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The Benefits of Fatty Acids By: James L. Holly, MD

What Do Fatty Acids Do?

Fatty acids help to:

- maintain the health of cell membranes,
- improve nutrient use, and
- establish and control cellular metabolism.

They also provide the raw materials that help in the control of:

- blood pressure,
- blood clotting,
- inflammation,
- body temperature, and
- other body functions.

Fatty acids are consumed in the greatest quantities in fat. Although many people are encouraged to consume less fat in their diets, fat is still an important component of a healthy body.

Fat:

- Stores the body's extra calories,
- Helps insulate the body, and
- Protects body tissues.
- Is also an important energy source during exercise, when the body depends on its calories after using up available carbohydrates.
- Helps in the absorption, and transport through the bloodstream, of the fat-soluble vitamins A, D, E, and K.

A Salmon a Day MAY Keep the Doctor Away

Today doctors advise people at risk for heart disease to take an aspirin a day. Maybe soon they'll also advise eating salmon every week. In recent studies, people who ate enough fish to get 5.5 grams of omega-3 fatty acids in a month (that works out to a 3-ounce serving of salmon weekly) had only half the risk of cardiac arrest as people who ate no omega-3s (Journal of the American Medical Association, Nov. 1, 1995). Researchers speculate that the omega-3s (special fatty acids abundant in only a few types of fish) may help fortify heart muscle cells against unstable heartbeats. Here's some more good news: Dietary omega-3s seem to take effect quickly. They show up in cell membranes within days to weeks.

There are other benefits to Omega-3 fatty acids, also.

Rheumatoid arthritis relief

Some patients taking omega-3 supplements report less joint pain and less morning stiffness. There does not seem to be a benefit with the more common form of arthritis, osteoarthritis. The American College of Rheumatology recommends eating fish more often, but has not recommended "fish oil supplements" until more is known about their long term safety.

Healthy brain function

Omega-3 fats may be helpful in mood and brain disturbances. For example, recent research at Purdue University showed that boys with attention deficit disorder who had lower levels of omega-3 fats in their brains had more behavior problems. Studies are underway to see if omega-3 supplements can improve the boys' behavior. It clearly seems to work for some. The researchers advise adding more fish into children's diets until more is known about the long term safety of supplements.

Colitis fighter

Bowel diseases such as Crohn's disease and ulcerative colitis lead to pain, weight loss, and tremendous suffering. Washington University researchers in St. Louis saw dramatic improvement with fish oil supplements, including weight gain, less inflammation, and less need for medications such as prednisone.

Blood triglyceride control

Fish oil supplements may be helpful in lowering blood triglyceride levels in patients with high blood levels.

Cancer fighter

Omega-3 fatty acids have been shown to suppress tumor growth in animals. In humans, Japanese women have only a third as much breast cancer as American women. Heavy use of foods such as fish and soy in the Japanese diet may be responsible.

Precautions with supplements?

At present, the best evidence is that “whole foods,” naturally occurring substances which contain the targeted nutrients, are the preferred sources from which to acquire Omega-3 and Omega-6 fatty acids. Because these fatty acids can, in large amount, hinder blood clotting, large doses of fish oil could result in rare strokes or other bleeding disorders. This is a concern for anyone taking other blood thinning agents such as coumadin or aspirin. Before anyone with a history of GI bleeding or who takes blood thinning medication of any kind, begins taking supplements of fatty acids, they should consult with their physician.

Another Chemistry Lesson

What Is an Omega-6 or an Omega-3 Fatty Acid?

Polyunsaturated fatty acids have been extensively researched. They include the essential fatty acids linoleic acid (an omega-6) and alpha linolenic acid (an omega-3). You may remember that “polyunsaturated” means that the fatty acid does not have all of the hydrogen atoms which it could have. So at the point of being “polyunsaturated,” the carbon to carbon bond is a double bond. In the Omega-6 fats, the first double bond is at the sixth carbon atom and in the Omega-3 fats, the first double bond is at the third carbon atom. Where this first bond is affects the action and activity of these fatty acids.

Linoleic Acid – Omega-6 Fatty Acid

Linoleic acid is an essential fatty acid, which means that the body cannot produce it, so it must be obtained in the diet. Linoleic and another fatty acid, gamma-linolenic, or gamolenic, produce prostaglandins which are:

- Substances found in every cell,
- Are needed for the body's overall health maintenance, and
- Must be replenished constantly.

Linoleic acid is an important fatty acid, especially for the growth and development of infants. Research now shows that the omega-6 fatty acid, linoleic acid, should be taken in at a level of about 3 grams per day to provide only about 1% to 2% of each day's calories. Our current consumption is about six times per day greater than the amount required for the prevention of deficiency symptoms. Americans may be consuming too much linoleic acid. The overall health effect may be negative.

Where Is the Omega-6, Linoleic Acid Found?

Linoleic acid is found in fish oil, meat, milk, and other dairy products. It is also a constituent of many vegetable oils, including, sunflower oil, and safflower oil. Commercially produced linoleic acid is used in margarine, animal feeds, emulsifying agents, soaps, and drugs.

Back to Omega-3 Fatty Acids

Omega-3's are not abundant in the human food chain and particularly in the western and American diets. There are no Omega-3s in corn oil and very little in soy oil, the two most widely used food oils. Therefore, nearly all the early research with polyunsaturated oils utilized omega-6 fatty acids, predominantly as linoleic acid. Fish oils were apparently neglected they are also cholesterol-containing oils. Researchers finally turned their investigations to the interrelationship between dietary omega-6 and omega-3 fatty acids.

Omega-3s in Fish

More than 1,000 milligrams

Salmon (most), Anchovies, Sardines, Halibut (Atlantic), Shark, Herring, Mackerel, Trout (Brook), Trout (Rainbow), Tuna (Albacore)

500-900 milligrams

Halibut (Pacific), Striped sea bass, Rockfish, Swordfish, Salmon (Chum), Turbot, Smelt, Tuna-yellow fin, Squid, Whitefish

Less than 500 milligrams

Abalone, Grouper, Orange Roughy, Shrimp, Catfish, Haddock, Oysters, Snapper, Clams, Lobster, Perch, Sole, Cod, Mahi Mahi, Pike, Trout (sea), Crab, Mussels, Pollock, Trout (brook), Flounder, Octopus, Scallops

Creating the Right Balance between Omega-6s and Omega-3s

Remember, Prostaglandins are made from Fatty Acids. Prostaglandins are important cellular regulators that control inflammatory processes in the body. Fish oils may be useful adjuncts in protocols which deal with:

- Cardiovascular disease,
- Hypertension, Arthritis and other inflammatory disorders,
- Psoriasis and other skin problems,
- Kidney disease and maybe even
- Multiple Sclerosis

Prostaglandins affect many aspects of health both positively and, in some cases, negatively. All known prostaglandins are formed from the essential fatty acids linoleic

acid (omega-6), linolenic acid (omega-3), their "enhanced" derivatives, and from the omega-3 fatty acids in fish oils.

However, too much linoleic and/or linolenic acid can produce negative health consequences. Large amounts of any of these unsaturated fatty acids in the diet without an increase in antioxidant nutrients can result in accelerated aging while increasing the risk of degenerative diseases. This risk can be eliminated by balancing the diet with "whole food" vegetables, fruits and other anti-oxidant containing foods.

A balanced ratio of both omega-3 and omega-6 fatty acids in the diet offers very positive health benefits. When omega-3 fatty acids predominate, the body will produce less arachidonic acid which can result in immunity improvement and the decrease of inflammation in the body. Unfortunately, our western diet is almost devoid of omega-3 fatty acids.

What Then Should I DO?

Next week, we will conclude this discussion with more information about Omega-3 fatty acids. For now, you should determine to eat more fish and vegetables. If you consider taking a fish oil supplement, make sure that you are not taking a blood thinner and if you are, talk to your doctor before you start the supplement.

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