Acute effect of alginate-based preload on satiety feelings, energy intake, and gastric emptying rate in healthy subjects.

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Abstract: Viscous dietary fibers such as sodium alginate extracted from brown seaweed have received much attention lately for their potential role in energy regulation through the inhibition of energy intake and increase of satiety feelings. The aim of our study was to investigate the effect on postprandial satiety feelings, energy intake, and gastric emptying rate (GER), by the paracetamol method, of two different volumes of an alginate-based preload in normal-weight subjects. In a four-way placebo-controlled, double-blind, crossover trial, 20 subjects (age: 25.9 ± 3.4 years; BMI: 23.5 ± 1.7 kg/m(2)) were randomly assigned to receive a 3% preload concentration of either low volume (LV; 9.9 g alginate in 330 ml) or high volume (HV; 15.0 g alginate in 500 ml) alginate-based beverage, or an iso-volume placebo beverage. The preloads were ingested 30 min before a fixed breakfast and again before an ad libitum lunch. Consumption of LV-alginate preload induced a significantly lower (8.0%) energy intake than the placebo beverage (P = 0.040) at the following lunch meal, without differences in satiety feelings or paracetamol concentrations. The HV alginate significantly increased satiety feelings (P = 0.038), reduced hunger (P = 0.042) and the feeling of prospective food consumption (P = 0.027), and reduced area under the curve (iAUC) paracetamol concentrations compared to the placebo (P = 0.05). However, only a 5.5% reduction in energy intake was observed for HV alginate (P = 0.20). Although they are somewhat contradictory, our results suggest that alginate consumption does affect satiety feelings and energy intake. However, further investigation on the volume of alginate administered is needed before inferring that this fiber has a possible role in short-term energy regulation.

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