

Efficacy of repeated exposure and flavour-flavour learning as mechanisms to increase preschooler's vegetable intake and acceptance

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ABSTRACT

BACKGROUND:

Dutch children's diets, like the diets of many children in Europe and the US are not balanced, do not contain enough vegetables and have been associated with a high prevalence of childhood obesity. Promoting children's vegetable intake is challenging.

OBJECTIVE:

We investigated the relative effectiveness of repeated exposure and flavour-flavour learning in increasing vegetable intake and acceptance in preschoolers.

METHODS:

During an intervention period of 7 weeks, 39 toddlers (aged 1.5 to 4 years) consumed red beet and parsnip crisps at day-care centres in Wageningen, the Netherlands. Half of the group received red beet crisps with a dip of tomato ketchup (Conditioned [C]) and parsnip with a neutral white sauce (Unconditioned, [UC]), whereas for the other half the order was reversed (red beet [UC], parsnip [C]). Preference and ad libitum consumption of vegetable crisps were measured once before and three times after the intervention over the course of a 6-month follow-up period to assess longer-term effects.

RESULTS:

Intake increased significantly after the intervention for both vegetables (on average with 8 g; an increase of approximately 300%), and this effect was persistent even 6 months afterwards. The increase was irrespective of crisps being offered with C or UC dip sauce.

CONCLUSIONS:

These results suggest a robust and persistent effect of repeated exposure but no effect of flavour-flavour learning. Offering pure vegetable tastes repeatedly is sufficient to increase intake.

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