

From <http://www.americanheart.org/presenter.jhtml?identifier=4788>

Vitamin and Mineral Supplements

AHA Scientific Position

We recommend that healthy people get adequate nutrients by eating a variety of foods in moderation, rather than by taking supplements. An exception for omega-3 fatty acid supplements is explained below.

The Dietary Recommended Intakes (DRIs) published by the Institute of Medicine are the best available estimates of safe and adequate dietary intakes. Almost any nutrient can be potentially toxic if consumed in large quantities over a long time. Interactions between dietary supplements and prescription drugs and among several dietary supplements taken at the same time may occur. Too much iron can increase the risk of chronic disease, and too much vitamin A can cause birth defects.

There aren't sufficient data to suggest that healthy people benefit by taking certain vitamin or mineral supplements in excess of the DRIs. While some observational studies have suggested that lower rates of cardiovascular disease and/or lower risk factor levels result in populations who use vitamin or mineral supplements, it isn't clear if this is due to the supplements. For example, supplement users may be less overweight and more physically active.

Moreover, vitamin or mineral supplements aren't a substitute for a balanced, nutritious diet that limits excess calories, saturated fat, trans fat, sodium and dietary cholesterol. This dietary approach has been shown to reduce coronary heart disease risk in both healthy people and those with coronary disease.

What about antioxidant vitamins?

Many people are interested in antioxidant vitamins (A, C and E). This is due to suggestions from large observational studies comparing healthy adults consuming large amounts of these vitamins with those who didn't. However, these observations are subject to bias and don't prove a cause-and-effect relationship. Scientific evidence does not suggest that consuming antioxidant vitamins can eliminate the need to reduce blood pressure, lower blood cholesterol or stop smoking cigarettes. Clinical trials are under way to find out whether increased vitamin antioxidant intake may have an overall benefit. However, a recent large, placebo-controlled, randomized study failed to show any benefit from vitamin E on heart disease. Although antioxidant supplements are not recommended, antioxidant food sources –especially plant-derived foods such as fruits, vegetables, whole-grain foods and vegetable oils –are recommended.

What about omega-3 fatty acid supplements?

Fish intake has been associated with decreased risk of heart disease. On the basis of available data, the American Heart Association recommends that patients without documented heart disease eat a variety of fish – preferably omega-3-containing fish – at least twice a week. Examples of these types of fish include salmon, herring and trout.

Patients with documented heart disease are advised to consume about 1 gram of EPA + DHA (types of omega-3 fatty acids), preferably from fish, although EPA+DHA supplements could be considered, but consult with a physician first.

For people with high triglycerides (blood fats), 2 to 4 grams of EPA + DHA per day, in the form of capsules and under a physician's care, are recommended. (See the "Fish Oil and Omega-3 Fatty Acids" entry in this guide for more details.)

<http://dhaomega3.org/index.php?category=overview>

<http://www.mind1st.co.uk/EPADHA.asp> (see 1 of articles below)

http://www.vitaminshoppe.com/store/en/browse/sku_detail.jsp?id=VS-1044 (shows cost of fish oil capsules - advertisement below)

http://www.consumerlab.com/reviews/Omega-3_Fatty_Acids_EPA_and_DHA_from_Fish_Marine_Oils/omega3/ (test of omega 3 / fish oil supplements - see below)

Introduction to Omega-3

There has been a dramatic surge in interest recently, amongst the public and health professionals alike, of the health effects of omega-3 fatty acids derived from fish/fish oils - consisting of docosahexaenoic acid (DHA) plus eicosapentaenoic acid (EPA). DHA is required in high levels in the brain and retina as a physiologically-essential nutrient to provide for optimal neuronal functioning (learning ability, mental development) and visual acuity, in young and old alike. DHA plus EPA are both considered to have beneficial effects in the prevention and management of cardiovascular disease plus associated risk factors as well as other chronic disorders. Whereas considerable amounts of the plant-derived omega-3 fatty acid known as α -linolenic acid (ALA) is consumed daily in North America (approximately 2 g/day), the physiologically-essential nutrient, DHA, is consumed at much smaller levels (approximately 80 mg/day) while EPA is consumed at the level of approximately 50 mg/day in a typical North American diet.

DHA plus EPA are absent from plant food sources rich in ALA (such as flax, canola oil, and walnuts). Since the metabolic conversion of ALA to DHA/EPA (combined) by metabolism is very limited in humans, the most direct way of providing DHA plus EPA for the body is via their direct consumption. Current intakes of DHA are approximately 20% of the target (300 mg/day) suggested by an expert scientific group during pregnancy and lactation. The extremely low intake of DHA in young children (e.g., approximately 19 mg DHA/day on average for 3-yr. olds in North America) is also of particular concern. Current intakes of DHA/EPA (combined) of 130 mg/day are approximately 15% of the target (900 mg/day) officially recommended by the American Heart Association for those with coronary heart disease and 20% of the 650 mg/day advised by an expert scientific group for healthy individuals. In view of the widespread reluctance of the public to consume sufficient amounts of fish, functional foods containing DHA plus EPA will become increasingly important sources of these important nutrients in the coming years to support optimal brain/visual performance, for cardio care, and other health conditions for young and old alike.

DHA + EPA for Cardiovascular Health

Several studies have indicated an inverse relationship between the consumption of fish containing the omega-3 fatty acids as eicosapentaenoic acid (EPA, 20:5n-3) plus docosahexaenoic acid (DHA, 22:6n-3) and the risk of cardiovascular disease (CVD) and cardiac death. Numerous intervention trials indicated that higher intakes of DHA plus EPA can favorably influence several risk factors for CVD and fatal heart attacks including reductions in fasting triglyceride levels in the circulation, lowering of the triglyceride:HDL-cholesterol ratio, lowering of blood viscosity, reduction in blood platelet reactivity and other thrombogenic risk factors, plus effects on numerous non-conventional risk factors which are not routinely measured in the public health care system. The latter include a favorable influence of omega-3 fatty acid intakes (as DHA plus EPA) on postprandial lipemia (carbohydrate-induced blood fat surges after a meal), heart rate variability, arterial compliance, lowering of the resting heart rate, as well as anti-arrhythmic effects. Recent evidence also suggests a stabilizing influence of fish-derived omega-3 fatty acids on pre-existing atherosclerotic plaques.

Data from the MRFIT study have indicated that increasing intakes of DHA/EPA (combined) up to approximately 650-700 mg/day are associated with overall reductions in all-cause as well as coronary disease-related mortality. The latter intake corresponds to approximately 4-5 fatty fish dishes per week and is in the range (650mg/day of DHA/EPA combined) as recommended daily intakes for healthy individuals by ISSFAL workshop at the NIH in 1999. Considering that the average per capita intake of omega-3 fatty acid (as DHA plus EPA) is approximately 130-150 mg/day in North America , current intakes are approximately one-fifth of those targeted as desirable for the general population for overall heart health. The American Heart Association has now advised two fish

servings/week for healthy individuals free of CVD which would provide approximately 250-300 mg per day (avg.) of DHA/EPA.

The GISSI-Prevenzione Study has reported that, over and above the clinical use of appropriate pharmaceutical therapeutics plus a Mediterranean-type diet including some fish, supplementation with 900 mg/day of DHA/EPA (omega-3) could reduce sudden cardiac death by approximately 45% in patients having experienced a prior myocardial infarction (whereas vitamin E supplementation was without effect).

Population studies have indicated that those with lower levels of DHA or DHA/EPA (combined) in their blood lipid, due to lower intakes, were at a significantly greater risk for coronary heart disease, fatal ischemic events, and sudden cardiac death.

The recently-released American Heart Association Guidelines for healthcare professionals have included the following recommendations with respect to omega-3 fatty acid supplements. 'Consumption of one fatty acid meal per day (or alternatively, a fish oil supplement) could result in an omega-3 fatty acid intake (i.e. EPA and DHA) of ~900mg per day, an amount shown to beneficially affect coronary heart disease mortality rates in patients with coronary disease'. Current intakes of DHA + EPA are approximately one-sixth of the aforementioned target of 900 mg/day. The current 'nutrition gap' for DHA + EPA (omega-3) intakes in North America and in most countries can be alleviated by increased fish consumption, encapsulated supplements, or selected functional foods.

A recent review of various studies has indicated that consuming fish as a source of omega-3 fatty acids (DHA + EPA) is inversely related to the risk of stroke, particularly ischemic stroke. Those consuming 5 or more servings per week had a 31% overall reduction relative to those eating fish less than once per month. Five servings per week is estimated to provide average intakes of DHA + EPA of 650 mg/day. It is possible that other components in fish other than DHA/EPA may offer benefits independent of or synergistic to DHA + EPA. More detailed information on research related to DHA + EPA for cardiovascular health and various risk factors for CVD including blood triglyceride-lowering, etc. can be found within the section DHA/EPA and Health Conditions.

Despite regular recommendations from various governmental and other health agencies for the public to increase their intakes of fish as a source of DHA + EPA, North Americans consume approximately only one fish serving every 7-10 days because of concerns with environmental contaminants, taste, bones, convenience, etc. Thus, non-fish foods will become increasingly important as sources of these nutrients. Such foods as omega-3 (DHA + EPA)-containing shell and liquid eggs as well as DHA-enriched milk, cheese, ice cream, yogurts, breads, cereals, are being launched into the marketplace which should aid in closing the 'nutrition gap' for better cardio health and disease prevention/management.

Omega 3 fish oil EPA and DHA

There is no doubt that Omega 3 fish oil can not only help your heart and joints, but your brain too. Most people are aware of these benefits, but aren't sure whether the benefits of Omega 3 fish oil apply across the board for all types of Omega 3 fish oils. There are now many different brands available on the world market, with sellers aiming to capitalise on the Omega 3 fish oil 'boom'. This makes for such a wide range of products and so many claims that it is hard for the consumer to sift fact from fiction. Omega 3 fish oil contains two active ingredients: EPA (Eicosapentaenoic Acid) and DHA (Docosahexaenoic Acid). Most fish oils on the market contain both these ingredients in various quantities - the argument that has arisen concerns which of these essential nutrients you need, and which is better than the other. The simple answer to this is that both are vital nutrients, but they are each important at different stages of life; it is becoming clear in the scientific community that they both have different functions.

DHA

DHA is now thought to constitute the 'building blocks' of the brain, forming about 8% of the brain by weight - this is why it is important for pregnant mothers to ensure an adequate supply throughout pregnancy. DHA is also added

to some infant milk formulas by some leading manufacturers, as an infant requires a lot of DHA in the first two years of life to support the growth of the brain.

EPA

EPA however is different; this essential nutrient is now considered by some leading doctors and professors in the UK as being the single most vital nutrient in the functioning of the brain and nerve stimulation. This was highlighted by the release of a very high profile book by a leading psychiatric professor, who is using a very strong form of ethyl EPA to help treat patients of his who suffer from depression and schizophrenia. Moreover, the ethyl EPA that the professor is using has had the DHA removed. In the book he explains that Ethyl EPA fish oil is not as potent, and does not give the same therapeutic effects when DHA is present. According to the professor, this is backed up by two randomised controlled trials at the University of Baylor and Sheffield, where depressed people who were given DHA only fared slightly worse than the placebo-controlled group.

Conversion

So what happens if the body becomes deficient of DHA? The professor goes on to describe that the body can convert EPA into DHA, as it is only two steps down the chain of ecosanoids. This is a process the body can do relatively easily. The body can also convert DHA into EPA, but our bodies struggle to make this conversion and it is not a very efficient process. A good example of this would be with flaxseed oil, that is high in the omega 3 parent fatty acid ALA (alpha-linolenic acid); to obtain roughly 1 gram of EPA, you would have to ingest 11 grams of flaxseed oil.

Conclusion

The simple truth is that you need both these essential nutrients. The evidence is increasingly pointing towards the two being important for various stages of life. DHA when compared against EPA in treating depression is faring no better than a placebo; however the DHA is important for pregnant mothers and children from birth to two years. Beyond that some leading doctors (Mercola, Stoll, Puri) are leaning towards EPA being very beneficial for the daily functioning of the brain.

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Product Review: Fish Oil/Omega-3 Supplements and EPA/DHA Fortified Foods & Beverages

Initial Posting: 6/4/08 Last Updated 07/29/08

OUR BIGGEST TEST OF OMEGA-3 / FISH OIL SUPPLEMENTS

Alphabetical list of brands for the 57 products in the report.

Advocare Minami Puritan's Pride
Aristo Mommy's Bliss Shaklee
Berkley & Jensen (BJ's) Natural Factors Silk (White-Wave)
Carlson Nature Made Spring Valley (Wal-Mart)
Coromega Nature's Bounty Sundown
CVS Nature's Sunshine Swanson
Eniva New Chapter Tropicana
GNC Nordic Naturals Twinlab
Great American Products Now USANA
Health from the Sea Nutramax VitalOils1000
Healthy Hide Nutri-Supreme Vitamin Shoppe
Iceland Health OmegaBrite Vitamin World
Integrative Therapeutics Omega-Gel Wegmans
Jarrow Origin (Target) Weil
Kirkland (Costco) PharmAssure Yoplait
Lipiderm Pharmanex