Abstract

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EFA supplementation in children with inattention, hyperactivity, and other disruptive behaviors.

Stevens L, Zhang W, Peck L, Kuczek T, Grevstad N, Mahon A, Zentall SS, Arnold LE, Burgess JR.

Department of Foods & Nutrition, Purdue University, West Lafayette, Indiana 47907, USA.

OBJECTIVE: This pilot study evaluated the effects of supplementation with PUFA on blood FA composition and behavior in children with Attention-Deficit/Hyperactivity Disorder (AD/HD)-like symptoms also reporting thirst and skin problems.

METHODS: Fifty children were randomized to treatment groups receiving either a PUFA supplement providing a daily dose of 480 mg DHA, 80 mg EPA, 40 mg arachidonic acid (AA), 96 mg GLA, and 24 mg alpha-tocopheryl acetate, or an olive oil placebo for 4 mon of double-blind parallel treatment.

RESULTS: Supplementation with the PUFA led to a substantial increase in the proportions of EPA, DHA, and alpha-tocopherol in the plasma phospholipids and red blood cell (RBC) total lipids, but an increase was noted in the plasma phospholipid proportions of 18:3n-3 with olive oil as well. Significant improvements in multiple outcomes (as rated by parents) were noted in both groups, but a clear benefit from PUFA supplementation for all behaviors characteristic of AD/HD was not observed. For most outcomes, improvement of the PUFA group was consistently nominally better than that of the olive oil group; but the treatment difference was significant, by secondary intent-to-treat analysis, on only 2 out of 16 outcome measures: conduct problems rated by parents (-42.7 vs. -9.9%, n = 47, P = 0.05), and attention symptoms rated by teachers (-14.8 vs. +3.4%, n = 47, P = 0.03). PUFA supplementation led to a greater number of participants showing improvement in oppositional defiant behavior from a clinical to a nonclinical range compared with olive oil supplementation (8 out of 12 vs. 3 out of 11, n = 33, P = 0.02). Also, significant correlations were observed when comparing the magnitude of change between increasing proportions of EPA in the RBC and decreasing disruptive behavior as assessed by the Abbreviated Symptom Questionnaire (ASQ) for parents (r = -0.38, n = 31, P < 0.05), and for EPA and DHA in the RBC and the teachers' Disruptive Behavior Disorders (DBD) Rating Scale for Attention (r = -0.49, n = 24, P < 0.05). Interestingly, significant correlations were observed between the magnitude of increase in alpha-tocopherol concentrations in the RBC and a decrease in scores for all four subscales of the teachers' DBD (Hyperactivity, r = -0.45; Attention, r= -0.60; Conduct, r = -0.41; Oppositional/Defiant Disorder, r = -0.54; n = 24, P < 0.05) as well as the ASQ for teachers (r = -0.51, n = 24, P < 0.05).

CONCLUSIONS: Thus, the results of this pilot study suggest the need for further research with both n-3 FA and vitamin E in children with behavioral disorders.

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