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**Omega-3 Fatty Acids and Your Health**

**By Cheryl Winter, M.S., R.D., R.N.**

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Overview:

While you know "omega" as the last letter of the Greek alphabet, and meaning, "the end," it is doubtful that you have heard the end about "omega-3 fatty acids." In fact, you'll be hearing more and more about this long-chain fatty acid and how important it is to your health, and how American diets should be increased in this nutrient.

Isn't FAT a Four-Letter Word?"

No! Fat is not a bad word! It's understandable that people have come to believe that all fats are bad for them. For over two decades, dietary guidance has emphasized the importance of choosing a diet low in fat, saturated fat, and cholesterol. However, this is wrongly interpreted by consumers to mean that all fat is bad and should be eliminated from the diet. In fact, omega-3 fatty acids (and omega-6 fatty acids) are building blocks of every living cell in the human body, and are absolutely essential for normal health and development. Since the human body is unable to synthesize omega-3 and omega-6 fatty acids, and must obtain them through diet, they are called "Essential Fatty Acids (EFA's)."

Dietary Fats 101:

To have a clearer picture in understanding the classification of omega-3 fatty acids, let's review the three major categories of dietary fats:

Saturated Fats

Monounsaturated Fats

Polyunsaturated Fats

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As you probably are already aware, these three major categories have various effects on blood cholesterol.

Saturated fats, in general, are shown to elevate LDL-cholesterol (the "bad" cholesterol), the type of cholesterol considered to be a major risk factor for heart disease. In contrast, diets higher in monounsaturated and polyunsaturated fats are known to decrease the "bad" LDL-cholesterol, without lowering the "good" HDL-cholesterol. In addition, when monounsaturated fats are consumed in greater amounts, studies indicate these individuals have lower cholesterol levels.

Within the "Polyunsaturated Fats" exists two subclasses of fatty acids (the EFA's):

Omega-3 Fatty Acids

Omega-6 Fatty Acids

Don't We Already Get Too Much Fat in the Diet?

It would appear from our nation's obesity epidemic that we must be getting too much fat in the diet. And, indeed, that is the case. However, obesity is not just caused from excess fat, but from a multitude of problems, including excess calories (from all macronutrients, not necessarily just from fat), as well as from inactivity.

No matter what type of fat one consumes, each type has the same amount of calories and when eaten excessively without balancing with activity, will contribute to weight gain. However, in addition to being concerned about getting too much fat in the diet, one needs to be concerned about the ratio of omega-6 fatty acids to omega-3 fatty acids in the diet.

Beyond the Basics:

Omega-3 Fatty Acids

The principle omega-3 fatty acid is alpha linolenic acid (ALA). A healthy person will convert ALA into, and then into docosahexaenoic acid (DHA). In other words, ALA is the precursor to EPA and DHA, which are the omega-3 fatty acids that have the significant benefits (see specific foods below).

So, even if we get adequate ALA in our diets from plant sources, such as flax, walnuts, soy, and canola oil, the body must still convert it to the important EPA and DHA. EPA and DHA, however, are found primarily in fish and fish oils, and when these foods are consumed, the body does not have to convert them. The important omega-3 fatty acids, then, for health are:

ALA

EPA

DHA

Omega-6 Fatty Acids

## Omega-3 Fatty Acids and Your Health

Linoleic acid is the principal omega-6 fatty acid, and it is abundant in most cooking oils, including sunflower, safflower, soybean, and corn oil and processed foods. A healthy person will convert linoleic acid into gamma linolenic acid (GLA), which is then synthesized with EPA from the omega-3 fatty acid group, into eicosanoids. Eicosanoids are hormone-like compounds that aid in many body functions, and promote heart health by preventing blood platelets from clotting and sticking to the artery walls—effects that are similar to those observed with aspirin. Decreased clotting helps reduce the chances of blockages in an artery and thereby decreases the risk for heart attack or stroke. Eicosanoids also play a role in the reduction of inflammation, significant in heart disease, as well as other diseases like arthritis, lupus, asthma, diabetes.

However, in addition to the GLA that is produced from linoleic acid, GLA is also further metabolized to arachidonic acid, which has been shown to have properties of increased inflammation and increased

clotting, thereby having potentially negative effects on health. These potentially negative effects, however, are minimized, if omega-6 fatty acids are in the proper amounts.

When the amounts of linoleic acid (omega-6 fatty acid) are too high, the conversion of ALA (omega-3 fatty acids) to the EPA (the biologically active form of omega-3 fatty acids), is reduced, and more of the GLA is used to make the more harmful arachidonic acid, than is used to make the more beneficial EPA. As complicated as this sounds, this is a very simplified explanation of the process.

To overcome the potential negative effects of the arachidonic acid, supplementation with GLA-rich foods such as borage oil, black currant seed oil, or evening primrose oil, has become popular. However, this is very controversial, with no scientific evidence to support it, and could be harmful, since GLA is eventually converted to arachidonic acid, thereby, defeating the purpose. Therefore, extreme caution should be used with these products.

How Much of the Fatty Acids do We Need:

Why are our diets too high in omega-6 fatty acids and too low in omega 3-fatty acids?

Human beings evolved consuming a diet that was much lower in saturated fatty acids than is today's diet. Furthermore, the diet contained small and roughly equal amounts of omega-6 and omega-3 fatty acid (ratio of 1-2:1) and much lower amounts of trans fatty acids than does today's diet. Contrast this to the modern American diet in which the ratio of omega-6 to omega-3 fatty acids is greater than 10:1, partially due to the indiscriminate recommendation to substitute omega-6 fatty acids to lower serum cholesterol concentrations.

In addition, intake of omega-3 fatty acids is lower today because of a decrease in fish consumption, as well as to the mass production of omega-6 oils like corn, safflower and peanut oil, which are widely consumed in our food supply. Our farm animals are fed with grain (as opposed to greens in the wild) and yield meat and eggs also high in omega-6 fatty acids. This also includes farm raised fish which are fed grains. Even cultivated vegetables contain fewer omega-3 fatty acids than do plants in the wild. Modern agriculture, with its emphasis on production, has decreased the omega-3 fatty acid content in

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many foods.

Cardiovascular benefits derived from the consumption of the marine omega-3 fatty acids were first noticed during epidemiological studies in the Greenland Inuits, an Eskimo population that consumed large amounts of traditional marine mammals and fish, and had little mortality from coronary artery disease. EPA and DHA are found to be in abundance in cold-water fish, such as salmon, trout, mackerel, and tuna. Fish do not make these fats but obtain them from the plankton they eat; the colder the water, the more omega-3's the plankton contains.

Plain English, Please!

This is obviously a very complicated subject, and scientists continue to study and discover new links to how fats affect our health. In the mean time, here is the best available nutritional advice, in regards to the omega-3 fatty acid issue:

Although we need to increase the amount of omega 3-fatty acids in the diet (from plants and fish), this

will not be totally effective without decreasing the amount of omega-6 fatty acids in our diet, especially if only plant based omega-3 fatty acids are consumed. Too much omega-6 fatty acid will inhibit the conversion of plant-based ALA to EPA, thereby reducing the full benefits of the omega-3 fatty acids. This is more of an issue for vegetarians who do not eat fish, however.

To some degree, by increasing omega-3 fatty acids, you will be decreasing your intake of other fats. It is still recommended by health-promoting organizations, such as the American Heart Association to:

Limit harmful saturated fats found in animal products, such as full-fat dairy products like whole milk, ice cream, hard cheeses, as well as cakes and cookies, and fried foods. Limit total fat to approximately 30% of caloric intake. The good monounsaturated fats, such as found in foods like olives and olive oil, canola oil, avocados and nuts, continue to be essential in our diets.

Because omega-6 fatty acid is still an essential fatty acid, it should not be totally eliminated, but its intake can be limited by reducing the intake of processed foods, such as crackers, chips, cookies, cakes and fried foods.

The minimum healthy intake for both omega-3 and omega-6 fatty acids per day in adults is 1.5 grams of each. One tablespoon of flaxseed oil can provide this amount, or larger amounts of other omega 3-fatty acid-rich foods can be consumed. The best scientific evidence suggests an intake of omega-3 fatty acids of at least 650 mg per day. There is strong evidence that consuming considerably more than 650 mg per day provides even more health benefits. The average American diet contains less than 200 mg per day of the omega-3 fatty acids EPA and DHA.

Omega-3 Fatty Acids Rich Foods:

Plant Products

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(high in ALA)

flaxseed  
tofu  
walnuts  
canola oil  
wheat germ  
green leafy vegetables  
(spinach, mustard greens, purslane, collards)

Animal Products

(high in EPA & DHA)

salmon  
herring  
mackerel  
bluefish  
sardines  
albacore tuna  
halibut

Benefits of Omega-3 Fatty Acids:

- promote cardiovascular health
- increase memory and learning ability
- helps brain & vision development of infants
- decreased development of age-related macular degeneration (AMD)
- reduces risk of stroke and hypertension
- improves regulation of heartbeat
- helps boost immune system (defends against cancer)
- promotes natural joint flexibility and mobility (decreases rheumatoid arthritis)
- reduces symptoms of depression
- reduces risk of dementia, e.g. Alzheimer's disease
- reduces the amount of triglycerides released into blood
- increases HDL levels

Other Important Facts:

- Eating two to three, 3-ounce servings of fish per week is supported by the American Heart Association, with at least two servings from fish high in EPA and DHA
- Avoid fish with potential high levels of toxins and pay attention to advisory warnings for eating fish from questionable waters
- Children and pregnant and lactating women should consume fish with caution due to risk of mercury

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intoxication

- Fish oil supplements are NOT to be used in place of eating the actual food
- Studies show that eating as little as one serving per week of "fatty" fish can reduce your risk of cardiac arrest by 50–70%
- Since omega-3 fatty acids inhibit blood clotting, supplements should not be used by those who have blood clotting disorders or by individuals taking anticoagulant medications
- Most vitamins and most herbal supplements do not contain any omega-3 fatty acids
- The positive benefits seen with omega-3 fatty acids generally occur with continued use of greater than 12 weeks
- Do not use flaxseed oil for cooking (heat destroys the EFA)
- Flaxseed is preferable to flaxseed oil because of the healthy lignans and fiber content, not available in flaxseed oil.

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### **What Is an Essential Fat?**

**By David Snape**

You may have heard that essential fats are an important aspect to maintaining the health of your body. But what exactly are they?

Basically, there are two truly essential fatty acids, Linoleic and Linolenic. You may have heard of these

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referred to as Omega-6 and Omega-3 fatty acids.

So, why are they called essential? The term essential in the life sciences refers to the fact that a nutrient cannot be synthesized by the body. Thus, you must have a dietary or supplemental source to supply your need for these acids.

You probably heard of the 8 essential amino acids. It's the same idea here but in this case we are referring to fatty acids rather than an amino acid.

These fatty acids exist in and are used in every cell of your body. So they are crucial to a cell's health and therefore to our health as people. The good news is that in North America, you generally get enough Omega -6 in your diet. Omega-3 has presented a question mark to researchers. Are we getting enough or not?

Fortunately, you can get Omega-3 from fish and certain nut oils. If you have any doubt at all, you can get Omega three from flax oil, which is in abundant supply at your local health food store.

Don't let the phrase essential fat or essential fatty acid fool you. These are not going to make you gain unwanted weight.

As those of us who truly understand weight loss and gain can tell you, the key to losing or gaining fat storage from your body centers around the bodies short term energy storage supply.

This article is for information purposes only. It is not meant to diagnose, treat or prevent any disease or condition. Consult your primary health care provider if you have or suspect you have any physical ailments.

Dave Snape is a health, fitness and wellness enthusiast. He maintains a web site on that theme:

. Dave also practices Falun Dafa. Use of this article is free provided the author's website URL remains as an active hyperlink.

What Is an Essential Fat?

Does Omega-3 Lowers High Blood Pressure?

Use Essential Fatty Acid To Help You Eliminate Your Acne

Flax Seed: Does Omega-3 Reduce Cancer Risk

The Benefits of Fish Oil and Omega-3 fatty acids

101 tips to stay fit and live longer.

Smoothies for Athletes

30-Day Low Carb Diet 'Ketosis Plan'

Obesity and Weight Loss

How to Gain and Retain More Customers



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