Effect of Supplementation with Polyunsaturated Fatty Acids and Micronutrients on Learning and Behavior Problems Associated with Child ADHD

Sinn N and Bryan J. J Dev Behav Pediatr. 28: 82-91 (2007).

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Summary:

This study evaluated the potential for supplementation with omega-3 fatty acids as DHA/EPA to influence parent and teacher ratings of attention and behaviour in a group South Australian children with various symptoms typically associated with ADHD (Attention-Deficit/Hyperactivity Disorder). A total of 132 children (age 7-12 years) assessed by scoring via the Conners ADHD Index participated in this randomized, placebo-controlled, double-blind intervention trial over a 15 week period where the three different groups received either placebo (control), omega-3 polyunsaturates (PUFAs) alone, or PUFAs plus a mixture of various vitamins and minerals (a multi-vitamin/mineral supplement taken as fruit-flavoured chewable tablets). The omega-3 PUFA supplementation required the daily intake of 6 active capsules per day (and 6 placebo capsules per day in the case of the control group) providing a total daily intake of 558 mg EPA + 174 mg DHA (a combined total of 732 mg/day) plus a small amount of the omega-6 fatty acid known as GLA (gamma-linolenic acid).

The Conners Parent Rating Scales conducted at baseline (entry) and after 15 weeks indicated a significant improvement in the omega-3 PUFA treatment groups after 15 weeks relative to controls such that improvements in cognitive problems/ inattention (by 17%), in hyperactivity (by 23%), in the Conners ADHD Index (by 19%), in global: restless/impulsive behaviour (by 20%), inattentiveness (by 20%), and hyperactive/impulsive behaviour (by 21%) were found. Interestingly, there were no significant treatment effects due to omega-3 supplementation on the Conners Teacher Rating Index Scales in contrast to the parental rating assessments.
The authors conclude that ADHD-related problems with inattention, hyperactivity, and impulsivity might respond to treatment with PUFAs. These researchers crossed the placebo group after 15 weeks onto omega-3 treatment for a further 15 weeks. These benefits were generally reproduced in the placebo group and maintained in the omega-3 treatment group when kept on EPA/DHA supplementation for a further 15 weeks with accompanying significant improvements in the Conners Parent Rating Scales.

Dr. Holub's Comments:

As pointed out by the researchers, further investigation and refinement of research in this area is necessary including the evaluation of different/optimal doses of PUFAs and attempts at identifying those children with ADHD who may be more likely to benefit with supplementation based on various assessment parameters.

It should be pointed out that the PUFA-supplemented groups were combined (to include those on PUFA supplementation without or with an accompanying multi-vitamin/mineral supplement) such that no evidence-based support for additional benefit of the vitamin/mineral supplement on ADHD symptomology over and above that suggested from PUFA supplementation can be concluded from the results presented herein. The presence of small amounts of GLA (gamma-linolenic acid), an omega-6 fatty acid found in evening primrose, borage, black currant seed and other oil sources, cannot be assessed with respect to any contribution to the results obtained since omega-3 (EPA + DHA) supplementation which without the presence of the small amounts of GLA was not studied. Further studies are needed to evaluate omega-3 supplementation with and without GLA addition before any added benefit of GLA can be concluded.