

## Do Low/No-Calorie Sweeteners Help or Hurt Appetite Control and Weight Management?



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### ABSTRACT

In this talk I will examine the evidence on the effects on appetite and body weight of consuming low/no-calorie sweeteners (LNCS). The background to this is that there is no precise physiological balancing of energy intake against energy expenditure, so consumption of energy both in excess and in deficit of immediate energy requirements is not fully compensated for by adjustments in intake at the next or subsequent eating occasions. Consequently, replacing some or all of the sugar in a drink or food with LNCS, including steviol glycosides, should reduce energy intake and contribute to healthy weight maintenance. It has been suggested, however, that consumption of LNCS may hurt rather than help appetite control and weight management. One argument is that by 'decoupling' sweetness from drink/food energy content LNCS undermine the learned control of energy intake (i.e., LNCS cause sweetness to become an unreliable predictor of drink/food energy content). Another argument is that exposure to sweetness encourages a 'sweet tooth' and therefore increased intake of sweet, energy-containing foods and drinks. Evidence for these possible unwanted effects is at best weak. For example, claims that intermittent exposure to LNCS causes weight gain in rats has been disputed, and results from studies in humans show that LNCS do not increase either energy intake or body weight compared with water. Furthermore, the evidence from sustained intervention studies is clear in demonstrating that consumption of LNCS in place of (some) sugar in the diet reduces energy intake and body weight. Therefore, if they exist, any minor unhelpful effects of LNCS would seem to be outweighed by the benefit of the energy dilution which is not fully compensated for in subsequent eating. Because of the more recent introduction of steviol glycosides as a LNCS in foods and drinks, there have been relatively few studies of their effects of on appetite and body weight. There is little reason, however, to expect steviol glycosides to differ from other LNCS in respect of beneficial effects for weight management when used to reduce dietary sugar content. A problem is that there is distrust of LNCS among consumers and health professionals, arising in part from claims that LNCS increase appetite and body weight. These claims are clearly contradicted by evidence showing that consumption of LNCS can assist healthy weight management.

A significant part of my talk will be based the findings of this recent review:

Rogers, P. J., Hogenkamp, P. S., de Graaf, C., Higgs, S., Lluch, A., Ness, A. R., Penfold, C., Perry, R., Putz, P., Yeomans, M. R., & Mela, D. J. (2016). Does low-energy sweetener consumption affect energy intake and body weight? A systematic review, including meta-analyses, of the evidence from human and animal studies. *International Journal of Obesity*, 40, 381-394.