

Use of different vegetable products to increase preschool-aged children's preference for and Intake of a target vegetable: A randomized controlled trial

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ABSTRACT

Background: Children's low vegetable consumption requires effective strategies to enhance preference for and intake of vegetables.

Objective: The study compared three preparation practices for a target vegetable (spinach) on their effectiveness in increasing preschool-aged children's preference for and intake of the target vegetable in comparison to a control vegetable (green beans).

Design: We conducted a randomized controlled trial with four parallel groups: plain spinach, creamed spinach, spinach ravioli, and green beans. During the intervention, children were served the vegetable at their main meal six times over 6 weeks at home.

Participants/setting: Children aged 2 to 4 years were recruited from six child-care centers located in Wageningen, the Netherlands, and randomly assigned to one of the four groups, with vegetable products provided by the researchers. The study was performed between September 2014 and January 2015. In total, 103 children participated, with 26, 25, 26, and 26 in the plain spinach, creamed spinach, spinach ravioli, and green beans groups, respectively.

Main outcome measures: Preference for and ad libitum intake of cooked spinach were assessed during a test meal at the day-care center pre- and postintervention. Food neophobia was assessed via the Child Food Neophobia Scale.

Statistical analyses performed: General linear model repeated measures analysis, including food neophobia, spinach liking, exposure, and consumption scores as covariates, was performed to test for effects of group on intake. Logistic regression was used to assess changes in preference between pre- and postintervention.

Results: All four groups significantly increased their spinach intake from pre- (53 g) to postintervention (91 g) by an average of 70%. For preference, no significant shift toward the target vegetable was found from pre- to postintervention. The effect on intake depended on the child's neophobia status and preintervention spinach consumption, with children with neophobia being less responsive to the intervention and with children who ate more spinach before the intervention being more responsive to the intervention.

Conclusions: These findings suggest that repeated exposure to differently prepared spinach products, or even another green vegetable, improved children's spinach intake. However, children with neophobia may need a different approach.