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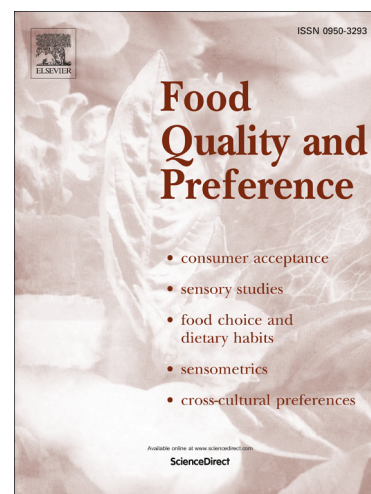
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The relationship between taste and nutrient content in commercially available foods from the United States

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Abstract

Taste is often suggested to have a nutrient-signalling function that may be important for food intake regulation, though limited data exists to support this notion. This study aimed to investigate the relationship between taste and nutrient content, and to explore the effect of food form on this relationship (liquid, semi-solid or solid), in a range of commercially available foods from the United States. Basic taste intensities (sweetness, saltiness, sourness and bitterness) of 237 processed foods were obtained by an expert sensory panel using the SpectrumTM method. Sweet taste intensity was associated with mono- and disaccharides ($r=0.70$, $p<0.001$), but not energy content ($r=0.11$, $p>0.05$). Salt taste intensity was associated with sodium ($r=0.72$, $p<0.001$) and protein ($r=0.39$, $p<0.001$), and fat ($r=0.37$, $p<0.001$) and energy content ($r=0.43$, $p<0.001$). Contrary to expectations, associations between taste and nutrient content were not stronger ~~more pronounced~~ in liquids than in (semi-)solids ~~and solids~~. Cluster analysis on taste revealed 3 food groups: a sweet, salty and neutral tasting food group. Saltiness was associated with sodium content in salty foods ($r=0.39$, $p<0.001$) but not in sweet foods ($r=0.30$, $p>0.05$). Sweetness was associated with mono- and disaccharides in sweet foods ($r=0.55$, $p<0.001$) and in salty foods ($r=0.33$, $p<0.001$). In conclusion, our findings suggest that sweet and salt taste intensity can signal the presence of nutrients, in particular mono- and disaccharides and sodium. However, the relationship between taste and nutrients may be weaker ~~less pronounced~~ in complex foods with competing tastes. The ~~modifying~~ effect of food form on this relationship is more difficult to demonstrate ~~less clear~~ in real-life foods.

Key words: Taste intensity; Nutrient content; Food form; Real-life foods

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