Uncoupling sweet taste and calories: comparison of the effects of glucose and three intense sweeteners on hunger and food intake.

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Abstract
This study was carried out to disclose effects generated by the uncoupling of the sensory and energetic components of sweet solutions. A comparison was made between equi-sweet preloads of three intense sweeteners (saccharin, aspartame and acesulfame-K), a bulk sweetener (glucose) and a nonsweet water control. Measures were made of subjective ratings of motivation to eat, food preferences and energy intake in a test meal. The glucose load produced a consistent pattern of changes on all measures. The intense sweeteners tended to facilitate motivational ratings and food preference checklist responses, but marginally lowered intake in the test meal. The facilitative action is probably due to the stimulation of sensory receptors for sweetness by the high-intensity agents, while the effects on intake are most likely due to a ceiling effect imposed by methodological limitations of this particular design. The results of this study must be interpreted with reference to the prevailing experimental conditions, but they suggest that intense sweeteners can produce significant changes in appetite. Of the intense sweeteners, aspartame gave rise to the most pronounced effects.