Effectiveness of flavour nutrient learning and mere exposure as mechanisms to increase toddler's intake and preference for green vegetables

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Abstract:
Children's consumption of vegetables is still below recommendations. Since preference is the most important predictor of children's intake and most children dislike vegetables, new strategies are needed to increase their preferences for vegetables. Flavour nutrient learning (FNL) could be an effective mechanism to change preferences. Forty healthy toddlers were included in a randomized intervention study. During an intervention period of 7 weeks, they consumed vegetable soups (endive and spinach) twice per week. Half of the group received a high-energy variant of one soup (e.g. HE spinach) and a low energy variant of the other (LE endive), whereas for the other half the order was reversed (HE endive, LE spinach). Primary outcome measures were preference and ad libitum consumption (with a maximum of 200 g) of both vegetable products (LE), measured before, shortly after the intervention period, and 2 and 6 months following conditioning to assess longer-term effects. After completion of the intervention period, 28 children (14 girls and 14 boys, age 35 months; SD ± 8.3) met criteria for FNL to occur, and were included in further data analysis. Results showed a significant increase (_58 g) in ad libitum intake for both vegetable soups (stable over time), but irrespective of the energy content. This indicates a robust effect of mere exposure on intake, but no FNL. For preference, however, results showed a significant shift in liking for the vegetable soup consistently paired with high energy, supporting FNL.