

# James L. Holly, M.D.

## Omega 3 Oil - Health Benefits - Part I

By: James L. Holly, MD

True or false -- all fats are bad? Low fat diets have become all the rage, but is "low fat" an adequate descriptor for determining dietary choices? Are all fats equal? Think about that. The healthiest food for a baby is breast milk, yet it contains a great deal of fat. Does that make it unhealthy? And, if all fats are not unhealthy, which ones are and which ones aren't?

Perhaps the simplest way to determine whether a fat is healthy or not is to look at its form at room temperature. The polyunsaturated fatty acids and the monounsaturated fatty acids, which we will learn are good for you, are liquid at room temperature. Oils such as olive, canola and fish oils are all in a liquid form at room temperature. The saturated fatty acids are all solid at room temperature. Butter and lard are the two most common dietary sources of these unhealthy fats. Remember what happens when you make soup with fatty meats? When the soup cools, a layer of white, solid material congeals on the surface. That's "lard," or unhealthy saturated fat.

The subtle differences in fatty acids which determines whether they will be solid, or liquid at room temperature produce vastly different chemical affects on the body.

### **Four major categories of fat listed on food products:**

1. *cholesterol*
2. *Saturated fatty acids -- found in beef, veal, lamb, pork lard, poultry, butter, cream, milk, cheese, cookies, crackers, coconut and palm oil.*
3. *monounsaturated fatty acids -- found in olive oil, nuts such as almonds, cashews, macadamia nuts, and avocados.*
4. *polyunsaturated fatty acids*

**Trans fats** are also hazardous to health. More stable than even saturated fats, they increase the shelf life of foods but contribute to heart disease. Trans fats are found in all processed foods. Trans fats should be avoided at all costs. Soon, food manufacturers will be required to list the trans fat content of their products. Presently, they do not. However, any time a food is said to be "partially hydrogenated," it contains harmful trans fats.

## **Saturated Fatty Acids**

Whether a fatty acid is saturated or unsaturated refers to the number of carbon atoms in the long-chain fatty acid. If all of the carbon molecules in the long-chain fatty acid have the maximum number of hydrogen atoms attached, the fatty acid is said to be "saturated." This means that it cannot acquire any more hydrogen atoms -- it is saturated with hydrogen. Thus when processed foods are said to be "hydrogenated," or "partially hydrogenated," it means that hydrogen atoms have been forced onto the long-chain fatty acid. This produces an unhealthy and destructive "trans fat" which you should avoid like the plague.

## **Unsaturated Fatty Acids**

If a fatty acid has carbon atoms which possess "double bonds" with oxygen, rather than a single bond with oxygen and another single bond with hydrogen, it is said to be unsaturated. In most instances, unsaturated fatty acids are healthy. If the fatty acid has multiple double bonds, it is said to be "polyunsaturated." If it has a single double bond, it is said to be "monounsaturated."

As polyunsaturated fatty acids, both Omega-6 and Omega-3 have multiple double bonds. The first double bond in the omega-6 class begins at the sixth carbon atom from the end of the chain. Omega-3 fatty acids differ in a subtle yet crucial way, in that they have their first double bond at the third carbon position. This one difference -- the absence of only two hydrogen atoms -- is what makes the omega-3 fatty acids unique and essential for your health.

## **Cholesterol**

Like other lipids, cholesterol cannot dissolve in the blood-stream, which is mostly water, and must be transported throughout the body by carriers in the blood called lipoproteins:

**The low-density lipoproteins (LDL)** -- too much LDL can promote atherosclerosis -- hardening of the arteries and heart disease.

**The high density lipoproteins (HDL)** -- apparently carries cholesterol away from the arteries and back to the liver, where it is passed from the body. Some believe that HDL can actually break down the cholesterol in plaque, potentially leading to a reopening of partially clogged arteries.

## **Health benefits of Omega-3 Oils**

Already known to lower the risk of having a heart attack and protecting against sudden death during a heart attack, polyunsaturated fats of the omega -3 class may also be responsible for protecting against arthritis, diabetes and some psychiatric disorders. The reason is their ability to control many of the most basic functions of the cell. Omega-3 fatty acids are vital nutrients controlling energy production within each cell. They are

also converted throughout the body to myriad messenger molecules essential for influencing a host of physiological functions. They are also the major building blocks of cellular membranes surrounding every cell in the body.

The following implications of omega-3 deficiency have been suggested:

1. Beginning in pregnancy, premature birth and its potential neurologic complications may result from omega-3 deficiency.
2. Babies who are bottle-fed or born from omega-3 deficient mothers will lack the omega-3 fatty acids necessary for optimal cognitive and visual development.
3. Children deprived of omega-3s may have less ability to pay attention and control impulsive behavior and may be at higher risk for depression.
4. Teenagers and adults with omega-3 deficiency may be more prone to hostility or violence.
5. In aging, the loss of omega-3 fatty acids in the brain may result in a higher risk of stroke, memory problems, or dementia.
6. Individuals of any age without adequate amounts of omega-3 fatty acids in the brain and body may also be at higher risk for depression, bipolar disorder and other psychiatric disorders.

### **Pathways to Health**

1. The omega-6 and omega-3 fatty acids become incorporated into cell membranes. Without omega-3s and 6s, cell membranes will incorporate saturated and other types of fats. Membrane walls rich in omega-3 fatty acids will be more fluid because polyunsaturated fats have lower melting points than saturated fats. Among the health benefits that may result from a diet high in omega-3 oils and the ideal fluidity of cell membranes, are superior cognition and visual development in babies and lower risk for cardiovascular disease in adults.
2. In the second pathway, essential fatty acids are converted to a series of intermediate molecules and then ultimately to hormone like substances called the eicosanoids (more about these later), an umbrella term for several classes of cell-signaling molecules, most notably the prostaglandins. The prostaglandins mediate the "inflammatory process," which fights infection, heals tissue injury and performs a multitude of other functions within the immune system, the cardiovascular system and even the brain.

### **Omega-3s Save lives by:**

1. Reduced risk of first heart attack by 20-40 percent
2. Reduced risk of sudden death during and after a heart attack by 20-40 percent
3. Slightly lower blood pressure
4. Reduction in serum triglycerides
5. Reduction in LDL cholesterol

## **Omega 3s and Diabetes**

Excess omega-6 fatty acids along with a deficit of the omega-3s may contribute to insulin resistance and omega-3 fatty acid supplements may decrease insulin resistance or even prevent the development of diabetes. There is a link between omega-3s and weight loss.

## **Omega 3s and Immunity**

Rheumatoid arthritis, Cronin's disease, Lupus and asthma all seem to involve the omega-6 and omega-3 fatty acids. An Italian study published in the *New England Journal of Medicine* shows that omega-3 fatty acids may offer the possibility of an alternative or adjunctive treatment. A St. Louis study found that supplements of omega-3 fatty acids were beneficial to patients with another inflammatory bowel disease -- ulcerative colitis.

## **Dietary Recommendations**

### **Protein**

We do not need the large amounts of protein most Americans eat. Try to eat some protein with each meal. Fish is a good protein source. Few-range animals that have grazed on wild plans are better than corn-fed beef. Commercial eggs from chickens fed fishmeal are now available and some brands contain very high amounts of EPA and DHA. Egg yolks are extremely good for you. The yolk naturally contains lutein and zeaxanthin, which are light-absorbing biochemical pigments that are powerful antioxidants. They may protect the lens of the eye from cataract formation due to oxidative damage by ultraviolet radiation. If you limit yourself to one egg per day, the cholesterol content should not be excessive.

### **Carbohydrates**

Root vegetables -- turnips, carrots, tubers, sweet potatoes and yams are rich in vitamins, minerals, fiber and bioflavonoids. Limit the amount of carbohydrates from cereals and processed four, and cut out high carb, high-fat foods such as potato chips, French fires, and other fast foods.

### **Fats and Oils**

It is essential to cut down on all fats and oils except omega-3 oils. For cooking oils use olive or canola. Olive oil contains the most oleic acid, a monounsaturated fat, which is an important component of cell membranes.

### **Ways to Increase Omega-3 Fatty Acids in your diet**

1. Eat cold-water fish, such as salmon, trout, tuna, sardines, herring, and anchovies. Eating these fish just once a week helps reduce your risk of a heart attack.
2. Add Omega-3-rich flaxseed oil to salad dressings, and drizzle it on top of cooked cereals and vegetables.

3. Add chopped walnuts or ground flaxseed on top of cereals or salads, or baked goods, or eat a few walnuts as a snack.
4. Try to find Omega-3 enriched eggs and meats. A number of egg producers are now using a mash that has been enriched with omega-3 fatty acids, either from fish meal or flaxseeds; some also contain added vitamin E.
5. When you're lucky enough to find it, choose meat and milk products from free-range animals that eat omega-3-rich grass and insects (rather than those fattened up on omega-6-rich grains).
6. When available, try game meat such as venison, buffalo, or game birds; they have a fatty-acid profile more closely resembling the fatty-acid profiles of the wild meat our ancestors ate.
7. Look for other omega-3-enriched foods. One such product is Millina's Healthy Kitchen organic pasta sauces, with added omega-3 nutrients (and on fishy taste).
8. Eat your veggies – specifically, the dark-green, leafy ones. Good sources of omega-3 fatty acids include romaine lettuce, mesclun mixed greens, arugula, kale, collards, mustard greens, and Swiss chard.

If you don't like fatty fish or any of the other food ideas listed here, consider taking omega-3-containing fish-oil supplements (with vitamin E to prevent rancidity). Next week, we'll continue examining the health benefits of Omega-3 oil. Further reading which I would recommend, and, from which sources much of the above information came, are: *The Omega-3 Connection* by Andrew L. Stoll, MD and *The OmegaRx Zone* by Dr. Barry Sears.

It is probable that you will never consume enough fish oil via your diet and therefore one of the following three fish oil supplement sources are recommended:

1. USANA, [www.usana.com](http://www.usana.com)
2. Omegabrite, [www.omegabrite.com](http://www.omegabrite.com)
3. Sears Lab, [www.searlabs.com](http://www.searlabs.com)

By the way, you may wonder, "How much does this doctor believe in fish oil supplements?" I have my grandchildren taking them every day. Enough said? Each day, my daughter tells me that my grandchildren have been "lubed (fish oil) and cubed (anti-oxidant and vitamin supplement)."

Remember, it is your life and it is your health.