

# Positive Impacts of a Vegetable Cooking Skills Program Among Low Income Parents and Children

Francine Overcash<sup>1</sup>, Allison Ritter<sup>1</sup>, Traci Mann<sup>2</sup>, Joe Redden<sup>3</sup>, Aaron Rendahl<sup>4</sup>, Elton Mykerezi<sup>5</sup>, and Zata Vickers<sup>1</sup>, Marla Reicks<sup>1</sup>,

<sup>1</sup>Food Science & Nutrition, <sup>2</sup>Psychology, <sup>3</sup>Carlson School of Management, <sup>4</sup>Statistics, <sup>5</sup>Applied Economics, University of Minnesota



## Abstract

**Objective:** To evaluate the impact of a vegetable-focused cooking skills and nutrition program on parent and child psychosocial measures, vegetable liking, variety, and home availability. **Design:** Parent/child dyads recruited from low-income communities in Minneapolis-St. Paul who completed a 6, 2-hr-weekly cooking/nutrition sessions including demonstration, food preparation, nutrition education lesson, and a meal. **Evaluation:** Pre- and post-course surveys. **Main Outcome Measures:** Parental cooking confidence and barriers, food preparation/resource management, child self-efficacy and cooking attitudes, vegetable liking, vegetable variety, and vegetable home availability. **Analysis:** Changes from pre- to post-course analyzed with paired t-test or Wilcoxon signed rank test. Results were significant at P < 0.05. **Results:** Increased parental cooking confidence (4.0 to 4.4/5.0), healthy food preparation (3.6 to 3.9/5.0), child self-efficacy (14.8 to 12.4, lower score = greater self-efficacy), parent liking of vegetables used in the course (7.8 to 8.1/10.0), vegetable variety (30 to 32/37 for parent, 22 to 24/37 for child), and home vegetable availability (16 to 18/35). **Conclusions and Implications:** A vegetable-focused cooking and nutrition program for parents and children was effective in improving psychosocial factors, vegetable liking, variety, and home availability.

## Introduction

Americans of all ages are not meeting vegetable intake recommendations. To encourage greater vegetable intake through meals prepared at home, cooking interventions have commonly targeted low-income families to attenuate barriers to home-cooked meals including low cooking confidence, nutrition knowledge, liking, and limited food resources. Familial participation evokes a positive social experience and promotes a sense of connectedness which may lead to increased liking of targeted foods (e.g., vegetables) as proposed by the some behavioral theories.

## Purpose

To evaluate the impact of a vegetable-focused cooking skills and nutrition program on parent and child psychosocial measures, vegetable liking, variety, and home availability.



## Design and Methods

- Participants: Parent/child pairs (n=89)
- Intervention: *Cooking Matters® for Families* Program revised to emphasize information and activities related to procuring vegetables, using various vegetable preparation methods, and incorporating vegetables into meals and dishes.
- Six, 2-hour cooking and nutrition education sessions had the following format: 1) a professional chef demonstrated a vegetable-focused recipe 2) parent/child pairs prepared the recipe under the guidance of the chef and nutrition educator, 3) the nutrition educator delivered a nutrition education lesson, and 4) participants ate the meal they prepared together.
- Effectiveness: baseline and immediate-post course assessment of psychosocial outcomes, vegetable liking, variety of vegetables tried, and home availability of vegetables

## Results

### Baseline Characteristics

- The majority of parents were female (96%), in the 30-39 age range (53%) had a high school diploma of GED or less as the highest level of education (60%), were non-white (84%) and indicated their household was low or very low food secure (61%).
- The majority of children were female (62%), between 9-10 years of age (69%) and were non-white (91%).

**Table 1. Pre- and Post-Course Psychosocial Scaled Measures for Parents and Children (n = 89 parent-child pairs)**

Measure	Pre-Course Mean (SD)	Post-Course Mean (SD)	P-value
Parent Cooking Confidence Scale	4.0 (1.0)	4.4 (0.7)	<.0001
Healthy Food Preparation Scale	3.6 (0.6)	3.9 (0.6)	<.0001
Barriers Scale	2.3 (1.0)	2.2 (1.0)	0.54
Parent Food Resource Management <sup>1</sup>			
How often do you compare prices before you buy food?	4.0 (1.2)	3.9 (1.2)	0.69
How often do you plan meals ahead of time?	3.6 (1.1)	3.9 (0.9)	0.69
How often do you use a grocery list when you shop?	3.2 (1.4)	3.5 (1.3)	0.69
Child Self-Efficacy Scale	14.8 (5.3)	12.4 (4.0)	<.0001
Attitude Towards Cooking Scale	9.5 (3.4)	9.1 (3.0)	0.28

<sup>1</sup>Scoring scale: 1 = Never; 2 = Rarely; 3 = Sometimes; 4 = Often; 5 = Always;

### Acknowledgements

This project was supported by Agriculture and Food Research Initiative Grant no. 2012-68001-19631 from the USDA National Institute of Food and Agriculture. Program Name: Childhood Obesity Prevention: Integrated Research, Education, and Extension to Prevent Childhood Obesity. Program Code: A2101.



United States Department of Agriculture

National Institute of Food and Agriculture

## Results

**Table 2. Pre- and Post-Course Frequencies of Mean Number of Vegetables and Cooking Techniques of Vegetables Rated "Very Sure" or "Extremely Sure" Regarding Confidence**

Measure	Pre-Course n (%)	Post-Course n (%)	P-value <sup>1</sup>
Mean Number (SD) Vegetables Rated "Very Sure" or "Extremely Sure" in Cooking/Preparing	16.5 (7.0)	19.6 (6.0)	<.0001
Mean Number (SD) Cooking Techniques for Vegetables rated "Very Sure" or "Extremely Sure"	5.0 (3.3)	6.4 (2.8)	0.0001

<sup>1</sup>Paired t-test

**Table 3. Pre- and Post-Course Liking and Variety and Home Availability of Vegetables for Parents and Children**

Measure	Parent			Child		
	Pre-Course Mean (SD)	Post-Course Mean (SD)	P-value	Pre-Course Mean (SD)	Post-Course Mean (SD)	P-value
Mean Liking Rating Score Across ALL Vegetables <sup>1</sup>	6.8 (1.6)	7.0 (1.5)	0.12	6.9 (1.4)	6.9 (1.2)	1.00
Mean Liking Rating Score Across 20 Vegetables Prepared/Eaten in Course <sup>1</sup>	7.8 (1.3)	8.1 (1.3)	0.01	7.0 (1.5)	7.1 (1.3)	1.00
Mean Liking Rating Score Across 17 Vegetables Not Prepared/Eaten in Course <sup>1</sup>	5.5 (2.1)	5.6 (2.0)	0.68	7.0 (1.9)	6.6 (1.6)	0.15
Mean Number of Vegetables Tried <sup>2</sup>	29.5 (5.1)	31.7 (4.7)	0.0005	22.4 (5.7)	23.9 (5.3)	0.04
Mean Number of Available Vegetables Present in Home	16.1 (5.7)	17.9 (5.4)	0.03			

<sup>1</sup>Liking Score Range 1 = "Hate it" to 10 = "Love it"; <sup>2</sup>Measure of Variety

## Significant Results

### Increased from Pre- to Post-Course

- Parental Cooking Confidence, Healthy Food Preparation Skills
- Child Self-Efficacy
- Parental Liking of Vegetables Prepared in Course
- Parent and Child Vegetable Variety
- Number of Available of Vegetables in the Home
- Mean number of vegetables and cooking techniques of vegetables rated "Very Sure" or "Extremely Sure" regarding confidence

## Conclusions

- The increases in confidence for cooking specific vegetables and for using cooking methods may be attributable to the high number of different vegetables incorporated into the recipes and to the repeated use of 5 of the vegetable-cooking methods throughout the course.
- A vegetable-focused cooking-skills program where parents and children learn together is worthy of further implementation and investigation as findings from the current study showed a positive impact on psychosocial measures, vegetable liking, vegetable variety, and home availability of vegetables.



UNIVERSITY OF MINNESOTA

Driven to Discover<sup>SM</sup>