

# Abstract

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## Effects of an open-label pilot study with high-dose EPA/DHA concentrates on plasma phospholipids and behavior in children with attention deficit hyperactivity disorder.

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**BACKGROUND:** Attention deficit hyperactivity disorder (ADHD) is the most common neurological condition in children. This pilot study evaluated the effects of high-dose eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) supplementation on the isolated plasma phospholipids and behavior in children with ADHD (primarily inattentive subtype and combined subtype).

**METHODS:** Nine children were initially supplemented with 16.2 g EPA/DHA concentrates per day. The dosage was adjusted dependent on the ratio of arachidonic acid (AA) to EPA in the isolated plasma phospholipids at four weeks to reach a level normally found in the Japanese population.

**RESULTS:** At the end of the eight-week study, supplementation resulted in significant increases in EPA and DHA, as well as a significant reduction in the AA:EPA ratio (20.78 +/- 5.26 to 5.95 +/- 7.35,  $p < 0.01$ ). A psychiatrist (blind to supplement compliance or dosage modifications) reported significant improvements in behavior (inattention, hyperactivity, oppositional/defiant behavior, and conduct disorder). There was also a significant correlation between the reduction in the AA:EPA ratio and global severity of illness scores.

**CONCLUSION:** The findings of this small pilot study suggest supplementation with high-dose EPA/DHA concentrates may improve behavior in children with ADHD.

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