

Aspartame Information Service

Effect of Repeated Ingestion of Aspartame-Sweetened Beverage on Plasma Amino Acid, Blood methanol, and Blood Formate Concentrations In Normal Adults

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Aspartame (APM) is a widely used dipeptide sweetener (L-aspartyl-L-phenylalanine methyl ester). It has been suggested that excessive use of APM might elevate plasma aspartate, phenylalanine, and/or methanol concentrations to levels that are potentially harmful. Six normal young adults ingested eight successive servings of unsweetened and APM-sweetened beverage at one-hour intervals in a balanced crossover design. In one part, the beverage was not sweetened. In the other, each serving of beverage provided 600mg APM, a dose equivalent to the amount provided by 36oz of APM-sweetened diet beverage. Plasma aspartate concentration was not significantly increased after ingestion of unsweetened or APM-sweetened beverage. Similarly, ingestion of the unsweetened beverage had no significant effect on plasma phenylalanine concentration. However, ingestion of APM-sweetened beverage significantly increased plasma phenylalanine levels 1.41 to 2.35 $\mu\text{mol/dL}$ above baseline 30 minutes after ingestion. Plasma phenylalanine values reached a steady state after administration of four to five servings and did not exceed normal postprandial values at any time. Blood methanol and formate concentration remained within normal limits. The data indicate ready metabolism of APM when administered at levels that may be ingested by normal individuals who are heavy users of diet beverages.

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