

## The root of the problem: increasing root vegetable intake in preschool children by repeated exposure and flavour flavour learning

Sara M. Ahern <sup>a,\*</sup>, Samantha J. Caton <sup>b</sup>, Pam Blundell <sup>c</sup>, Marion M. Hetherington <sup>c</sup>

<sup>a</sup> Bradford Institute for Health Research, Bradford Teaching Hospitals NHS Foundation Trust, Bradford Royal Infirmary, Bradford, BD9 6RJ, England, UK

<sup>b</sup> School of Health and Related Research, University of Sheffield, Sheffield, S1 4DA, England, UK

<sup>c</sup> Institute of Psychological Sciences, University of Leeds, Leeds, LS2 9JT, England, UK

<http://dx.doi.org/10.1016/j.appet.2014.04.016>

0195-6663/© 2014 Elsevier Ltd. All rights reserved.

### Abstract:

Children's vegetable consumption falls below current recommendations, highlighting the need to identify strategies that can successfully promote intake. The current study aimed to investigate the effectiveness of flavour-flavour learning as one such strategy for increasing vegetable intake in preschool children. Children (N = 29) aged 15 to 56 months were recruited through participating nurseries. Each received a minimum of six and maximum eight exposures to a root vegetable puree with added apple puree (flavour-flavour learning) alternating with six to eight exposures to another with nothing added (repeated exposure). A third puree acted as a control. Pre- and post-intervention intake measures of the three purees with nothing added were taken to assess change in intake. Follow-up measures took place 1 month (n = 28) and 6 months (n = 10) post-intervention. Intake increased significantly from pre- to post-intervention for all purees (~36 g), with no effect of condition. Magnitude of change was smaller in the control condition. Analysis of follow-up data showed that intake remained significantly higher than baseline 1 month (p < 0.001) and 6 months (p < 0.001) post-intervention for all conditions. Children under 24 months ate consistently more across the intervention than the older children (≥24 m) with no differences found in response to condition. This study confirms previous observations that repeated exposure increases intake of a novel vegetable in young children. Results also suggest that mere exposure (to the food, the experimenters, the procedure) can generalise to other, similar vegetables but the addition of a familiar flavour confers no added advantage above mere exposure.

### Keywords:

- Vegetable intake;
- Preschool children;
- Repeated exposure;
- Learning