

# Abstract

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## Acetyl-L-carnitine (ALC) in attention-deficit/hyperactivity disorder: a multi-site, placebo-controlled pilot trial.

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**OBJECTIVE:** To determine whether acetyl-L-carnitine (ALC), a metabolite necessary for energy metabolism and essential fatty acid anabolism, might help attention-deficit/hyperactivity disorder (ADHD). Trials in Down's syndrome, migraine, and Alzheimer's disease showed benefit for attention. A preliminary trial in ADHD using L-carnitine reported significant benefit.

**METHOD:** A multi-site 16-week pilot study randomized 112 children (83 boys, 29 girls) age 5-12 with systematically diagnosed ADHD to placebo or ALC in weight-based doses from 500 to 1500 mg b.i.d. The 2001 revisions of the Conners' parent and teacher scales (including DSM-IV ADHD symptoms) were administered at baseline, 8, 12, and 16 weeks. Analyses were ANOVA of change from baseline to 16 weeks with treatment, center, and treatment-by-center interaction as independent variables.

**RESULTS:** The primary intent-to-treat analysis, of 9 DSM-IV teacher-rated inattentive symptoms, was not significant. However, secondary analyses were interesting. There was significant ( $p = 0.02$ ) moderation by subtype: superiority of ALC over placebo in the inattentive type, with an opposite tendency in combined type. There was also a geographic effect ( $p = 0.047$ ). Side effects were negligible; electrocardiograms, lab work, and physical exam unremarkable.

**CONCLUSION:** ALC appears safe, but with no effect on the overall ADHD population (especially combined type). It deserves further exploration for possible benefit specifically in the inattentive type.

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