

# **Omega Three Fatty Acids and More....**

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## **The Truth about Fat**

Fats are an essential yet misunderstood part of our diets. Over the past thirty years there has been a trend to vilify fat consumption as the culprit in rising rates of obesity, heart disease, certain cancers and other medical problems. Yet, this is only part of the story. Fats eaten in balanced proportions and the right kinds of fats actually enhance metabolic and neurological functioning of the body. Research does show that certain fats, such as omega-3 fatty acids, reduce inflammation and may help lower the risk of certain chronic diseases such as heart disease, cancer, and arthritis. Omega-3 fatty acids are highly concentrated in the brain and are important for cognitive performance and behavioral function.

## **Fat Metabolism 101**

There are many different kinds of fats. It is common knowledge that unsaturated fats are preferable to saturated (animal based) fats. Of the unsaturated fats, poly and monounsaturated, the monounsaturated fats are the most healthful. When we talk about "saturation" of fats we are referring to the actual chemical structure of a fat. A saturated fat is stiff because in the chemical structure all of the carbon and hydrogen atoms that make up the fat are linked together. An unsaturated fat is fluid because there are still positions on the carbon and hydrogen atoms that are not linked together. Another important term to understand is hydrogenation. This is a common term seen on most snack food labels. Hydrogenation is a process of chemically altering fat by adding additional hydrogen bonds. Manufacturers like it because it makes products crispier and extends their shelf life. However hydrogenation comes at a high price to one's health. Hydrogenation produces toxic free radicals, removes nutrients from fats, and can cause heavy metal contamination. What we now commonly call "trans" fats are formed by the process of hydrogenation. There is such universal agreement that hydrogenation and trans fat are unhealthy and may be harmful that there has been an ongoing health campaign to remove trans fats from all food. Most foods are now advertised as "trans fat free or 0 g of trans fat" in an effort to attract consumers. It is also important to have a balance of the kinds of fats in one's diet. Western diets are notorious for an overabundance of omega 6 fatty acids and too little omega 3 fatty acids. The typical American diet has 15-20 times the amount of omega 6 (found in most snack foods from nut and seed oils) to omega 3 fatty acid. There is significant solid evidence that this overabundance of omega 6 has a pro-inflammatory effect in the body worsening the risk of cancer, heart disease, diabetes, arthritis and other diseases.

## **Heating and Cooking Oils**

It is important to know that even healthy fats and oils can become harmful if used improperly when cooking. It is important to know which oils are suitable for deep-frying and high temperatures. For example peanut and canola oil are suitable for high temperatures or frying, olive oil for sautéing or use in dressings and dips.

## **Biochemistry of Fats**

Fats play many essential roles in the body. Fats are an important part of cell membranes throughout the body, particularly in the brain, which is 50% lipid or fat material. When unsaturated fats are incorporated into cell membranes there is greater fluidity and nerve cell membranes function optimally. When saturated, hydrogenated, or chemically altered fats are consumed the opposite occurs and nerve conduction is sluggish and inefficient.

## **Essential Fatty Acids**

Essential fatty acids comprise brain tissue and produce different circulating substances in the body, some harmful and some helpful. The essential fatty acids consist of what are commonly referred to as the omega 3 fatty acids: DHA and EPA. These fats are used for structural, hormonal and electrical functions in the body not for energy. There have been some well-designed published research studies looking at the effects of the essential fatty acids on neurological function. Recently a decision was made to supplement all infant formula in the United States with DHA, as there is overwhelming evidence of its importance in the development of the nervous system. There have been several studies showing positive benefit in supplementing with omega three fatty acids in ADHD, and

Autism, though this remains an open area of inquiry. The evidence is far from fully established. There also have been some published studies finding benefit in Bipolar Disorder, Depression, and general behavioral problems in children.

Questions remain about the amount needed in supplementation and the proper ratio of DHA and EPA, but there is growing consensus that these fats play a critical role in the physiology of the brain and EPA: DHA ratio should be a minimum of 3:2. For ADHD at least 1 g (1000mg) per day of EPA is recommended. It is also known that pregnant women need more DHA than EPA. Our heavily processed western diets have become devoid of the essential fatty acids, which is why there is presently concern about supplementing the diet. There has been a dietary shift over time, our plants and game have less omega three fatty acids, for example beef that is now grain fed as opposed to grass fed, is virtually devoid of any omega three fatty acids. Similarly farm raised fish eat grain not algae so they too are devoid of the omega three fatty acids. Interestingly, demographic research has shown that countries that consume more ocean caught fish have a lower incidence of schizophrenia and depression in the general population.

### **Guidelines**

As a general guideline the following recommendations will help families get the most out of the fats they consume:

1. Choose the right oil for the right job. For high temperature cooking or deep-frying the best choices are peanut or canola oil. For lower temperatures or salad dressings olive oil is an excellent choice.
2. Fish consumption can be very beneficial for the omega three fatty acids they contain but remember farm raised fish will not have this benefit. Fish produce the omega three fatty acids by consuming blue green algae found in the ocean. The best fish are deep-water ocean caught cold water species such as salmon, striped sea bass, pompano, Atlantic cod, anchovy, bluefish and herring. Consumption should be limited to 2-3 times per week due to heavy metal contamination. Remember even salmon, one of the best sources of omega three fatty acids, will be nutritionally deficient if it is farm raised. Specialty markets are now one of the only sources of ocean caught fish.
3. Flax seed products are metabolized in the body to make omega three fatty acids. However, individuals differ in their ability to convert flax to DHA and EPA. Flax in excess of 3 tablespoons a day has been linked with an increased risk of prostate cancer. Flax can be healthful but care must be taken to consume the best sources in the correct amounts.
4. When choosing to supplement with omega three fatty acids choose a reputable brand such as: Nordic Naturals, Carlson, or Country Life among others. For the most up to date recommendations look at impartial third party websites such as [www.consumerlabs.com](http://www.consumerlabs.com) for specific product recommendations. For children a major stumbling block is the size of the pills. There are a few products designed especially for children such as "Coromega" ([www.coromega.com](http://www.coromega.com)) which is like a pudding in comes in single dose servings, and Nordic Naturals ([www.nordicnaturals.com](http://www.nordicnaturals.com)) which has a line of liquids and dissolvable products. Once again always investigate the purity and reliability of a product. Dosing recommendations are not specific at this time but as a general guide 1g/day of an EPA: DHA blend of 3:2 seems to have the most data. Some studies suggest much higher doses of 2-4g of EPA per day.
5. Purity of product is important you do not want to use a product with heavy metals or other contamination.
6. For more specific nutritional information the following books are recommended: The Omega Rx Zone, by Barry Sears, The Omega Connection, by Andrew Stoll, Fats That Heal, Fats That Kill, by Udo Erasmus.