammatory? Is the current concept of a dietary balance omega-6/3 ratios based on a true biologic reality? We also hear a lot of background posting about the "inflammatory pathway" from linoleic acid (LA) to arachadonic acid (AA) as the main argument against dietary sources of O6 fats. This is the AA pathway that leads to the formation of prostaglandins. Interestingly, the real pathway that O6 fats travel, is not to just foster inflammation, but to also limit it. The redox potential of the extracellular environment is what determines this signaling path the chemicals will travel. Many researchers and bloggers assume that the pathway from AA to PGE2 is a constant finding if we eat dietary excesses of O6 fats. This is not true at all. The interesting finding is that the body only produces PGE2 when it is actually needed by the body. It does not happen with the excess consumption of omega 6 by itself. In fact, most EFA are produced in the human body on an ad needed basis. So, AA is not dangerous in an of itself. The adverse effect idea arose because of the role of AA as a precursor of thromboxane and other eicosanoids participating in activating thrombus formation and the inflammatory process. But this is not the only thing AA does in the human body! If it was, I would never be able to operate on anyone!

AA is a major component of the endothelial [inner arterial lining] phosphoglycerides, particularly on the inner cell membrane layer. AA and adrenic acid are consistent companions in other cell membranes. What many in the ancestral health community do not know is that EPA in the marine food chain limits the amount of AA that we can place in our tissues. It is like an internal control switch if our circadian signaling

is working well. The control switch is optical and uses hydrogen in a unique way. Since most modern humans have an altered circadian signaling today this switch is no longer operational. This is why people get excessive omega 6 levels in their tissues. EPA must come from seafood. AA is not always a bad actor. Consider the following:

AA is the precursor for prostacyclin: a vasodilator and inhibitor of platelet adhesion; it is the most potent platelet inhibitor we know of in nature. This stops the clotting process when it is no longer needed. It is also vital to smooth vascular and laminar flow and allows us to overcome wounds we sustain in injury or create in surgery by helping seal the wounds. If there is damage to the endothelium, such as in bruising, infection or cutting, then the phospholipases release AA. In the free form, and in conjunction with activated platelets, AA is peroxidized to provide eicosanoids for the response to injury. This is how the body is supposed to work. I rely on Omega 6 fats every day in my patients in surgery to get people to clot and off the operating table.

Moreover, in vivo, we never find prostaglandins from omega 3's or from omega 6's acting alone. They act in concert as a violin and violinist would. One without the other is simply useless. PGE1 is made from omega 6 fats and is a fast acting pain inhibiting cytokine that also modulates the immune response to an injury. PGE3 is made from omega 3 fats and has similar function but the PGE1 response is more brisk and powerful to help in wound healing. They always act in unison and are symbiotic. This is why when someone takes too many omega 3's in supplement form we often can see skin bleeding and discoloration and frank internal bleeding. It is also why when our ratio is 40 to 1 due to processed foods we see the opposite end of the spectrum. But we must realize, it is in fact, a spectrum of balance that we need to strive for in concert with the redox potential in the extracellular matrix. This is not the context the ancestral health community talks

about at all.

As explained above, the western diet is estimated to have undergone a huge shift in the omega 6 to 3 content since 1900. Many place the spike in neolithic disease at this concomitant spike over the last 110 years. I do not. ***The biggest problem in my view is the loss of control of the redox potential in the extracellular matrix.*** This links it to the number of electrons and protons in the ECF. Redox is a function of the net negative charge in our cells. Our bodies target ratio's of EFA should still be capable of an oxygen-transference ratio of a maximum of 6 to 1 omega-6 to omega-3 for good functioning. So if you understand biology, humans need more O6 fats than O3 fats normally in their diet to function optimally. This idea shocked the young paleo kids I spoke too. So it should now be clear that AA is not the dark side! If we could get it to two to three to one ratio it likely would be ideal, but with today food sources I think this is rather difficult to do without a lot of money and time.

A word of caution: I am one of the few in this community who think there is a major benefit to 06's in mammalian biochemistry. The real problem we have with 0mega 6's are the sheer number and amount in balancing the 0mega 3's for ideal proper cell membrane signaling. This ratio is critically tied to the environment we are adapted too because this links it to the redox potential of the extracellular matrix. Most in our community fail to realize this point because they really do not understand how mammalians use 0mega 6's to their advantage.

The other interesting factor I have seen few speak of, is the requirement that each organ of the body has for omega 6 and 3 fats. I decided to look into this issue more several years ago when I was researching my own health. I always believed that the brain had a large omega 3 component naturally and it turned out, I was dead wrong. The brain makes up 3{a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5d

a3c6} of our body weight (BW) but has a 100 to 1 ratio of ***06 to 03 within it normally***. By weight the brain isis 80{a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5da3c6} water molecules. Hydrogen bonding networks work in concert with the cell membranes at the atomic level. DHA is critical in the proper selection of the correct amount of lipids within our cell membranes. It appears the 0mega 6 to phosphatidyl choline and phosphatidyl serine ratios are more critical for cell membrane signaling for protein confirmational bending after proteins are made in the brain. This single insight, made me realize that 'mammals do something special' (quantum) with their 0mega 6's for some reason. It turns out this is related to proton function. As the Quilt unfolds, I will tell you more about this.

It appears in certain diseases of the brain the ratio gets dramatically altered and may actually be a good biomarker for us to use diagnosis and prognosis in neurodegenerative disorders. These changes always funnel back to leptin signaling. Skin makes up 4{a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5da3c6} of our BW and has 1000 to 1 ratio normally. Skeletal muscle makes up 50{a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5da3c6} of our BW and sets at a 6 to 1 ratio. Our internal organs, make up 9{a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5da3c6} of our BW have the lowest ratios at 4 to 1. Adipose tissue sits at 22 to 1 ratio and makes up 15-35{a7b724a0454d92c70890dedf5ec22a026af4df067c7b55aa6009b4d34d5da3c6} of our total BW depending on how fat we are. It also turns out DHA levels determine the size and shape of our organs and determine our optimal body composition.

Summing it all up:

THE MOST IMPORTANT FACTOR IN THE O6/O3 ratio is CONTEXT!!!!! This blog was really motivated by a conversation I had

yesterday on the Santa Monica Pier with two college students who were going to attend the Ancestral Health Symposium at UCLA later today. I felt after speaking with them that this blog needed to be written because I think there is many mischaracterizations out there about Omega 6 fatty acids. They should not be vilified indiscriminately. We need a small excess of O6 to O3 normally in a healthy human diet.

The current SAD "grossly" exceeds that normal excess to a great degree. Therefore, we can not and should not vilify all O6 fats. The real problem we face is that certain chronic disease conditions such as obesity, arthritis and ischemic heart disease, is where the damage has already occurred. This situation results from a chronic stimulation of the inflammatory pathways of eicosanoids in response to this neolithic insults. This is evidenced by an elevated HS-CRP, IL-6 or TNF alpha on blood testing. This is not the fault of AA or DGLA in our diets, but it is the original cause of damage of the disease process.

The key point is that we should strive for a diet that limits omega six consumption to the appropriate ratios for human optimization based upon an ancestral biochemistry. This ratio is 2 to 1 to 6 to 1 by most good studies I have read. So when you begin your own trek to get healthy and optimized I would strongly suggest you get your own omega 6/3 ratio drawn so you can see how far your past diet led you astray from what should be ideal……if that number is greater than 6 to 1 and you have active chronic inflammatory markers that are elevated, then your first move should be to bring down the omega 6 content of your diet and increase the dietary consumption of omega 3's before you supplement with fish oil!

My concern is that fish oil supplements are becoming the "proxy" for good dietary choices in our paleo/primal community. Once you get your light cycles repaired with the Leptin Rx, then the diet can be repaired (Epi-paleo Rx) and back to ancestral balances of O6/O3 fats, then you can titrate

the effective dose of supplemental O3 oils to your desired O6/O3 ratio based upon your own blood work. This is the context I use for myself and patients.

If you overdo your fish oil supplementation and don't test you could actually hurt yourself and your cause long term. You may even cause stalls of changes in your VAP and HS CRP levels. It also stops weight loss and can make autoimmune conditions worse. They may also confound you and your doctor because you forgot the context of why this has happened. Remember fish oil in supplement form is a "PUFA too", and it is subject to *serious peroxidation and ALE formation* when it is taken improperly or when it is adulterated. Lipid peroxidation liberates free fatty acids that breakdown down to CO2 and water. That water contains hydrogen isoforms and oxygen that are processed in our mitochondria. So it too can be a double edge sword like the O6 content has been vilified in our community. **REMEMBER CONTEXT is critical for Optimal**!

Fish is best from food, not a pill!

CITES

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