

#8: A pilot study to test preschool children's intake of vegetables prepared with herbs and spices to create a variety of flavor options

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American children consistently fail to meet the recommended daily servings of vegetables. Adequate vegetable consumption in children is associated with known health benefits, mainly decreased risk for developing diseases. One possible explanation for low vegetable consumption is that children have innate aversions to bitter compounds, which are found in many vegetables, particularly green vegetables. Previous research shows that children who can taste the bitterness of PROP, a compound used to test genetic bitter sensitivity, are more susceptible to low vegetable intake. Our current study (n = 40) will test the hypothesis that adding multiple herb and spice blends to vegetables to increase flavor variety within a meal will increase liking and intake in children that are 3- to 5- years old. Previous research has shown that increased variety within a meal increases intake of food overall, but this has not yet been tested on vegetable consumption. To investigate the affect of flavor variety on vegetable intake, children attended 2 laboratory visits with their parents and consumed two randomized test meals of common foods: macaroni and cheese, applesauce, carrots, 2% milk, and water. Cooked carrots were used as a model system because they are generally familiar to and accepted by children of this age. On one visit, the meal included one serving each of carrots seasoned with cinnamon-nutmeg-ginger, black pepper-oregano-garlic, or cardamom-cumin-allspice (Variety Condition). On the other visit, the meal included three servings of carrots with the cinnamon-nutmeg-ginger blend (No Variety Condition). Children were given a max of 30 minutes to eat as much as they would like and intake was measured with pre- and post-meal weights. On their first visit, children's reaction to the bitter compound PROP was tested using a validated child-friendly forced choice design between yucky/bitter or tastes like water. Additionally, children rated their liking of carrot and broccoli samples prepared separately with each of the three spice blends. Liking was measured using a validated, child-friendly 5-point visual scale. While carrots are typically accepted by children, broccoli has more bitter attributes and may be rejected more frequently, especially by children with genetic sensitivities to bitter tastes. We hypothesize that children will consume more carrots during the meal with the variety condition than the meal with the no variety condition. In addition, we also hypothesize that those children with genetic sensitivity to PROP will have lower intake of carrots and lower liking of broccoli when compared to children who are not sensitive to PROP, however we still predict an increased intake of carrots when offered in the variety condition compared to the single condition. These simple spice additions to vegetables may help to increase intake in the home and school. Findings from this study may help children meet daily recommendations, leading to healthier lifestyles.