

LETTER

Is caffeine in soft drinks really necessary?

Lynn Riddell and Russell S Keast

TO THE EDITOR: The food environment in Australia and other developed countries is obesogenic. In the United States, personal-injury lawsuits against food and beverage companies are prominent, although proving the addictive nature of a food or its components is challenging. What cannot be questioned is that rates of overweight and obesity among children are increasing, and so are the associated multiple negative health and psychosocial effects.¹

Given the serious health consequences of obesity, it is imperative for researchers and community groups to continually challenge the food and beverage industry to produce foods that will not impinge on the health and wellbeing of our children.

The consumption of sugar-sweetened soft drinks has been linked to increasing body mass index and risk of obesity in children and adolescents.² There are many potential reasons for this over-consumption, including aggressive marketing. However, a further contributing factor is the presence of caffeine. Caffeine is mildly addictive at low doses,³ and is an additive in cola soft drinks in Australia (concentration range, 0.55–0.67 mmol/L). Soft

drink manufacturers claim caffeine is a flavour enhancer in soft drinks,⁴ but we have shown that caffeine has no flavour activity in a common cola soft drink (30 trained tasters completed over 1600 individual discrimination tests, and the tasters were unable to detect 0.67 mmol/L caffeine in a soft drink — if we cannot discriminate between a caffeinated and non-caffeinated sample, there is no flavour activity).⁵ A caffeine concentration of 0.67 mmol/L is equivalent to about 55 mg of caffeine in a 500 mL bottle of cola, and this dose results in physiological and psychological modifications in adults³ that manifest as behavioural modifications including increased alertness, energy, and ability to concentrate. Such positive post-ingestive effects are subconsciously associated with consumption of the sugar-sweetened beverage, thereby encouraging repeat consumption. Children are more likely to be affected by caffeine, and it is reasonable to assume that even lower doses of caffeine will result in behavioural modifications in children, and encourage repeat soft drink consumption. On average, 113 L of soft drink are consumed per person per year in Australia, and although not all of these beverages are caffeinated, the top sellers are cola soft drinks.⁶ As caffeine has been shown not to have any flavour activity in these beverages, we pose the question: given the serious nature of

childhood and adolescent overweight and obesity, should caffeine be an additive in soft drinks marketed aggressively and sold to children and adolescents?

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4 PepsiCo Inc. The physical or technical effect of caffeine in cola beverages, July 20, 1981. In: Vol. III, Appendix XII of Comments of the National Soft Drink Association submitted to the Department of Health and Human Services Food and Drug Administration in response to the proposal to delete caffeine in cola-type beverages from the list of substances generally recognized as safe and to issue an interim food additive regulation governing its future use. 29 Jul 1981. (FDA Docket No. 80N-0418.)

5 Keast R, Riddell L. Caffeine as a flavour additive in soft-drinks. *Appetite* 2007; 49: 255-259.

6 ACNielsen Media Research. Top brands. *AdNews* 2006; 13 Jan. <http://au.acnielsen.com/trends/documents/AdNewsTop100lowres.pdf> (accessed Sep 2007). □