

Aspartame: neuropsychologic and neurophysiologic evaluation of acute and chronic effects

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Abstract

Background: Neurobehavioral symptoms have been reported anecdotally with aspartame.

Objective: This study sought to determine whether aspartame can disrupt cognitive, neuropsychologic, or behavioral functioning in normal individuals.

Design: Forty-eight healthy volunteers completed a randomized, double-blind, placebo-controlled, crossover study. The first month was aspartame free. Subjects then consumed sodas and capsules with placebo, aspartame, or sucrose for 20 d each. Order was randomized and subjects were assigned to either a high- (45 mg/kg body wt⁻¹ d⁻¹) or low- (15 mg/kg body wt⁻¹ d⁻¹) dose aspartame group. Neuropsychologic and laboratory testing was done on day 10 of each treatment period to determine possible acute effects and on day 20 for possible chronic effects.

Results: Plasma phenylalanine concentrations increased significantly during aspartame treatment. Neuropsychologic results; adverse experiences; amino acid, insulin, and glucose values; and electroencephalograms were compared by sex and by treatment. No significant differences were found for any dependent measure.

Conclusion: Large daily doses of aspartame had no effect on neuropsychologic, neurophysiologic, or behavioral functioning in healthy young adults.

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