

Food better than supplements for omega-3, says ADA

7/24/2008- **The American Dietetic Association (ADA) has said that a food-based approach to receiving adequate fatty acid levels is recommended, but careful supplementation is a feasible alternative if dietary intake falls short.**

Published in the *Journal of the American Dietetic Association*, ADA's commentary provides an overview of the group's position on the food vs supplement debate for n-3 fatty acids, including ALA, EPA, DHA and DPA.

In line with its position paper on fortification and supplementation, ADA highlighted a number of issues that need to be considered when determining the preferred 'delivery system' for n-3 fatty acids. These include the fact that not all forms of a nutrient function equivalently; that natural sources of nutrients may not be the most functionally effective; that sources of nutrients in a food matrix may function differently than the isolated form; and that nutrient balance must be considered.

Current recommendations

The ADA and Dietitians of Canada recommend two servings of fish per week, preferably fatty fish, which is a good source of dietary fatty acids. In addition, 500 mg/day EPA and DHA is recommended.

The International Society for the Study of Fatty Acids and Lipids also recommends a minimum combined intake of 500 mg/day EPA and DHA to support heart health.

The UK's Scientific Advisory Committee on Nutrition recommends at least two portions of fish per week, of which one should be oily, and provide 450 mg per day EPA+DHA.

Australia and New Zealand National Health and Medical Research Council suggest a dietary target for adults is 610 and 430 mg/day of DHA/EPA/DPA, respectively.

The World Health Organization recommends regular fish consumption of one to two servings per week, with each serving providing the equivalent of 200 to 500 mg EPA+DHA.

Actual consumption

The National Health and Nutrition Examination Survey, which dates back to 1999-2000, found that fish intake in the US population is inadequate, with the mean intake of EPA and DHA being 100 mg/day.

However, ADA highlighted that a key issue to consider if an overall increase in fatty fish intake is to be encouraged, is whether fatty fish stocks and production are sufficient to meet these needs.

In addition, there are some segments of the population that cannot eat fish - such as vegans. In light of this, the organization highlights the alternatives for meeting EPA and DHA recommendations.

Fortification & supplementation

The expanding number of fortified foods and supplements that provide long-chain n-3 fatty acids is making it easier to meet long-chain n-3 fatty acid targets, it said.

"Fortified foods contain varying amounts of EPA and DHA, depending on the source of these fatty acids. If ALA is used to fortify rations fed to nonruminants (ie, chickens and pigs), the meat and eggs produced by these animals will be enriched with this fatty acid."

"Obviously, if fish oil is used as a source, the fortified food will provide long-chain n-3 fatty acids. If algae are the source, then the fortified foods will be high in DHA (as algae are a rich source of DHA)."

ADA said that another important factor to be considered when making a decision about how to include a target nutrient in the diet is the nutrient profile of a food as compared to a supplement.

For example, fish is an excellent source of protein, vitamins, and minerals, which are not present in algae, it said. In addition, fish is recommended as an alternative protein source for fatty red meats that are high in saturated fats.

Fish, says ADA, "*brings to the table*" more than just n-3 fatty acids, which is the underpinning of achieving nutrient adequacy with nutrientdense foods.

Bioavailability

However, consumers that cannot eat fish, such as vegans, can turn to algal supplementation as an alternative source of DHA, said the organization.

A study by Hoffman and colleagues and published in the same issue of the journal (*Algal-oil capsules and cooked salmon: Nutritionally equivalent sources of docosahexaenoic acid. J Am Diet Assoc. 2008; 108:1204-1209*), DHA-rich algal supplements are equivalent to fish or fish oil with respect to bioavailability.

"Although it would seem that because bioavailability is similar between DHA supplements and food sources of DHA, functionality also would be comparable, but this needs to be evaluated," said ADA.

Another important consideration relates to nutrient - or fatty acid - balance.

High doses of DHA have been shown to inhibit elongases and desaturases, which in turn affect the metabolism of other n-3 and n-6 fatty acids, said ADA.

"Important questions remain about the optimal amount of DHA that should be recommended and, notably, how DHA affects the metabolism of C18 and longer n-6 and n-3 fatty acids, and whether this might result in any adverse health outcomes," stated the commentary.

"Based on the available evidence, a DHA supplement provided in the appropriate dose (for which there currently are no recommendations) would be expected to confer health benefits, especially in individuals who do not eat fish."

However, ADA cautioned that people must not overconsume DHA from algal supplements.