

Abstract

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Does zinc moderate essential fatty acid and amphetamine treatment of attention-deficit/hyperactivity disorder?

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BACKGROUND: Zinc is an important co-factor for metabolism relevant to neurotransmitters, fatty acids, prostaglandins, and melatonin, and indirectly affects dopamine metabolism, believed intimately involved in attention-deficit/hyperactivity disorder (ADHD).

OBJECTIVE AND METHODS: To explore the relationship of zinc nutrition to essential fatty acid supplement and stimulant effects in treatment of ADHD, we re-analyzed data from an 18-subject double-blind, placebo-controlled crossover treatment comparison of d-amphetamine and Efamol (evening primrose oil, rich in gamma-linolenic acid). Subjects were categorized as zinc-adequate (n = 5), borderline zinc (n = 5), and zinc-deficient (n = 8) by hair, red cell, and urine zinc levels; for each category, placebo-active difference means were calculated on teachers' ratings.

RESULTS: Placebo-controlled d-amphetamine response appeared linear with zinc nutrition, but the relationship of Efamol response to zinc appeared U-shaped; Efamol benefit was evident only with borderline zinc. Placebo-controlled effect size (Cohen's d) for both treatments ranged up to 1.5 for borderline zinc and dropped to 0.3-0.7 with mild zinc deficiency.

CONCLUSIONS: If upheld by prospective research, this post-hoc exploration suggests that zinc nutrition may be important for treatment of ADHD even by pharmacotherapy, and if Efamol benefits ADHD, it likely does so by improving or compensating for borderline zinc nutrition.

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