Sucrose compared with artificial sweeteners: different effects on ad libitum food intake and body weight after 10wk of supplementation in overweight subjects.

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ABSTRACT

Background: The role of artificial sweeteners in body-weight regulation is still unclear.

Objective: We investigated the effect of long-term supplementation with drinks and foods containing either sucrose or artificial sweeteners on ad libitum food intake and body weight in over-weight subjects.

Design: For 10 wk, overweight men and women consumed daily supplements of either sucrose [*n* = 21, body mass index (BMI; in kg/m^2) = 28.0] or artificial sweeteners (*n=20, BMI = 27.6).* On average, sucrose supplements provided 3.4 MJ and 152g sucrose/d and sweetener supplements provided 1.0 MJ and 0g sucrose/d.

Results: After 10wk, the sucrose group had increased in total energy (by 1.6 MJ/d), sucrose (to 28% of energy), and carbohydrate intakes and decreases in fat and protein intakes. The sweetener group had small but significant decreases in sucrose intake and energy density. Body weight and fat mass increased in the sucrose group (by 1.6 and 1.3 kg respectively) and decreased in the sweetener group (by 1.0 and 0.3 kg respectively); the between-group differences were significant at *P*< 0.001 (body weight) and *P*< 0.01 *(fat mass)*. Systolic and diastolic blood pressure increased in the sucrose group (by 3.8 and 4.1 mm Hg, respectively) and decreased in the sweetener group (by 3.1 and 1.2 mm Hg respectively).

Conclusions: Overweight subjects who consumed fairly large amounts of sucrose (28% of energy) mostly as beverages, had increased energy intake, body weight, fat mass and blood pressure after 10 wk. These effects were not observed in a similar group of subjects who consumed artificial sweeteners.

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