

Omega-3 carrier key to boosting children's attention: study

15/05/2008- Esterified omega-3 fatty acids may improve the attention scores for children, says a new study from France and Israel's Enzymotec that appears to highlight the importance of the omega-3 carrier.

Supplementation with omega-3 fatty acids in the phospholipid form resulted in changes to children's fatty acid profile and an increase in Test of Variables of Attention (TOVA) scores amongst children with impaired attention performance participating in the randomised double-blind clinical trial.

"To the best of our knowledge, the randomised controlled trial presented herein is the first short-term intervention study with omega-3 long chain polyunsaturated fatty acids (LC-PUFAs) to show a correlation between these biochemical and cognitive function outcomes," wrote the authors in the *American Journal of Clinical Nutrition*.

The researchers add that supplementation with omega-3 fatty acids in the triacylglycerol form produced different fatty acid profiles and different results. In terms of TOVA scores, improvements were significantly less than observed in children supplemented with the phospholipid form.

A number of studies have reported similar results and this led to calls by some for omega-3 supplementation of school children. Indeed, the UK's Food Standards Agency (FSA) last year reviewed the science in this field but ultimately decided against such measures, stating the evidence was insufficient. In many cases these studies were said to lack quality in research methodology and reporting, and failed to account for confounders.

But studies like the new randomised, double-blind, placebo-controlled trial, supported financially by Enzymotec, could lead to a rethink in this stance.

Study details

Researchers recruited 60 children aged eight to 13 and randomly assigned them to receive daily supplements of 250 mg per day of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) esterified to phospholipid omega-3 (300 mg/d phosphatidylserine, Enzymotec) or as triacylglycerol (fish oil, Ocean Nutrition), or placebo for three months. All of the children were diagnosed with

Increases in levels of EPA, docosapentaenoic acid (DPA), and DHA were observed in the phospholipid part of the blood, increases of 1.5-2.2 fold, 1.2-fold, and 1.3-fold respectively, in both fish oil and phosphatidylserine groups.

In red blood cells (erythrocytes) only supplementation with the phospholipid omega-3 produced significant 30 per cent reductions in levels of very-long-chain saturated fatty acids. This was accompanied by 1.2- and 2.2-fold increases in linoleic acid and DPA, respectively, report the researchers.

In terms of attention measures, both omega-3 supplemented groups produced increased in TOVA scores, with an increase of 94 per cent in the PL-omega-3 group and 37 per cent in the fish oil group.

No changes were observed in the placebo group, added the researchers.

"Our findings suggest that providing preparations with a high EPA/DHA ratio could affect visual sustained attention performance, even at subgram amounts, in pediatric populations," wrote researchers.

"A better understanding of the physiology of omega-3 LC-PUFAs and the role of their carriers throughout the metabolic process in children with omega-3 LC-PUFA deficiency could place the results of the current investigation in clearer context.

"In the meantime, these observations could assist in planning future trials of the role of omega-3 LC-PUFA carriers in psychiatric as well as in healthy pediatric populations," they concluded.