Essential Fatty Acids Fact Sheet
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There is a group of polyunsaturated fatty acids called essential fatty acids or EFAs. The body cannot make these fatty acids, thus they are called essential. We must obtain our EFAs from the foods we eat on a regular basis. These fatty acids are needed for proper nutrition and health. One of their main functions is to be precursor molecules to prostaglandins, which are locally produced hormones that control a large number of processes. Some of the functions of prostaglandins include the movement of calcium and other substances into and out of cells, vascular dilation and contraction, inflammation (produce or reduce), inhibition and promotion of clotting, and regulation of secretions including digestive juices and hormones. Like all systems in the body, the numerous prostaglandins work together in a vast multitude of loops and feedback mechanisms of infinite complexity.1,2

The two EFAs found most frequently in our foods are linoleic acid (also called omega-6) and linolenic acid (also called omega-3). They go rancid easily, particularly omega-3 linolenic acid, and must be treated with care.3,4 There are some other conditionally essential fatty acids, which include gamma-linolenic acid (GLA), arachidonic acid (AA), eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA). All four of these fatty acids can be made by the cells in the body – can being the operative word. There are a number of interfering factors that make these fatty acids become dietary essentials for some people. For example, to a limited extent, linolenic acid can convert to EPA and DHA in the body, longer chain omega-3 fatty acids found in fish that provides a number of health benefits.5 However, linolenic is not the same as EPA or DHA, and some reports suggest it does not have the same effects on the body.6 Factors that inhibit essential fatty acid conversion include damaging food substances (particularly trans-fatty acids found in margarine, shortening, and hydrogenated fats, as well as sugar and refined grain products), illness, genetic inadequacies, and nutrient deficiencies. Excess omega-6 fatty acids from modern commercial vegetable oils and meats inhibit the pathway of the omega-3 as well.1,2

Modern diets can contain as much as 30% of calories as polyunsaturated oils, but scientific research indicates that this amount is far too high. The best evidence indicates that our intake of polyunsaturates should not be much greater than 4% of the caloric total.7 EFA consumption in this range is found in native populations whose intake of polyunsaturated oils comes from the small amounts found in legumes, grains, nuts, green vegetables, fish, flaxseeds, olive oil, and animal fats, but not from commercial vegetable oils.3

Excess consumption of polyunsaturated oils, particularly omega-6 varieties, has been shown to contribute to a large number of conditions including increased heart disease; immune system dysfunction; damage to the liver, reproductive organs and lungs; digestive disorders; depressed learning ability; impaired growth; and weight gain.8,9 The bottom line is that consumption of polyunsaturated oils like corn, soy, cottonseed, sunflower, and safflower should be limited. While the body needs some polyunsaturated oils, they should be taken in primarily through whole food forms, such as a handful of sunflower seeds or other fresh seeds or nuts10 - foods in nature’s package to protect them from deterioration.

Essential Fatty Acid Balance: Setting the above recommendations into action will automatically improve your ratio of essential fatty acids. In times past, humans consumed a balance of omega-3 (found in fish, fish oils, walnuts, eggs, flaxseed meal, grass-fed meats) and omega-6 (found principally in vegetables and vegetables oils like corn, sunflower, safflower, and soy – most of the fats you find in processed foods). When there is an overabundance of omega-6 in the diet, our body’s ability to utilize the omega-3’s is inhibited, thus all of their health benefits are reduced. This causes a host of undesirable reactions, as mentioned above. The western world has greatly increased its omega-6 intake due to higher use of vegetables oils, processed foods, and animal products raised on omega-6 rich diets.
(e.g. corn and soy). Therefore, for optimal body function and essential fatty acid balance it is best to emphasize omega-3 food sources. Cold water fatty fish, such as wild salmon, tuna, and sardines, are the best sources of DHA and EPA. Eating at least two portions of wild fatty fish from clean cold waters per week, or using a fish oil supplement, can provide sufficient DHA as well as EPA.

One of the best solutions for balancing out the EFAs is to limit omega-6. If you reduce omega-6 fatty acids your body will automatically need less omega-3 fatty acids to balance it out.

**Supplementing EFAs:** Some people have selected a type of diet that provides the correct amount of essential fatty acids from natural foods. Most people, however, consume many processed foods for which there is not certainty of essential fatty acids being left in the foods. This is especially true if the foods contain partially hydrogenated vegetable oils. In such cases, some individuals may wish to add high quality, safely extracted natural oils to their diet as a source of essential fatty acids.

**Cod liver oil** is extracted from cod liver and is an excellent source of vitamins A and D as well as EPA and DHA. **Fish oils** are extracted from the tissues (flesh) of fatty fish like salmon and herring and are good sources of EPA and DHA only. A general recommendation is to supplement 3 to 6 grams of EPA with DHA per day. DHA can also be extracted from seaweed and sold as a supplement. **Flax oil** may be appropriate for some people to use in small amounts; however, research suggests one has to take up to 10 times more flax than fish to get comparable amounts of EPA since the alpha linolenic acid in flax must be converted into EPA in the body. Two tablespoons of **freshly ground flaxseed** supply the same amount of alpha linolenic acid as would ½ tsp. flaxseed oil along with lignans and other healthful compounds found in the whole seed.

In addition, people who supplement with fish oil should take additional **vitamin E supplements** (several hundred IU's) to protect EPA and DHA within the body from oxidative damage.

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1. Enig, Mary, Ph.D. *Know Your Fats*. Bethesda Press, Silver Spring, MD. 2000