

# Abstract

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## Omega-3 fatty acid treatment of children with attention-deficit hyperactivity disorder: A randomized, double-blind, placebo-controlled study.

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**BACKGROUND:** Although several clinical trials have evaluated the impact of n-3 polyunsaturated fatty acid (PUFA) on patients with attention-deficit hyperactivity disorder (ADHD), changes in plasma PUFA composition were not always assessed following n-3 supplementation. Furthermore, no reports are available on the efficacy of n-3 PUFA in Canadian youth with ADHD.

**OBJECTIVES:** To determine fatty acid (FA) composition, and the efficacy and safety of n-3 PUFA supplementation on ADHD clinical symptoms in French Canadian primary school children.

**PATIENTS AND METHODS:** The Strengths and Weaknesses in ADHD and Normal Behaviors (SWAN) and Conners' questionnaires were used to assess changes in ADHD symptoms in 37 children (only 26 children completed the study from zero to 16 weeks). They were divided into two groups (A and B), and participated in a 16-week, double-blind, one-way, crossover randomized study. In the first phase, group A received the n-3 PUFA supplement and group B received n-6 PUFA (sunflower oil) as a placebo. During the second phase, group B received the active n-3 PUFA supplement that was continued in group A. FA composition and lipid profile were assessed during the phases of the study.

**RESULTS:** FA differences between groups were observed in the 26 patients. Supplementation with n-3 PUFA resulted in significant increases in eicosapentaenoic and docosahexaenoic acids in group A, while group B was enriched with alpha-linolenic, gamma-linolenic and homo-gamma-linolenic acids. The n-3 PUFA supplement was tolerated without any adverse effects. A statistically significant improvement in symptoms was noted based on the parent version of the Conners' questionnaire from baseline to the end of phase 1, and this amelioration continued from phases 1 to 2, although the latter changes from phases 1 and 2 were not statistically significant in any of the subscales except for the subscale measuring inattention in group B. The improvement was greater in patients from group A in phase 1 and in patients from group B in phase 2. A subgroup of eight patients (four in each group) displayed a statistically significant clinical improvement following the administration of the n-3 PUFA supplement, particularly for the inattention and global Diagnostic and Statistical Manual of Mental Disorders, Fourth edition, total Conners' subscales.

**CONCLUSIONS:** A subgroup of children with ADHD who used n-3 PUFA supplements achieved and maintained symptom control. The data of the present study also supported n-3 PUFA safety and tolerability, but limited changes were noted in the FA profile in French Canadians with ADHD.

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