

The following article by **Robert Yang**, Certified Nutritionist, eloquently explains the inflammation process and what simple changes you can make to prevent it:

INFLAMMATION: *Why you may have excessive inflammation?*

Inflammation is a natural process in the body to deal with stress whether it is mental-emotional, physical, chemical, electromagnetic, or nutritional. Inflammation is part of the body’s natural mechanism to start the healing process. If excessive inflammation is present, signs may include:

excessively sore muscles, chronic pain in joints, lacking the ability to recover from exercise or sports.

Essential fatty acids(EFA) play a key role in regulating the inflammatory response in the body. Omega 6 and omega 3 fatty acids are the two essential fatty acids that are important components of all cells in the body. In fact, they make up 50% of the phospholipids that comprise a cell membrane. Although the human body is able to synthesize saturated fatty acids and unsaturated fatty acids (omega-7 and omega-9 fatty acids), it can not synthesize omega-6 and omega-3 fatty acids. Humans do not have the delta-12 and delta-15 desaturase enzymes which are required to produce omega-6 and omega-3 fatty acids. Therefore these essential fatty acids must be obtained through your diet (1).

The EFA’s in the diet are linoleic acid (omega-6) and α-linolenic acid (omega-3). These fatty acids are converted to longer chain unsaturated derivatives, thus linoleic acid is converted to arachidonic acid and α-linolenic acid is converted to eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) (Figure 1 & 2). Omega-6 and omega-3 fatty acids are metabolically distinct and have opposing physiological functions, therefore it is essential they are both included in the diet each day in the correct ratio.

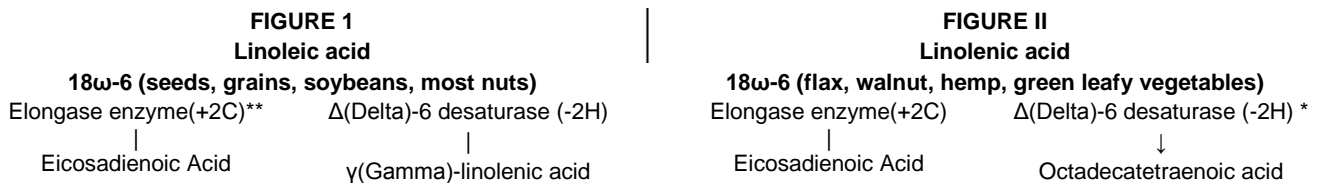
Research has shown that individuals are healthy and vital on a diet with a ratio of omega-6 to omega-3 of approximately 1 to 1 whereas the typical Western diet has a ratio of 15 to 1 or as much as 20 to 1 (2). If there is an overabundance of omega-6 fatty acids (i.e. seeds, grains, soybeans, and most nuts), the end product, arachidonic acid will replace EPA and DHA within cell membranes. This leads to abnormally high levels of biologically active compounds called eicosanoids, which include prostaglandins, thromboxanes, and leukotrienes. An over abundance of these eicosanoids will lead to excessive inflammation in the body.

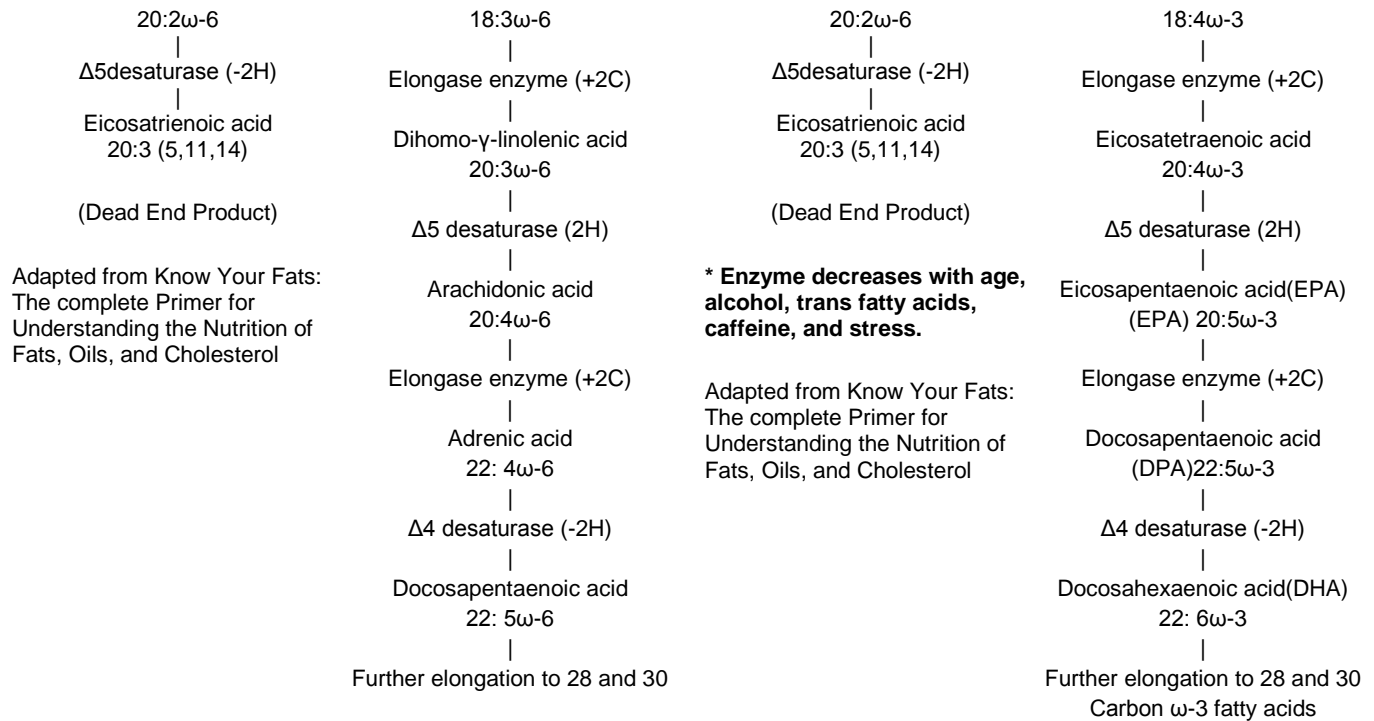
Restoring a more ideal ratio of omega-6 to omega-3 fatty acids is pivotal to reducing inflammation in your body. Proper nutritional changes and supplementation will dramatically affect this ratio. Supplementing the diet with omega-3 fatty acids is a great way to create an ideal omega 6:3 ratio. Flax seed oil is a well known omega 3 fatty acid supplement which is touted as a healthy oil and contains alpha linolenic acid. In order for flax seed oil to be effective, your body must have an enzyme called delta 6 desaturase. The presence of delta 6 desaturase is critical in order to convert flax seed oil to EPA and DHA (Figure 2). If trans fatty acids, coffee, alcohol, and high stress are part of your lifestyle, the amount of delta 6 desaturase is drastically reduced, thus a minimal amount of flax seed oil will be converted to EPA and DHA(3).

Fish oil is an efficient and optimal omega-3 supplement as oppose to flax seed oil and because it is composed of EPA and DHA, the conversion pathway is bypassed. This means that the body will be able to quickly incorporate EPA and DHA into cell membranes and produce rapid effects, thus reducing prostaglandin production and inflammation in the body(2).

The benefit of omega 3 fatty acids will only be reaped if you limit the amount of omega-6 fatty acids in your diet. This is paramount when it comes to reducing inflammation in the body. Be wary of supplements that claim to offer essential fatty acids. Most of these products contain omega-3 fatty acids as well as omega-6 fatty acids. Remember the key to reducing inflammation is to reduce omega-6 and increase omega-3, thus these supplements serve to worsen the omega-6:3 ratio.

Another way to improve your omega 6:3 ratio is to consume meats that are pasture fed and eggs that are organic and free range. For instance, free range chickens roam freely and eat greens, insects, and worms which are the natural diet for chickens. The eggs of free range chicken have an omega 6:3 ratio of 1 to 1, while the conventionally raised chickens have an imbalanced ratio of 20 to 1(4). Switching to pasture fed beef is another way to reduce omega 6-fatty acids and increase omega-3 fatty acids in the diet. Pasture fed cattle have been primarily grazing on grass and contain a higher amount of omega-3 fatty acids. Research has shown that 4% of the fat in wild animals (pasture fed cattle) is eicosapentaenoic acid (EPA) and domestic animals(grain fed) raised on feed lots contain no detectable amounts of EPA(5).





Fish is also a great source of omega 3 fatty acids. Make sure to inquire that the fish you are purchasing is wild and not farm raised. For instance, farm raised salmon contains no significant amount of omega-3 fatty acids. Salmon are supposed to be eating algae, insects, and other wild fish for food, but farmed raised salmon are fed soy and other grains to fatten them quickly which means that farmed raised salmon is unable to provide you with omega-3 fatty acids rather it has nothing but omega 6 fatty acids.

Over consumption of grains is a significant source of omega-6 fatty acids in the diet. Since 1992, the US Department of Agriculture recommended a 'food pyramid' of nutritional recommendations that placed grains at the bottom of the pyramid (i.e. to be eaten 6-11 servings per day). There have been some arguments that the USDA food pyramid and recommendation of 6-11 servings of grains and cereals is misleading and may lead to a deficiency of essential fatty acids in the diet(6). The new USDA food pyramid as of 2005 has reduced recommendations for grain consumption based on age, gender, and activity levels. Although the recommendations for grains have been reduced, the damage has been done with the previous food pyramid. Reducing grains to 1 serving a day or even eliminating grains such as cereals, most breads, pastas, crackers, and baked goods will help you reach a more ideal omega 6:3 ratio.

If you find yourself taking over the counter anti-inflammatory drugs on a daily basis to deal with excessive inflammation, proper supplementation and nutritional changes are effective ways of reducing inflammation. Make sure to use high quality fish oils that have been tested for heavy metals. Proper dosages are important to impart a physiological effect on the body. The optimal dosage of fish oils is 1-2 capsules per 50 pounds of bodyweight. For example, if you weigh 150 pounds, the optimal dosage would range from 3-6 capsules per day. Fish oil supplementation will always be optimized with proper nutritional changes. Make sure to limit or eliminate grain consumption, eat organic and free range animal foods, and use healthy oils such as organic butter, coconut oil and olive oil. Making these changes will ensure that your body will be in a anti-inflammatory state.

References:

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Anti-inflammatory herbs. Many herbs have powerful anti-inflammatory actions. Here’s just a sampling.

At OSC we provide a high quality Boswellia Complex that contains Boswellia, Ginger, Celery Seed and turmeric. It is recognized in for its anti-inflammatory benefits. Today scientists studying extracts of boswellia report that it can switch off key cell signalers and pro-inflammatory mediators known as cytokines in the inflammatory cascade.

Ginger (*Zingiber officinalis*). Valued for centuries the world over for its medicinal qualities, ginger today is being studied by biochemists and pharmacologists interested in its analgesic, anti-inflammatory, anti-nausea, and sugar-moderating effects in the body. In the past 30 years or so their work has confirmed how ginger shares properties with conventional over-the-counter and prescription NSAID’s, in that it suppresses the synthesis in the body of the pro-inflammatory molecules known as prostaglandins — but with few if any side effects. Recently, however, an even more exciting body of work is emerging that shows how ginger extract can actually inhibit or deactivate genes in our body that encode the molecules involved in chronic inflammation.

Turmeric (*Curcuma longa*), an ancient culinary spice native to South East Asia, has been used as an anti-inflammatory agent for centuries in Indian Ayurvedic medicine. Also known as curcumin, it is a mild COX-2 inhibitor, but works differently from the prescription-strength drugs that can increase your risk of myocardial infarction or stroke. Like Boswellia and ginger, it seems to inhibit joint inflammation by preventing the production of prostaglandins and activation of inflammation-regulating genes through its effects on cell-signalling.

STD PROCESS SUPPLEMENTS:			
<input type="checkbox"/>	Cardioplus	240 Tablets	2 Tablets, 3 x p/day with meals for antioxidant support
<input type="checkbox"/>	Omega 3 Fish Oil	120 Perles	2 Perles, 2 x p/day with meals for EFAs
<input type="checkbox"/>	Boswellia Complex	30 Tablets	1 tablet 2-4 times daily for systemic inflammation.
Your practitioner may increase doses for acute inflammation.			

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