EAT GEORGIA GROWN: COOKING DEMONSTRATION AND RECIPE SAMPLING WITH GEORGIA EFNEP PROGRAM ASSISTANTS

by

SARA JORDAN PRITSCHET

(Under the Direction of Caree Cotwright)

ABSTRACT

Fruit and vegetable intake is linked to prevention of several chronic diseases, however many Americans do not meet recommendations. The Expanded Food and Nutrition Education Program (EFNEP) is a community nutrition education program that was developed to improve the diet quality of low income families and uses a peer education model. Cooking demonstrations and samplings featuring recipes prepared with Georgia grown fruits and vegetables were conducted with Georgia EFNEP program assistants (n = 26) to evaluate recipe acceptability, change in fruit and vegetable intake, as well as self-efficacy and attitudes for teaching concepts related to fresh fruits and vegetables. The recipes were acceptable and can be used in future nutrition education programs. No significant differences were found for fruit and vegetable intake, attitudes, and 6 self-efficacy measures. Self-efficacy for making fruits and vegetables affordable significantly decreased, but some degree of confidence was maintained.

INDEX WORDS: Recipes, Cooking demonstration, Self-efficacy, Fruit and vegetable, EFNEP, paraprofessionals

EAT GEORGIA GROWN: COOKING DEMONSTRATION AND RECIPE SAMPLING WITH GEORGIA EFNEP PROGRAM ASSISTANTS

by

SARA JORDAN PRITSCHET

BS, University of Illinois Champaign-Urbana, 2010

A Thesis Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

MASTERS OF SCIENCE

ATHENS, GEORGIA

2015

© 2015

Sara Jordan Pritschet

All Rights Reserved

EAT GEORGIA GROWN: COOKING DEMONSTRATION AND RECIPE SAMPLING

WITH GEORGIA EFNEP PROGRAM ASSISTANTS

by

SARA JORDAN PRITSCHET

Major Professor:	Caree Cotwright
Committee:	Elizabeth Andress
	Ruthann Swanson

Electronic Version Approved:

Julie Coffield
Interim Dean of the Graduate School
The University of Georgia
May 2015

ACKNOWLEDGEMENTS

I would like to thank my advisor, Dr. Cotwright and committee members, Dr. Swanson and Dr. Andress. Thank you for helping craft this project and guide me along the way. The EFNEP team was also a pleasure to work with and instrumental in making the project happen. I would also like to thank my family for their support and encouragement.

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER 1

INTRODUCTION

Effective and sustainable interventions are needed to increase fruit and vegetable intake, especially in low income populations. Low fruit and vegetable intake is pervasive and leads to poor diet quality and increased risk for disease (1, 2, 3). Increasing intake of fruits and vegetables has proven difficult (4, 5). In low income populations, accessibility, cost, taste preferences, social norms, and self-efficacy are barriers to adequate consumption of these foods (6, 7, 8, 9).

Community nutrition education programs have had success in improving nutrition knowledge and diet quality in low income communities (10, 11, 12). The federal Expanded Food and Nutrition Education Program (EFNEP) is one those programs and is currently providing nutrition education in 29 counties in the state of Georgia. Cooking skills and food resource management are important concepts taught in this program with the goal of increasing diet quality of participants, including increasing fruit and vegetable intake (13). Within this program there is a need for recipes featuring fresh fruits and vegetables, as food assistance programs are offering benefits that provide incentive to purchase these foods (14). Increasing acceptance of new fresh fruits and vegetables through recipes designed for this population may increase intake in this population.

Purpose and research questions

The purpose of this study was to develop a set of recipes using Georgia grown fruits and vegetables that would meet set criteria for nutritional quality while also being acceptable. The

recipes must also meet the needs of the target audience by being simple to prepare and feature ingredients available in the respective communities. If the recipes were found to be acceptable, the goal would be to include them into future nutrition education programs. The secondary purpose of this study was to determine the relationship between cooking demonstrations and recipe sampling and EFNEP program assistant's self-efficacy for teaching concepts related to fresh fruits and vegetables. As the program assistants are leaders in their respective community and influence the acceptance of new nutrition behaviors, the study also sought to describe their attitudes related to fresh fruits and vegetables as well any attitude changes as a result of the intervention. The research questions that influenced the development of this study are as follows:

1) Can a set of newly developed recipes featuring Georgia grown fruits and vegetables be acceptable to the target audience, Georgia EFNEP program assistants, and does acceptance of the recipes lead to purchase and consumption of the featured fruits and vegetables?
2) Does a cooking demonstration and recipe sampling increase Georgia EFNEP program assistants' self-efficacy for teaching and promoting concepts related to fresh fruits and vegetables?
3) Does a cooking demonstration and recipe sampling improve Georgia EFNEP program assistants' attitudes related to fresh fruits and vegetables?

Significance of study

As peer educators, program assistants influence their participants on a personal level. Improving their self-efficacy and attitudes related to fresh fruits and vegetables may influence their teaching effectiveness and lead to increased fruit and vegetable intake in their communities.

Fresh fruits and vegetables that are grown locally are expected to be more available and affordable. The recipes developed in this study meet a need for low cost and simple to prepare recipes using Georgia grown produce that could be used in nutrition education programs. Increasing the quantity and variety of fresh fruits and vegetables can aid in reducing the risk for chronic disease, including cardiovascular disease, diabetes, and certain types of cancers, for which low income and minority populations are at an increased risk (1).

CHAPTER 2

LITERATURE REVIEW

This literature review will examine the current evidence that guided the development of a nutrition intervention to increase Georgia grown fresh fruit and vegetable intake and improve self-efficacy for teaching concepts related to fresh fruits and vegetables. This chapter is divided into six sections: 1) fruit and vegetable intake and health implications, 2) barriers to fruit and vegetable intake, 3) cooking based interventions to increase fruit and vegetable intake, 4) peer education, 5) social cognitive theory and behavior change interventions, and 6) self-efficacy association with fruit and vegetable intake.

Fruit and vegetable intake

Consumption of fruit and vegetable intake in the United States is below current recommendations (3). The 2010 Dietary Guidelines for Americans recommend, for a 2000 calorie diet, 2.5 cups of vegetables and 2.0 cups of fruit per day with special emphasis on dark green, red, and orange vegetables. Most Americans consume less than half of this recommended intake (3). Despite national interventions, such as the 5-A- Day media campaign to increase awareness of how much fruits and vegetables to consume daily, only 10.8% of the population met recommendations from 1999 to 2002 per the National Health and Nutrition Examination Survey (NHANES) (4, 15). Those meeting recommendations did not significantly increase from previous data collected from 1988 to 1994. When the recommended number of servings of fruit and vegetables increased with the publication of the 2005 Dietary guidelines, the percentage of Americans meeting recommendations decreased to 5.7% based on 2003 to 2004 NHANES data

(16). From this data the major source of fruit included 100% orange juice, apples, apple juice, bananas, watermelon, and oranges. Top sources of vegetable servings included fried and non-fried potatoes, lettuce, tomatoes and tomato products, including pizza sauce and salsa (16). Special emphasis has been put on dark green and orange vegetables due to their high nutrient density. Intake of foods in these categories also is inadequate with Americans consuming one third of the recommended servings per day (5).

Currently, 39.2% of Americans consume less than one fruit per day and 22.9% consume less than one vegetable per day (17). In Georgia, 43.2% eat fruit less than one time per day and 23.7% eat vegetables less than one time per day. Low income and minority populations are especially susceptible to low fruit and vegetable consumption (18, 19, 20). Consumption among Georgia's low income population is also inadequate with 70% eating less than two fruits per day and 75% eating less than three vegetables per day (6). Not only is total intake affected by income status, but quality and variety of fruit and vegetable intake is impacted. The variety of fruits and vegetables in an individual's diet is decreased in groups with limited financial resources (21). Bowman reported that women who consider price a very important factor in food purchases were more likely to be of low income and education status and consumed more sweetened fruit drinks and fewer non-starchy vegetables (22).

Low fruit and vegetable intake health implications

Low fruit and vegetable intake is of concern due to its association with many chronic diseases. Risks for stroke, hypertension, heart disease, diabetes, and some types of cancers are increased with inadequate fruit and vegetable consumption (1, 2). One large prospective study (n = 451,151) found a 11% reduction in risk of death for those consuming the highest amount of fruits and vegetables, greater than 569 grams per day, when compared to those consuming the

lowest amounts, less than 249 grams per day, independent of total energy intake (23). This is consistent with other prospective studies that consistently report 10-25% reduced mortality with high fruit and vegetable intake (23). The World Health Organization estimates that 19% of gastrointestinal cancer, 31% of ischemic heart disease, and 11% of stroke globally is attributable to low intake of fruits and vegetables (24). Low fruit and vegetable intake led to 2.7 million deaths and 26.7 disability-adjusted life years (DALYs) (24). Increasing fruit and vegetable intake may not only increase length of life, but also quality of life through disease prevention.

Determining the relationship between fruit and vegetable intake and disease risk is complicated by the fact that higher intake is associated with higher socioeconomic status and other healthy lifestyle behaviors (25). How these foods are prepared also affects the nutritional quality and potential disease risk reduction. Added fat and sodium common to southern cooking methods for vegetables may negate the benefits of consuming these foods (26). Nutrients found in fruits and vegetables play a role in overall health and diet quality. Fruits and vegetables are typically low in calories and fat and good sources of potassium, antioxidants, vitamins, minerals, and fiber (27, 28, 29, 30). Potassium is an essential nutrient involved in maintaining fluid balance and normal cardiac rhythm. Increasing potassium in hypertensive individuals can reduce systolic and diastolic blood pressure by 3.49 and 1.96 mm Hg respectively (31, 32). Potassium is also inversely associated with risk of stroke (31). Dietary fiber has been associated with reduced mortality from disease, especially gastric disease and those of cardiovascular origin due to the cholesterol lowering effect (29, 33). Meeting dietary guidelines for fruits and vegetables leads to higher fiber and potassium intake.

In addition to higher intake of key nutrients for improved health, fruits and vegetables may also play a role in weight management. Obesity is linked to increased risk for many chronic

diseases (34). Fruits and vegetables may play a secondary role in disease prevention through aiding in the maintenance of a healthy body weight. These foods have high water content and low caloric value and also may contribute to increased satiety (35). Low energy dense foods, such as fruits and vegetables, allow for a higher volume of food to be consumed with less calories compared to foods of higher energy density. A study examining the effects of energy density in lean (n = 19) and obese (n = 17) women found that across groups, those consuming meals with lower energy density foods had a significantly lower calorie intake (36). Replacing high caloric dense foods with fruits and vegetables is one strategy for reducing caloric intake and maintaining a healthy weight. A randomized trial that worked to lower the energy density of the intervention group through increased fruit and vegetable intake and decreasing fat intake found a significant weight loss after one year (37). However, further follow-up showed no significant difference in weight loss between control and intervention groups. Additional intervention beyond increasing fruit and vegetable intake is most likely need for weight loss.

Increasing fruit and vegetable intake is a key recommendation for prevention and management of cardiovascular related disease. The benefit of high fruit and vegetable intake is most notable in decreasing the risk of stroke and for lowering blood pressure (30, 38). Stroke incidence and cardiovascular disease mortality is reduced by 27% when fruits and vegetables are consumed more than three times per day compared to less than one time (39). Stroke and ischemic heart disease mortality is also reduced by 42% and 24% respectively. A meta-analysis study on the relationship between cardiovascular disease and fruit and vegetable intake found a dose response relationship of a 0.84 risk reduction per 300 grams of fruit consumption per day and 0.82 reductions per 400 grams vegetables consumption per day (40). A prospective study using the Nurses' Health Study and the Health Professionals' Follow-up Study (n = 126, 399)

found a 4% reduction in risk for coronary heart disease for every additional one fruit or vegetable serving per day consumed (41). Fruits and vegetables rich in Vitamin C rich as well as dark green leafy vegetables were associated with the greatest risk reduction (41).

In addition to reduced cardiovascular disease risk factors, fruit and vegetable intake has also been linked with cancer prevention. Evidence is conflicting for the relationship between fruit and vegetable consumption and cancer prevention with some studies finding no association (42, 43, 44, 45). However, other prospective studies have found inverse relationships between fruit and vegetable intake and bladder, colorectal, lung, stomach, and breast cancer (42, 46, 47, 48). Intake below recommended levels is associated with a greater cancer risk, but evidence for further protection with higher intake beyond current recommendations is not clear.

Increasing fruit and vegetable intake improves overall diet quality and intake of key nutrients, which may lead to decreased risk for type II diabetes (27, 49). Evidence for direct diabetes risk reduction with total fruit and vegetable intake is not conclusive and maybe a secondary factor related to weight management and diet quality (1). A meta-analysis of prospective cohort studies found a 0.99 risk reduction for type II diabetes with every serving per day increase of fruits and vegetables (50). The lowest risk was observed with two to three servings per day of vegetables and 2 servings per day of fruit, which is consistent with the 2010 Dietary Guidelines for Americans. High fruit and vegetable intake compared to low intake amounts have also been cited to be associated with a 21% lower risk of type II diabetes (51). Studies have also reported that total vegetable intake, but not total fruit intake, is inversely associated with reduced risk (51, 52). However, one study of Finnish men found berry consumption, but not other fruits, produced a significant reduction in risk (53). Berries are particularly high in fiber and antioxidants which may play a role with this particular type of fruit

reducing the risk for type II diabetes. The subgroups of vegetables that are associated with the greatest risk reduction of type II diabetes are root vegetables and dark green leafy vegetables (54).

Barriers to fruit and vegetable intake

Fruit and vegetable intake is inadequate across socioeconomic status, but low income groups have additional barriers to meeting intake recommendations. Barriers to meeting daily intake recommendations include access, cost, time, cooking knowledge, taste preferences, social influences, and self-efficacy (7, 8, 9, 55, 56). Considerations of particular importance in deciding to purchase and consume fresh fruits and vegetables in a low income population include availability of preferred fruits and vegetables, seasonality, convenience, and spoilage concerns (57, 58). Based on survey results within a low income group, health and nutrition, taste and flavor, as well as vitamin and mineral content, were promoters for fruit and vegetable intake (58). Finances were the main barrier for fruit intake, while taste preference was the top barrier to vegetable intake. Availability and convenience and having items on hand were barriers for both fruits and vegetables. Chen et al examined barriers to fruit and vegetable consumption in Women, Infant, and Children's (WIC) participating mothers (n= 249) in Atlanta, Georgia (59). Of those mothers surveyed, 85% identified with not knowing how to choose fresh fruit and vegetables, which items are in season, how to store produce, and ways to make fruit and vegetables affordable. Understanding these barriers is important in designing interventions to increase fruit and vegetables intake.

Access to a variety of quality fruits and vegetable is a major determinate of whether daily intake recommendations can be met (60). Low income, rural, and minority neighborhoods typically have a greater availability of fast foods restaurants and energy dense food options,

while having less access to healthy foods, including fruits and vegetables (61). Those that must travel a greater distance to obtain fresh fruits and vegetables and therefore may go to the store infrequently are more likely to choose items with longer shelf-life (7). Without convenient access to stores offering fresh fruits and vegetables, these foods are not regularly purchased. Intake maybe higher for a short period after a shopping trip, but then becomes low until another trip can be made. Interventions to increase access to fruits and vegetable in these communities include farmer's markets, community gardens, and incentives to stores to provide fresh fruits and vegetables (62). Evans et al found that introduction of farm stands in low income minority communities in Austin Texas significantly increased intake of fruit, tomatoes, green salad, and other vegetables (63). These results are consistent with other studies and the benefit of markets is greatest when combined with subsides through Supplemental Nutrition Assistance Program (SNAP) and WIC (64).

Although increasing availability of fruits and vegetables in low income communities is necessary for increased intake, it does not always translate to increased intake. Cummins et al reported that fruit and vegetable purchase and consumption did not significantly change after the opening of a supermarket in an area considered to be a food desert, where access to healthy foods is low or difficult to procure (65). Within a low socioeconomic group, women who consume more fruits and vegetables were found to have a greater perceived knowledge of cooking, family support, availability of healthy food, and more meal preparation time (66). Skills and knowledge are needed to utilize improved access to fruits and vegetables. For communities that are not accustomed to purchasing fruits and vegetables further intervention is needed to increase intake (59, 67). Beyond access, low intake of fruits and vegetables can be attributed to lack of cooking skills, taste preferences, lack of confidence in trying new fruits and vegetables, and concern

about price (67, 68, 69). Developing a taste for fruits and vegetables and knowing how to prepare them to increase palatability is needed for increased intake along with increased access to these foods.

Changing the perception of fruit and vegetable cost is important in motivating individuals in low income communities to purchase and consume more of these foods. The perceptions that fruits and vegetable are too expensive and cannot provide the quantity of food needed to satisfy are pervasive beliefs and barriers (9). Low income mothers often focus on stretching food out over the month and avoid foods that they feel "don't last" (56). However, with meal planning and strategic food purchasing, meeting daily fruit and vegetable intake recommendation can be affordable (70). The United States Department of Agriculture (USDA) developed the Thrifty Food Plan to illustrate how financial resources can be allocated to meet these recommendations (71). Current Thrifty Food Plan cost, per February 2015 data, is $38.40 per week for females 19 to 50 years old and $43.40 per week for males 19 to 50 years old (72). Fruit makes up 17-20% of total spending and vegetables account for 20-22% of total spending in this food plan (73). Education is needed to help low income individuals implement this budgeting system for food purchasing.

Cooking based intervention to increase fruit and vegetable intake

Community nutrition programs in low income communities work with individuals and groups to reduce barriers that make adequate consumption of fruits and vegetables difficult (16, 10, 11). Many of these community based interventions targeting fruit and vegetable intake have used cooking as the core educational method. Cooking based interventions can address many barriers to increasing fruits and vegetables, including purchasing strategies, proper storage and meal planning to reduce waste, and taste preference in addition to improving preparation skills.

Increasing cooking confidence and skills are important factors in being able to increase intake of fruits and vegetables (13). The most affordable produce comes in the whole form, not pre- cut or washed. Making these foods fit in a limited budget requires purchasing the whole, raw foods and washing and prepping in the home (74, 75). Basic cooking skills are needed in order include these less expensive foods into meals and meet fruit and vegetable recommendations.

Interventions have used cooking based curriculums to address the need for improved cooking skills in order to include more fruits and vegetables in meals. Cooking based interventions may also increase exposure to new fruits and vegetables and can increase acceptance of those foods (76, 77). The Cooking Up Diversity study (intervention n = 604; control group n = 600) used a combination of cooking demonstrations and tastings with take home recipe cards in elementary schools in California (76). The author reported that providing recipe cards to families increased the quantity and variety of fruits and vegetables at home. Another similar cooking based nutrition intervention was the Cooking with a Chef program (intervention n = 42; control n = 42) implemented by Clemson University Extension and Head Start (10). This study paired a chef with a health educator to provide both culinary and nutrition education to parents with children participating in Head Start. The authors reported that participants improved their cooking skills and confidence for trying new foods and incorporated more fruits and vegetables into meals.

In addition to cooking skills, recipes that utilize locally grown produce, are simple to prepare, and of low cost can also aid individuals in increasing their intake of fruits and vegetables. The University of Kentucky program Plate it Up: Kentucky Proud developed a bank of recipes to be used in Cooperative Extension programming with the goal of increasing purchase and preparation of locally grown produce and improving health through increased

consumption of fruits and vegetables (78). The target audience for recipe sampling and recipe card distribution was consumers at farmer's markets (n=1,074). Those who were not previously planning on purchasing the fruit or vegetable featured in the recipe rated, after sampling the recipe, their likelihood of purchase that day at a 5.9 and in the future at a 6.8 on a 10 point scale, with 10 being highly likely (78). At a two week follow up, 36% had prepared the recipe they received at the farmer's market at least once and participants rated the impact of sampling on home preparation 7.8 on a 10 point scale, with 10 being extremely important (78). Providing appealing recipes and allowing consumers to sample recipes is an effective way to increase the use of featured ingredients.

Cooking based nutrition education is also incorporated into national federally funded programs. The Expanded Food and Nutrition Education Program (EFNEP) is a federally funded USDA program administered at the state level through land grant universities (79). In Georgia, EFNEP is conducted in 29 counties. This community based nutrition education program was developed to increase nutrition knowledge and skills to improve the diet quality and health of low income families (80). As of 2013, 85% of participants are at or below the 100% poverty line and 72% are minorities (80). In Georgia, EFNEP currently uses a cooking based curriculum. The recipes used in each lesson correspond with the nutrition education topic. Based on the 2013 annual EFNEP evaluation, 90% of graduates report improved nutrition practices and 84% report improved food resource management skills (80). Previously, Devine conducted a 6 week nutrition education series consisting of cooking demonstration and recipe sampling with EFNEP participants (n =269) in New York state (81). The authors reported increased frequency of fruit and vegetable intake as well as improved attitudes towards fruits and vegetables as a result of the

intervention that included peer support, recipe tasting, and provision of food skill information and practice.

Peer education efficacy

Peer education plays an important role in delivering nutrition education to low income and minority communities (81, 82, 83, 84, 85). EFNEP enlists paraprofessionals or peer educators, who are members of the communities they serve. They are required to have a high school diploma or GED and are trained in the areas of food resource management, food safety, and various nutrition topics including the importance of fruits and vegetables. Results from a focus group conducted with Georgia EFNEP paraprofessionals revealed that this group improved their own nutrition practices and felt they were more knowledgeable after serving as a peer educator (86). A multi-state survey of program assistants, including Georgia, revealed that not only do they have increased nutrition knowledge as a result of being peer educators, but have also been found to have increased quality of life (87). Program assistants put important healthy eating messages into the voice of the community, making it more meaningful and relevant.

The use of paraprofessionals is a cost-effective strategy and increases the ability of the educator to build rapport with the participants (79). Social support along with nutrition education improves outcomes. Peer education is more conversational and the group develops its own social norms surrounding healthy eating behaviors that can then be disseminated throughout the community to improve health outcomes (88, 89). Buller reported that the addition of peer educators to a nutrition education program with lower socioeconomic and multicultural employees (n = 695), conducted at multiple work sites in Arizona, was effective in increasing fruit and vegetable intake and positive attitudes related to consuming fresh fruits and vegetables in a low socioeconomic and diverse group (90). Glasson reported that after a 6 week peer

education program participants were more likely to agree that vegetables are easy to prepare, less likely to find buying fruits and vegetable difficult due to cost and more likely to have worked on changing their consumption of vegetables and feel more confident that they could do so successfully (91). Peer educators can significantly change attitudes and beliefs related to barriers impeding fruit and vegetable intake.

Social cognitive theory and self-efficacy

The theory employed by many community nutrition education programs is the social cognitive theory, which was first developed by Dr. Albert Bandura in the 1970s. This theory uses a multi-factor approach to study human behavior, including health behaviors. Environmental, cognitive, and personal factors interact to influence individual behavior (92). This interaction is described by Bandura as reciprocal determinism, or a dual direction of influence. Environmental stimuli, including social cues, are processed according to one's own individual's cognition, which reflect their beliefs, opinions, and experiences (92). The environment also plays a role in the formation of this cognitive filter, altering experiences and beliefs (92). Behavior is also influenced by one's own outcome expectations, motivation, and efficacy (93, 94). This theory is particular applicable to heath behaviors, like dietary choices, as social systems and self-motivation play a large role in maintaining or changing a health related behavior.

Self-efficacy is a construct of the social cognitive theory and is defined as an individual's belief in their own effectiveness to overcome barriers in changing a behavior (94, 95). The level of perceived self-efficacy influences motivation to perform and continue to perform behaviors as well as to recover from set-backs (96). The concept of self-efficacy can be further divided into action and coping self-efficacy, where high action self-efficacy leads to intention to make a

change and high coping self-efficacy leads to maintenance of the behavior (97). Feedback from the environment and personal outcome expectations can have a negative or positive effect on self-efficacy (97). Self-efficacy can be increased through practice, encouragement, and modeling of desired behavior (98, 99).

Self-efficacy is included in behavior change models, such as the transtheoretical model and health action process approach (97, 100). Behavior change occurs when intention turns into action and that action is maintained. Self-efficacy is included in behavior change as a construct that assists an individual in moving through phases or stages of change and in maintaining the change (94, 101). Action and coping self-efficacy are important to behavior change interventions as one must be confident they take steps necessary to make a change and recover from setbacks in order to sustain long term change.

Self-efficacy association with fruit and vegetable intake

High self-efficacy can be a predictor of success in increasing fruit and vegetable intake in response to an intervention (102, 103). Change in self-efficacy during an intervention has a positive correlation with fruit and vegetable intake (99, 104, 105, 107). Various intervention strategies have been employed to alter self-efficacy including electronic based material, focus groups, individual counseling, intensive lesson series, and combination interventions (105).

A study by Cullen examined goal achievement of EFNEP participants (n=372) after a 6 week nutrition course (107). This course consisted of discussions and modeling desired behaviors and strategies to overcome barriers in adopting the behaviors. The authors reported that those participants who had the greatest goal attainment had the highest self-efficacy for planning fruit and vegetable consumption, making fruits and vegetables available, and menu planning skills (107). Langenberg also examined the role of self-efficacy in a low income

population, WIC mothers participating in the Maryland 5 A-Day program (n = 1679 control, n = 1447 intervention) (103). The authors reported that increased self-efficacy mediated the success of an intervention to increase fruit and vegetable intake (n= 3,122) (103). Self-efficacy was also associated with a greater increase in fruit and vegetable intake when compared to increased knowledge.

Many studies have demonstrated that high self-efficacy is an important component of making positive health behavior changes, including increasing fruit and vegetable intake. In using peer educators to implement nutrition education, the self-efficacy of the educators to perform the behaviors they are teaching becomes an important factor to consider. Their efficacy to effectively teach these behaviors is also of interest. Increasing educators' self-efficacy for teaching concepts related to nutrition increases their outcome expectations (108). If educators believe they can effectively teach a concept the resulting outcome of their lesson maybe greater. Training that includes observation, provision of problem-solving techniques, and inclusion of how new material is compatible with current curriculum is needed to increase self-efficacy and improve intention to teach (109). Providing peer educators with training and exposure to fresh fruits and vegetables and recipes that make inclusion of these foods in their diet easier could increase their self-efficacy to teach their participants concepts related to fruits and vegetables.

Summary

Due to the health outcomes associated with low fruit and vegetable intake, there is a need to increase intake nationally, especially in low income communities. Several barriers stand in the way of successfully increasing consumption of fruits and vegetables, including lack of cooking skills, knowledge of benefits, strategic purchasing and storage to reduce waste, access, and psychosocial factors such as self-efficacy to increase intake. Community nutrition programs

are using cooking based curricula to address some of these barriers. EFNEP paraprofessionals, who are representative of the communities they serve, provide nutrition education programs to low income communities. Their acceptance of, attitudes, and self-efficacy for teaching concepts related to fresh fruits and vegetables may influence whether their clients adopt the behavior of consuming more fresh fruits and vegetables.

CHAPTER 3

EAT GEORGIA GROWN: COOKING DEMONSTRATION AND RECIPE SAMPLING WITH GEORGIA EFNEP PROGRAM ASSISTANTS

[1]Pritschet, S and Cotwright C. To be submitted to Journal of Nutrition Education and Behavior.

Abstract

• **Objective:** Develop fruit and vegetable recipes that are acceptable to Expanded Food and Nutrition Education Program (EFNEP) paraprofessionals. Explore changes in self-efficacy for teaching concepts related to fresh produce, attitudes, and intake in response to cooking demonstration and recipe sampling session.

• **Method:** A quasi experimental design, using focus groups, pre and post-test, and recipe evaluation. A cooking demonstration and recipe sampling was performed with Georgia EFNEP paraprofessionals (n=26). Change in fruit and vegetable intake, self-efficacy, and attitudes were measured in addition to recipe evaluation.

• **Results:** Recipes were acceptable and tasting contributed to intention to prepare recipe at home and purchase the fruit or vegetable featured in the recipe. No statistical differences in total fruit or vegetable intake, self-efficacy, or attitude were found.

• **Conclusions and Implications:** Recipes can be included in future nutrition education programs with low income populations could lead to purchase of fresh produce featured in recipes.

Key Words: Cooking demonstration, Recipes, EFNEP, Program assistant, Fruits and vegetables, Self-efficacy, Attitudes

Introduction

Low fruit and vegetable intake is linked to an increased risk of stroke, hypertension, heart disease, and some types of cancers (1,2). The 2010 Dietary Guidelines for Americans recommends, for a 2000 calorie diet, 2.5 cups of vegetables and 2.0 cups of fruit per day with special emphasis on dark green, red, and orange vegetables (3). Despite national campaigns to increase awareness and educate the public about the importance of fruit and vegetables intake, daily intake has not improved (4). Most Americans consume less than half of this recommended amount (3). In Georgia, 43.2% eat fruit less than one time per day and 23.7% eat vegetables less than one time per day (5).

Low income and minority populations are especially susceptible to low fruit and vegetable consumption (6,7). Georgia's low income population is also inadequate in their consumption of fruits and vegetables with 70% eating less than two fruits per day and 75% eating less than three vegetables per day (8). Not only is total intake affected by income status, but the quality and variety of fruit and vegetable intake is also impacted. Variety of fruits and vegetables in an individual's diet is decreased in groups with limited financial resources (9). Food assistance programs such as the Supplementary Nutrition Assistance Program (SNAP) and Women, Infant, and Children (WIC) give monetary aid to purchase fresh fruits and vegetables. Many farmers markets accept SNAP and WIC and offer double the dollars incentives (10,11,12).

One program addressing the need to improve fruit and vegetable intake in low income populations is the Expanded Food and Nutrition Education Program (EFNEP). EFNEP is a federally funded USDA program administered at the state level through land grand universities and was developed to increase nutrition knowledge and food resource management skills to improve the diet quality and health of low income families (13,14). The University of Georgia

conducts EFNEP outreach in 29 counties. To deliver these programs EFNEP enlists paraprofessionals or peer educators, who are members of the communities they serve and from the similar economic background. The use of paraprofessionals is a cost-effective strategy and increases the ability of the educator to build rapport with the participants (14). They are required to have a high school diploma or GED and are trained in the areas of food resource management, food safety, and various nutrition topics such as the importance of fruits and vegetables.

Barriers to meeting daily fruit and vegetable intake recommendations include access, cost, time, cooking knowledge, taste preferences, social influences, and self-efficacy (15,16). EFNEP paraprofessionals are in a unique position to address these barriers and provide social support to adopt healthier nutrition behaviors. The paraprofessionals' confidence in their ability to teach key concepts may translate to improved behavior adoption and learning outcomes in their clients, who are low income families. (17,18).

Self-efficacy is a construct of the social cognitive theory and is defined as an individual's belief in their own effectiveness to overcome barriers in changing a behavior (19). Behavior change occurs when intention turns into action and that action is maintained. Self-efficacy is included in behavior change as a construct that assists an individual in moving through phases or stages of change and in maintaining the change (19,22). Langenberg reported that self-efficacy is an important predictor of fruit and vegetable intake in a baseline survey for the 5 a Day Campaign (n= 2,811, self-efficacy explained 18% of intake variance) (22). The authors also found that increased self-efficacy mediated the success of an intervention on fruit and vegetable intake (n= 3,122, P = 0.008). Self-efficacy is associated with a greater increase in fruit and vegetable intake when compared to increased knowledge (P= 0.001, 0.6 serving increase per standard deviation increase in self-efficacy and 0.48 serving increase per standard deviation

increase in knowledge). It is important for paraprofessionals to have high self-efficacy for teaching concepts related to fresh fruits and vegetables as these foods are commonly perceived as out of reach for many low income individuals.

The objectives of this study were to 1) develop a set of low cost and easy to prepare recipes featuring Georgia grown fresh fruits and vegetables that would be acceptable to EFNEP paraprofessionals in Georgia, 2) assess change in attitudes and self-efficacy for teaching concepts related to fresh fruits and vegetables following an interactive cooking demonstration and recipe sampling session, and 3) describe Georgia EFNEP paraprofessionals' current fruit and vegetable intake and changes occur with provision of new recipes.

Methods

Study design and Participants. A quasi-experimental study design was used and all methods and procedures were approved by the University of Georgia Institutional Review Boards on Human Subjects. A convenience sample of employed Georgia EFNEP program assistants, working in 28 counties, was used (n = 26). There was no control group. Recruitment was facilitated through EFNEP Extension agents. To increase study participation intervention sessions were held during regularly scheduled monthly meetings at each site's local county office. Informed consent was obtained prior to beginning the session. No individuals declined to participate in the cooking demonstration and recipe sampling.

Recipe development. Two focus groups were conducted with nine Georgia EFNEP program assistants from the Fulton and Clarke County. Discussions were held to identify Georgia grown fruits and vegetables that are not commonly consumed, which produce was available in their respective communities, factors that influence recipe use, and available cooking equipment in homes. Focus groups attendees commonly consume a variety of Georgia grown

fruits and vegetables and reported looking for recipes that do not have many ingredients or need more than one pot or pan for preparation. Results from the focus group guided the recipe development process.

A set of 12 recipes was developed using Georgia grown fruits and vegetables. Recipe development took place in the Extension test kitchen on the University of Georgia campus. Extension staff tasted and provided feedback during the development process. To meet the needs of this population a goal cost per serving was determined using the estimated average SNAP benefit per person per month, which was $136.40 as of 2013 (23). This dollar amount was then used to determine the benefit amount per person per meal, assuming three meals per day, which was used to as the price limit for one serving of each recipe. The recipe cost also considers that SNAP benefits are not meant to cover 100% of food cost. It is expected that individuals contribute 30% of their own income on food cost and benefits (24). To align with dietary recommendations from the American Heart Association and the 2010 Dietary Guidelines for Americans, sodium, saturated fat, and added sugar were limited as much as possible while preserving taste that would be acceptable to target audience. Nutritional information was calculated using Nutritionist Pro (Axxya Systems LLC, 2015). Table 3.1 shows the desired criteria and which recipes met these criteria.

Interventions. The intervention session included an interactive cooking demonstration of two recipes and sampling of five additional recipes. A kitchen with an oven, stove, and microwave was available at each site for the demonstration and heat recipes that required it for sampling. Topics discussed during the cooking demonstration include benefits of ingredients used, how to include recipe into daily meals, affordability of recipe and preparation tips. The same two recipes, sweet potato hash and eggplant sliders were demonstrated at all sites. These

recipes were chosen to demonstrate because they included two different cooking methods, displayed different knife skills, and could be completely prepped at each site. Recipes sampled at each site varied, but all recipes were sampled at two different times. A schedule of recipes to be sampled was made to allow for one dessert recipe and one raw vegetable recipe at each site as well as paired recipes that use common ingredients to reduce waste. A total of 7 recipes were sampled and evaluated by each participant. Participants were given a cookbook that contained all the developed recipes and information on seasonality, purchase tips, storage ideas, nutrition information, and recipe cost (Figure 3.1 and Figure 3.2). A $10 WalMart gift card was also provided as a participation incentive and to encourage recipe preparation at home.

A pre and post-test was used to assess change in fruit and vegetable intake, self-efficacy for teaching concepts related to of fresh fruits and vegetables, and attitudes related to purchase, preparation, and consumption of fresh fruits and vegetables. The paper pre-test was administered at each site before beginning the intervention session. Each test was numerically coded and matched to the participants email address. The post-test survey was sent electronically using the Qualtrics survey program. To maximize response rate, the post-test was sent one week after the intervention session and time to complete follow up was not limited. A subsequent follow-up survey, collecting data only on cookbook use, was sent using Qualtrics at three months. Demographic information was also obtained on the pre-test survey using similar questions to those on the National Health and Nutrition Examination Survey (NHANES). Demographic information was obtained to describe the study population as the program assistants serve as representatives of their respective communities.

Dietary intake. Baseline and post-intervention fruit and vegetable intake was assessed through a modified and abbreviated food frequency questionnaire developed by the National

Cancer Institute (25,26). This survey separates questions based on the time of day the fruit or vegetable was consumed and separates potatoes, green salad, and fruit juice from total. Intake of fried potatoes and fruit juice were recorded on the questionnaire, but were excluded from total fruit and vegetable intake during analysis. These food items were excluded because the focus of the intervention was to increase the amount and variety of fresh fruits and vegetables consumed. Specifically, fruit juice and fried potatoes were excluded due to high sugar and fat content, respectively. Total intake of fruits and vegetables was converted to cups per day by determining the frequency the food was consumed at a given time and then portions for all times were added. Portion size was indicated as a half cup on the survey.

Psychosocial assessment. Self-efficacy for teaching concepts related to fresh fruits and vegetables was measured on the pre and post-test survey. A 5-item scale based on previously validated self-efficacy instruments was used (27,28). Questions were based on participants' self-rated confidence in performing the behavior described in each question, ranging from not at all confident to very confident. For example, "How confident are you that you could convince your participants to purchase and prepare more fresh fruits and vegetables?" Table 3.2 provides detailed survey information.

Attitude assessment. Participants' attitudes related to fresh fruits and vegetables were measured on the pre and post-test survey. Questions were developed to address specific issues related to the EFNEP nutrition education curriculum. For example, one attitude question was "Fresh fruits and vegetables can be affordable". For each statement participants chose how much they agreed or disagreed using a 5-point scale ranging from do not agree at all to strongly agree shown in Table 3.3.

Recipe evaluation. A survey based on the University of Kentucky's Plate It Up program evaluation was used to evaluate each recipe (29). Questions addressed ease of inclusion in current meals, access to ingredients, and acceptability. Likelihood of purchasing the fruits and vegetables in the recipe because of the sampling was also recorded. The evaluation survey was administered individually for each recipe immediately after sampling.

Additional data on recipe cookbook use and purchase of fruits and vegetables were collected in the post-test at one week and three month follow-up. Participants were asked to report if they purchased any of the fruits and vegetables featured in recipes they sampled and those that were in the cookbook but they did not sample. Data on whether the cookbook was helpful in planning their meals and increasing their confidence in trying new fruits and vegetables was also collected.

Statistical Analysis. Demographic information, recipe and cooking demonstration evaluation were analyzed through descriptive statistics (IBM SPSS Statistics, Version 21, IBM Corporation, Armonk, NY, 2012). A paired t-test was used to compare pre and post-test fruit and vegetable intake after verifying normal distribution. Wilcoxon test was used to analyze changes in self-efficacy and attitudes. Statistical significance was defined at $P < 0.05$.

Results

All participants present during the sessions (n=26) completed the recipe evaluation. Participant characteristics are shown in Table 3.4. A total of 18 participants, 69% response rate, completed the post- test survey within a three week period after the intervention. Results from the pre- and post-test survey are presented only from those 18 participants.

All the recipes were acceptable to the target audience. Recipe evaluation results can be found in Table 3.5. Participants concluded that these recipes would be easily incorporated into

their family meals. The fruits and vegetables used in the recipes are accessible in the communities represented by the paraprofessionals. Participants had some degree of familiarity with the ingredients or preparation methods used in the recipes.

At one week follow up, 77.8% of participants had purchased a fruit or vegetable that they had sampled and 38.9% had purchased a fruit or vegetable from a recipe in the cookbook that they had not sampled. The most frequently purchased fruit was apples, 10 purchases, and the least purchased fruit was watermelon, purchased once, which was not in season during the follow-up period. The most frequently purchased vegetable was sweet potatoes, 13 purchases, and the two least purchased vegetables were green beans and Brussel sprouts, both purchased once. Eleven (42.3%) of the 18 participants that completed the follow-up felt that the recipe book helped them feel more comfortable in trying new fruits and vegetables, while six participants (23.1%) responded that the book only helped somewhat. Ten participants (55.6%) reported that the recipe book helped them plan their future purchases at the market or grocery store, while eight participants responded that the book only helped somewhat.

Only 7 participants responded to the three month follow-up on cookbook use. Of those that responded, 57% (4) had purchased a fruit or vegetable featured in the cookbook. Those same four had prepared at least one recipe from the cookbook. Participants were also asked what recipes that they tried at home did they like or dislike. The pear grilled cheese, sweet potato hash, and harvest kale salad were mention multiple times as a recipe that was liked. The watermelon salad and eggplant sliders were mentioned as a recipe that was not liked.

Participants reported that they consumed green salad at least once per week, fried potatoes 1-3 times per month, baked or mashed potato potatoes 1-3 times per month, and fruit juice 1-2 times per week. No statistical difference was found between baseline and follow-up

intakes. The mean total fruit intake was 0.93 ± 0.9 cups per day for baseline and 0.93 ± 1.08 follow-up. Mean total vegetable intake was 1.2 ± 0.92 cups per day at baseline and 1.3 ± 1.04 cups per day follow-up. An independent t-test revealed no significant difference between intake at baseline and follow-up. Fruit and vegetable intake at each meal time is shown in Table 3.6.

Mean and median response scores for self-efficacy are shown in Table 3.7 and 3.8 respectively. Participants indicated that they were confident in their ability to teach concepts related to fresh fruits and vegetables and to convince clients to purchase and prepare more of these foods. Participants reported being fairly to totally confident in their ability to teach how to prepare these foods and about the benefits of consumption. Program assistants were totally confident being able to use recipes to increase their client's intake of fresh fruits and vegetables and demonstrate the preparation of these foods. Confidence was also high for knowing how to include more fresh fruits and vegetables in their client's diet and how to make these foods more affordable. No statistically significant differences in self-efficacy for questions 1-6 were found between baseline and follow-up. Question 7, teach how to make fresh fruits and vegetables more affordable, was scored significantly lower at follow-up compared to baseline. Despite a decrease, the program assistants maintain some degree of confidence.

Mean and median response scores for attitudes related to fresh fruits and vegetables are shown in Table 3.9 and 3.10 respectively. Participants had a positive attitude towards fresh fruits and vegetables. The participants agreed at baseline that fresh fruits and vegetables can be easily included in their own diet and that it is important to consume these foods. Participants also agreed that fresh fruits and vegetables can be affordable and do not greatly increase meal preparation time. No statistically significant differences in attitude scores were found between baseline and follow-up.

Discussion

The purpose of this study was to develop low cost and easy to prepare recipes that would be acceptable to EFNEP paraprofessionals in Georgia as well as to assess changes in attitudes, total fruit and vegetable intake, and self-efficacy for teaching concepts related to fresh fruits and vegetables. It was hypothesized that the recipes would be acceptable to the program assistants and that sampling the recipes and providing the cookbook would lead to purchase of the featured fruits and vegetables. It was also hypothesized that the cooking demonstration and recipe sampling would increase the program assistant's positive attitudes and self-efficacy for teaching concepts related to fresh fruits and vegetables.

The recipes featured a variety of local Georgia fruits and vegetables and used creative ingredient pairing and preparation methods. The acceptability of these recipes to EFNEP program assistants and the ease of inclusion in current family meals is an important indicator for the success of these recipes with other low income audiences. Two recipes, the roast winter vegetables and watermelon salsa, may not be as easily included into current meals as participants were undecided on this measure. This may be due to ingredients used in the ingredients used or the pairing of ingredients. Sampling may be important for accepting recipes that individuals are not sure they would be able to include in current meals.

Results of other studies provide evidence for the efficacy of cooking based interventions in increasing intake of fruits and vegetables (30,31,32). Findings of this present study are similar to the results of the Plate It Up: Kentucky Proud program where sampling recipes at farmer's markets increased the likelihood of participants (n= 1,074) purchasing the featured fruit and vegetables and trying the recipe at home (29). Sampling recipes that use common foods in new ways may help increase the variety of fruits and vegetables an individual consumes. Sampling

the recipes contributed to participant's intention to try the recipe at home or purchase the specific fruit or vegetable featured in the recipe. Of those recipes that the group was undecided about making if they had not tried the recipe, the program assistants responded that they were "likely to buy" the produce in the recipe and "probably, yes" planning to make the recipe at home as a result of the tasting the recipe. In the group nutrition education setting used by EFNEP peer support and encouragement aids in the adoption of behaviors and openness to new foods (33,34,35,36). EFNEP paraprofessionals can promote the use of recipes that include fresh fruits and vegetables to their clients to increase consumption and variety of these foods.

EFNEP program assistants use cooking demonstrations and recipes in their nutrition education curriculum. The program assistants may be more inclined to try new recipes and are more familiar with cooking methods than other low income Georgians. Results from a focus group conducted with Georgia EFNEP paraprofessionals revealed that this group improved their own nutrition practices and felt they were more knowledgeable after serving as a peer educator (37,38). In this present study, there was a significant decrease in self-efficacy for teaching how to make fresh fruits and vegetables more affordable. This may be due to different in pre and post-test administration. Although completed individually, the pre-test was administered in a group setting, while the post-test was completed electronically and could have been done at their home. More training in this area may be need to keep self-efficacy high. Program assistants had a high baseline self-efficacy so there was little room for an increase in response to this intervention. Due to high self-efficacy, Georgia EFNEP paraprofessionals would be likely to implement a curriculum featuring fresh fruits and vegetables and be effective at relaying these concepts to their clients.

Georgia EFNEP program assistants' mean intake of fruits and vegetables is below the recommendations set forth in the 2010 Dietary guidelines, despite high self-efficacy and positive attitudes. The cooking demonstration and recipe sampling did not significantly increase fruit and vegetable intake in the following 1-3 weeks. However, sampling the recipes and receiving the cookbook lead to the purchase of the fruits and vegetables and may have contributed to increased comfort with trying new foods, and planning meals. Supplying recipes developed for low income groups and educating them on how to overcome perceived barriers like prep time and taste preference may lead to increased intake over a longer period of time.

There are limitations to this study that require noting. One possible limitation is the sample size and lack of a control group. A convenience sample was used and a control group was not included to maximize intervention participation and recipe evaluations. Also, the length of contact time and follow-up limits the ability to measure change in fruit and vegetable intake. There was also variability in follow-up time that may have influenced results. A short duration intervention increases sustainability, but additional contact with participants and longer follow-up may improve observed results.

Implications for future research and practice

The results of this study demonstrate the ability of recipes to influence the purchase of the featured fruits and vegetables and recipe sampling on the acceptance of the recipes by Georgia EFNEP program assistants, who represent their respective communities. Use of recipes that meet the needs of a specific low income community may increase intake when incorporated into a nutrition education program that addresses the need for increased cooking skills. Program assistants included in this study demonstrate high self-efficacy for teaching concepts related to

fresh fruits and vegetables prior to the intervention. Therefore, enlarging the recipe database for their programs increases the likelihood of increasing fruit and vegetable intake in participants.

Evaluating the effectiveness of incorporating these recipes into the current EFNEP curriculum would constitute a logical next step. The program assistant's buy in to promote the recipes and concept of using fresh produces could be examined in relation to the degree of acceptance by their respective participants. The recipes could also be used at farmer's markets and grocery stores to examine the effect of these recipes on point-of purchase decisions. This would be a relatively low cost and sustainable intervention to increase fruit and vegetable purchase and consumption. An assessment of fruit and vegetable intake of program assistants themselves should also be examined further as current intake is not meeting established guidelines. Program assistants and EFNEP participants may share reasons for not meeting guidelines and determining what is influencing inadequate intake could improve program outcomes.

References

1. Boeing H, Bechthold A, Bub A, et al. Critical review: vegetables and fruit in the prevention of chronic diseases. *Eur J Nutr*. 2012;51:637-63.

2. Flock M, Kris-Etherton P. Dietary guidelines for Americans 2010: implications for cardiovascular disease. Curr *Atheroscler Rep*. 2011;13:499-507.

3. Dietary Guidelines for Americans 2010. Washington, DC: U.S. Department of Agriculture and U.S. Department of Health and Human Services; 2010. 7th Edition.

4. Casagrande S, Wany Y, Anderson C, Gary T. Have Americans increased their fruit and vegetable intake. *Am J Prev Med*. 2007;32:257-263.

5. State Indicator Report on Fruit and Vegetables 2013. National Center for Chronic Disease Prevention and Health Promotion. Divison of Nutrition, Physical Activity and Obesity CDC Atlanta Georgia

6. Leung C, Ding E, Catalano P, Villamor E, Rimm E, Willett W. Dietary intake and dietary quality of low-income adults in the supplemental nutrition assistance program. *Am J Clin Nutr*. 2012;96:977-88.

7. Dubowitz T, Heron M, Bird C, Lurie N, Finch B, Basurto-Davila R, Hale L, Escarce J. Neighborhood socioeconomic status and fruit and vegetable intake among whites, blacks, and Mexican Americans in the United States. *Am J Clin Nutr*. 2008;87:1883-91.

8. Grimm K, Foltz J, Blanck H, Scanlon K. Household income disparities in fruit and vegetable consumption by state and territory: results of the 2009 behavioral risk factor surveillance system. *J Acad Nutr Diet.* 2012;112:2014-2021.

9. Conklin A, Forouhi N, Suhrcke M, Surtees P, Wareham N, Monsivais P. Variety more than quantity of fruit and vegetable intake varies by socioeconomic status and financial hardship. Findings from older adults in the EPIC cohort. *Appetite*. 2014;83:248-255.

10. Kropf M, Holben D, Holcomb J, Anderson H. Food security status and produce intake and behaviors of Special Supplemental Nutrition Program for Women, Infants, and Children and farmer's market nutrition program participants. *J Am Diet Assoc*. 2007;107:1903-1908

11. Freedman D, Choi S, Hurley T, Anadu E, Hebert J. Farmers' market at a federally qualified health center improves fruit and vegetable intake among low-income diabetics. *Prev Med*. 2013;56:288-292.

12. Wheeler A, Chapman-Novakofski K. Farmers' markets: costs compared with supermarkets, use among WIC clients, and relationship to fruit and vegetable intake and related psychosocial variables. *J Nutr Educ Behav*. 2014;46:S65-S70.

13. U.S. Department of Agriculture (USDA). Expanded food and nutrition education program (EFNEP). Internet: http://www.nifa.usda.gov/nea/food/efnep/about.html (accessed 2 May 2014).

14. National Institute of Food and Agriculture (NIFA) program leadership. The expanded food and nutrition education program policies. U.S. Department of Agriculture 2013. Internet: http://www.nifa.usda.gov/nea/food/efnep/pdf/program-policy.pdf (accessed 2 May 2014).

15. Yeh M, Ickes S, Lowenstein L, Shuval K, Ammerman A, Farris R, Katz D. Understanding barriers and facilitators of fruit and vegetable consumption amon a diverse multi-ethnic population in the USA. *Health Promot Int.* 2008;23:42-51.

16. Chen D, Gazmararian J. Impact of personal preference and motivation on fruit and vegetable consumption of WIC-participating mothers and children in Atlanta, Ga. *J Nutr Educ Behav.* 2014;46:62-67.

17. Fahlman M, McCaughtry N, Martin J, Shen B. Efficacy, intent to teach, and implementation of nutrition education increases after training for health educators. *Am J Health Educ*. 2011;42:181-190.

18. Diker A, Cunningham L, Bachman K, Stacey J, Walters L, Wells L. Nutrition educator adoption and implementation of an experiential foods curriculum. *J Nutr Educ Behav.* 2013;45:499-509.

19. Bandura A. Self-efficacy: toward a unifying theory of behavioral change. *Psychol Rev.* 1977;84:191–215.

20. Ochsner S, Scholz U, Hornung R. Testing phase-specific self-efficacy beliefs in the context of dietary behavior change. *Appl Psychol Health Well Being.* 2013;5:99-117.

21. Schwarzer R. Modeling health behavior change: how to predict and modify the adoption and maintenance of health behaviors. *Applied Psychology: An International Review*. 2008;57:1-29.

22. Langenberg P, Ballesteros M, Feldman R, Damron D, Anliker J, Havas S. Psychosocial factors and intervention-associated changes in those factors as correlates of change in fruit and vegetable consumption in Maryland WIC 5 A Day promotion program. *Ann Behav Med.* 2000;22:307-315.

23. U.S. Department of Agriculture (USDA) Food and Nutrition Services. Supplemental Nutrition Assistance Program annual state level data FY 2009-2013. Internet: http://www.fns.usda.gov/pd/snapmain.htm (accessed 2 May 2014).

24. U.S. Department of Agriculture (USDA) Food and Nutrition Services. Supplemental Nutrition Assistance Program Eligiblity. Internet: http://www.fns.usda.gov/snap/eligibility (accessed 2 May 2014).

25. Thompson F, Kipnis V, Subar A, Krebs-Smith S, Kahle L, Midthune D, Potischman N, Schatzkin A. Evaluation of 2 brief instruments and a food-frequency questionnaire to estimate daily number of servings of fruit and vegetables. *Am J Clin Nutr.* 2000;71:1503-10.

26. Thompson F, Subar A, Brown C, Smith A, Sharbaugh C, Jobe J, Mittl B, Gibson J, Ziegler R. Cognitive research enhances accuracy of food frequency questionnaire reports: results of an experimental validation study. *J Am Diet Assoc 2002*. Feb;102:212-25.

27. Baranowski T, Watson K, Bachma C, Baranowski J, Cullen K, Thompson D, Riz A. Self-efficacy for fruit, vegetable and water intakes: expanded and abbreviated scales from item response modeling analyses. *Int J Behav Nutr Phys Act.* 2010;7:25-35.

28. Townsend M, Kaiser L. Development of a tool to assess psychosocial indicators of fruit and vegetable intake for 2 federal programs. *J Nutr Educ Behav.* 2005;37:170-184.

29. Stephenson T, Stephenson L, Mayes L, Webber K. Plate It Up! Kentucky Proud: A case study of a local food system fruit and vegetable point-of-purchase social marketing campaign. *Cases in Public Health Communication and Marketing*. 2013;7:61-76.

30. Chen Q, Goto K, Wolff C, Bianco-Simeral S. Cooking up diversity. Impact of a multicomponent, multicultural, experiential intervention on food and cooking behaviors among elementary-school students from low-income ethnically diverse families. *Appetite.* 2014;80:144-122.

31. Brown B, Hermann J. Cooking classes increase fruit and vegetable intake and food safety behaviors in youth and adults. *J Nutr Educ Behav.* 2005;37:104-105.

32. Condrasky M, Griffin S, Catalano P, Clark C. A formative evaluation of the cooking with a chef program. *J Ext.* 2010;48:1-18.

33. Eng E. The save our sisters project: A social network strategy for reaching rural black women. *Cancer.* 1993;72:1071-7.

34. Campbell M, Demark-Wahnefried W, Symons M, et al. Fruit and vegetable consumption and prevention of cancer: The black churches untied for better health project. *Am J Public Health.* 1999;89:1390-1396.

35. Buller D, Morrill C, Taren D, et al. Randomized trial testing the effect of peer education at increasing fruit and vegetable intake. *J Natl Cancer Inst.* 1999;91:1491-1500.

36. Glasson C, Chapman K, Gander K, Wilson T, James E. The efficacy of a brief, peer-led nutrition education intervention in increasing fruit and vegetable consumption: a wait-list, community-based randomized controlled trial. *Public Health Nutr.* 2012;15:1318-1326.

37. Hibbs J, Sandmann L. Psychosocial impact of training and work experience on EFNEP paraprofessionals. *J Ext.* 2011;49:1-10.

38. Auld G, Baker S, Bauer L, Koszewski W, Procter S, Steger M. EFNEP's impact on the quality of life of its participants and educators. *J Nutr Educ Behav.* 2013;45:482-489.

Table 3.1 Criteria Used for Recipe Development and Recipes Meeting Each Criteria

Recipe Criteria	Recipes Meeting Each Criteria
$1.50 per serving	Harvest kale salad, Sweet pear chicken salad, Fresh summer veggie salad, Savory pork and kale soup, Pear grilled cheese, Creamy ranch pasta salad, Italian eggplant sliders, Roast winter veggies, Southwest sweet potato hash, Watermelon salsa, Blueberry dessert pizza, Speedy apple pie
< 1 gram of saturated fat per serving (<5% daily value)	Harvest kale salad, Pear chicken salad, Roasted winter veggies, Savory pork and kale soup, Southwest sweet potato hash, Creamy ranch pasta salad, Watermelon salsa
<400 mg of sodium per serving (<20% daily value)	Harvest kale salad, Speedy apple pie, Pear chicken salad, Roasted winter veggies, Savory pork and kale soup, Southwest sweet potato hash, Creamy ranch pasta salad, Watermelon salsa, Blueberry fruit pizza, Eggplant sliders, Fresh summer veggie salad
<1.5 tsp added sugar per serving (<20% recommended amount per day; average of male and female recommendations)	Harvest kale salad, Speedy apple pie, Pear chicken salad, Pear grilled cheese, Roasted winter veggies, Savory pork and kale soup, Southwest sweet potato hash, Creamy ranch pasta salad, Watermelon salsa, blueberry fruit pizza, Eggplant sliders, Fresh summer veggie salad

Daily value (DV) based on a 2000 calorie diet

Table 3.2 Self-efficacy for Teaching Concepts Related to Fresh Fruits and Vegetables Survey Questions Used with EFNEP Program Assistants

Self-efficacy Questions	*Scale*
How confident are you that you could: 1. Teach how to prepare recipes using fresh fruits and vegetables? 2. Explain benefits of eating fresh produce? 3. Use recipes to increase your participant's use of fresh fruits and vegetables? 4. Demonstrate preparation of fresh fruits and vegetables? 5. Answer questions on how to include more fresh fruits and vegetables in your participant's diet? 6. Convince your participants to purchase and prepare more fresh fruits and vegetables? 7. Teach how to purchase fresh fruits and vegetables to make them more affordable?	1 = Not at all confident 2 = Not very confident 3 = Neutral 4 = Fairly confident 5 = Totally confident

Table 3.3 Attitudes Related to Fresh Fruits and Vegetables Survey Questions Used with EFNEP Program Assistants

Attitude Questions	*Scale*
How much do you disagree or agree with this statement: 1. Fresh Fruits and vegetables can easily be included into my daily diet. 2. Fresh fruits and vegetables can be affordable. 3. It is important to eat fresh produce. 4. Using fresh fruits and vegetables does not greatly increase meal prep time.	1= Strongly disagree 2= Disagree 3= Neutral 4= Agree 5=Strongly disagree

Table 3.4 Georgia EFNEP Program Assistant Demographic Characteristics (n=26)

Age (years)	Range Mean	26-72 49.2 ± 13.8
Race		n
	African American Hispanic or Latino White African American/American Indian African American/Hispanic	11 7 6 1 1
Education level		n
	High school, GED Some College or technical school College degree	2 12 12
Eligible to receive SNAP or WIC		n
	Yes No	3 23

Table 3.5 Mean Scores for Seven Variables Used in Recipe Evaluations with EFNEP Program Assistants

Recipes	Q1. *Result of tasting, how likely to buy fruit/vegetable?* (Mean ± SD)[a]	Q2**.** *Did taste test contribute to plan to try recipe?* (Mean ± SD)[b]	Q3. *Would have prepared fruit/vegetable if have not tried sample?* (Mean ± SD)[c]	Q4. *Recipe easily added into family meals?* (Mean ± SD)[b]	Q5. *Ingredients easy to find and purchase?* (Mean ± SD)[b]	Q6. *Recipe similar to dishes I prepare at home?* (Mean ± SD)[d]	Q7. *Find this recipe acceptable?* (Mean ± SD)[e]
Blueberry fruit pizza (n=8)	4.38 ±0.52	4.5 ±0.54	4.5 ±1.2	4.5 ±0.8	4.38± 0.52	2.5 ± 1.1	4.5 ± 0.54
Eggplant sliders (n=25)	4.08 ±0.81	4.24 ±0.72	3.25 ±1.3	4.00 ±0.91	4.56 ± 0.58	1.84 ± 0.94	4.28 ± 0.61
Harvest kale salad (n=19)	4.05 ±0.97	3.95 ± 1.1	3.06 ±1.4	4.05 ± 0.71	4.32 ± 0.58	1.95 ± 1.0	4.21 ± 0.71
Kale and pork soup (n=7)	3.71 ± 1.1	3.71 ± 1.3	3.14 ±1.9	3.86 ± 1.1	3.86 ± 0.9	2.00 ± 1.2	4.0 ± 1.0
Pear and chicken salad (n=19)	4.42 + 0.84	4.21 + 1.0	3.63 + 1.2	4.11 + 1.0	4.37 + 1.2	1.89 + 0.8	4.32 + 0.9
Pear grilled cheese (n=7)	4.29 ± 1.5	4.14 ± 1.5	2.71 ± 1.7	4.14 ± 1.6	4.71 ±0.49	2.14 ± 1.1	4.0 ± 1.4

Ranch pasta salad (n=18)	3.72 ± 1.1	3.53 ±1.3	3.39 ± 1.3	3.67 ± 1.2	4.5 ±0.62	2.22 ± 1.0	3.83 ± 1.2
Roasted winter vegetables (n=7)	4.43 ± 0.79	4.14 ±0.69	2.57 ± 1.8	3.57 ±0.53	4.14 ± 0.69	2.0 ± 0.82	3.71 ±0.49
Speedy apple pie (n=17)	4.71 ± 0.47	4.29 ± 0.92	3.76 ± 1.34	4.65 ± 0.49	4.76 ± 0.44	2.35 ± 0.93	4.47 ± 1.0
Sweet potato hash (n=24)	4.17 ±1.3	4.13 ±1.1	3.33 ± 1.6	3.88 ±1.1	4.58 ± 0.58	1.96 ± 1.1	3.92 ± 0.93
Watermelon salsa (n=18)	3.67 ± 1.1	3.33 ± 1.0	3.22 ± 1.4	3.50 ± 1.3	4.39 ± 0.78	1.56 ± 0.86	3.61 ± 1.2
Fresh summer veggie salad (n=7	4.29 ± 0.76	3.71 ± 1.1	4.29 ± 0.95	3.57 ± 0.98	4.71 ± 0.49	2.14 ± 1.1	3.86 ± 0.9

Scales for reported means

(a) 1= Definitely will not buy 2= Probably unlikely to buy 3= Undecided 4= Probably likely to buy 5= Definitely will buy

(b) 1= Definitely not 2= Probably not 3= Undecided 4= Probably yes 5= Definitely yes

(c) 1= Definitely not 2= Probably not 3= Undecided 4= Probably yes 5= Definitely yes 0= Did try recipe; if participant responded a 0 score was omitted from analysis

(d) 1= Not at all similar 2= Somewhat similar 3=Very similar 4= Not sure

(e) 1= Strongly disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly agree

Table 3.6 Comparison of Meal Time Fruit and Vegetable Intake by EFNEP Program Assistants at Pre and Post Intervention (n=18)

	Fruit (cups)			Vegetables (cups)		
	Pre	Post	P-Value **	Pre	Post	P-Value **
Morning	0.36 ± 0.33	0.40 ± 0.42	0.66	0.19 ± 0.36	0.19 ± 0.36	0.88
Afternoon	0.35 ± 0.39	0.29 ± 0.38	0.34	0.40 ± 0.36	0.42 ± 0.40	0.88
Evening	0.22 ± 0.29	0.24 ± 0.33	0.82	0.56 ± 0.42	0.70 ± 0.35	0.14
Total	0.93 ±0.9	0.93±1.08	0.97	1.2 ±0.92	1.3 ±1.04	0.39

**Statistical significance *P <0.05,* Paired T-test

Table 3.7 Mean Scores for Self-efficacy Measured in EFNEP Program Assistants Related to Teaching Concepts on Fresh Fruits and Vegetables (n=18)

Questions *How confident are you that you could:*	Mean*± SD response baseline	Mean* ± SD response follow-up	P-Value
1. Teach how to prepare recipes using fresh fruits and vegetables?	4.56 ± 0.51	4.50 ± 0.79	1.0
2. Explain benefits of eating fresh produce?	4.61 ± 0.61	4.44 ± 0.98	0.67
3. Use recipes to increase your participant's use of fresh fruits and vegetables?	4.67 ± 0.59	4.56 ± 0.51	0.48
4. Demonstrate preparation of fresh fruits and vegetables?	4.61 ± 0.5	4.78 ± 0.43	0.18
5. Answer questions on how to include more fresh fruits and vegetables in your participant's diet?	4.5 ± 0.62	4.56 ± 0.62	0.66
6. Convince your participants to purchase and prepare more fresh fruits and vegetables?	4.67 ± 0.49	4.33 ± 0.59	0.06
7. Teach how to purchase fresh fruits and vegetables to make it more affordable?	4.78 ± 0.43	4.44 ± 0.51	0.01**

*For Reported means: 1= Not at all Confident 2=Not very confident 3=Neutral 4=Fairly confident 5=Totally confident

** Significant $P < 0.05$, Wilcoxon test

Table 3.8 Median Scores for Self-efficacy Measured in EFNEP Program Assistants Related to Teaching Concepts on Fresh Fruits and Vegetables Scores (n=18)

Questions *How confident are you that you could:*	Median* (Inter-quartile range) baseline	Median* (Inter-quartile range) follow-up	P-Value **
1. Teach how to prepare recipes using fresh fruits and vegetables?	5 (4,5)	5 (4,5)	1.0
2. Explain benefits of eating fresh produce?	5 (4,5)	5 (4,5)	0.67
3. Use recipes to increase your participant's use of fresh fruits and vegetables?	5 (4,5)	5 (4,5)	0.48
4. Demonstrate preparation of fresh fruits and vegetables?	5 (4,5)	5 (4.75,5)	0.18
5. Answer questions on how to include more fresh fruits and vegetables in your participant's diet?	5 (4,5)	5 (4,5)	0.66
6. Convince your participants to purchase and prepare more fresh fruits and vegetables?	5 (4,5)	4 (4,5)	0.06
7. Teach how to purchase fresh fruits and vegetables to make it more affordable?	5 (4.75,5)	4 (4,5)	0.01**

*For Reported median: 1= Not at all Confident 2=Not very confident 3=Neutral 4=Fairly confident 5=Totally confident

** Significant $P < 0.05$, Wilcoxon test

Table 3.9 Mean Scores for Attitudes of EFNEP Program Assistants Related to Fresh Fruit and Vegetables (n=18)

Questions *How much do you disagree or agree with this statement:*	Mean* ± SD response baseline	Mean* ± SD response follow-up	*P-Value***
1. Fresh fruits and vegetables can be easily included into my diet.	4.67 ± 0.86	4.39 ± 0.52	0.96
2. Fresh fruits and vegetables can be affordable.	4.33 ± 0.77	4.00 ± 0.60	0.10
3. It is important to eat fresh produce.	4.39 ± 0.78	4.61 ± 0.5	0.21
4. Using fresh fruits and vegetables does not greatly increase meal prep time.	3.89 ± 0.832	3.83 ± 0.86	0.79

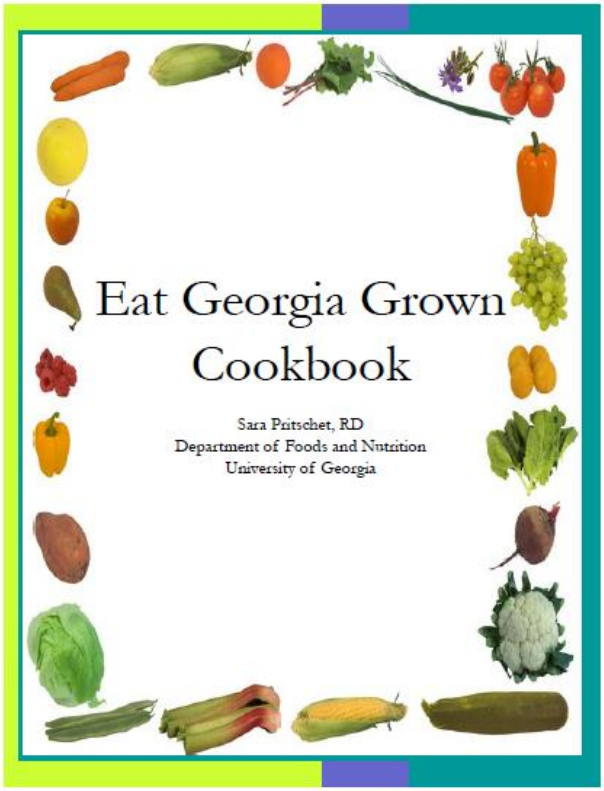
*For Reported means: 1=Strongly disagree 2= Disagree 3=Neutral 4=Agree 5=Strongly agree
**Statistical significance *P <0.05,* Wilcoxon test

Table 3.10 Median Scores for Attitudes of EFNEP Program Assistants Related to Fresh Fruit and Vegetables (n=18)

Questions *How much do you disagree or agree with this statement:*	Median* (Inter-quartile range) baseline	Median* (Inter-quartile range) follow-up	*P-Value*
1. Fresh fruits and vegetables can be easily included into my diet.	5 (4,5)	4 (4,5)	0.96
2. Fresh fruits and vegetables can be affordable.	5 (4.5,5)	4 (4,4)	0.10
3. It is important to eat fresh produce.	5 (4,5)	5 (4,5)	0.21
4. Using fresh fruits and vegetables does not greatly increase meal prep time.	5 (3,4.25)	4 (4,4)	0.79

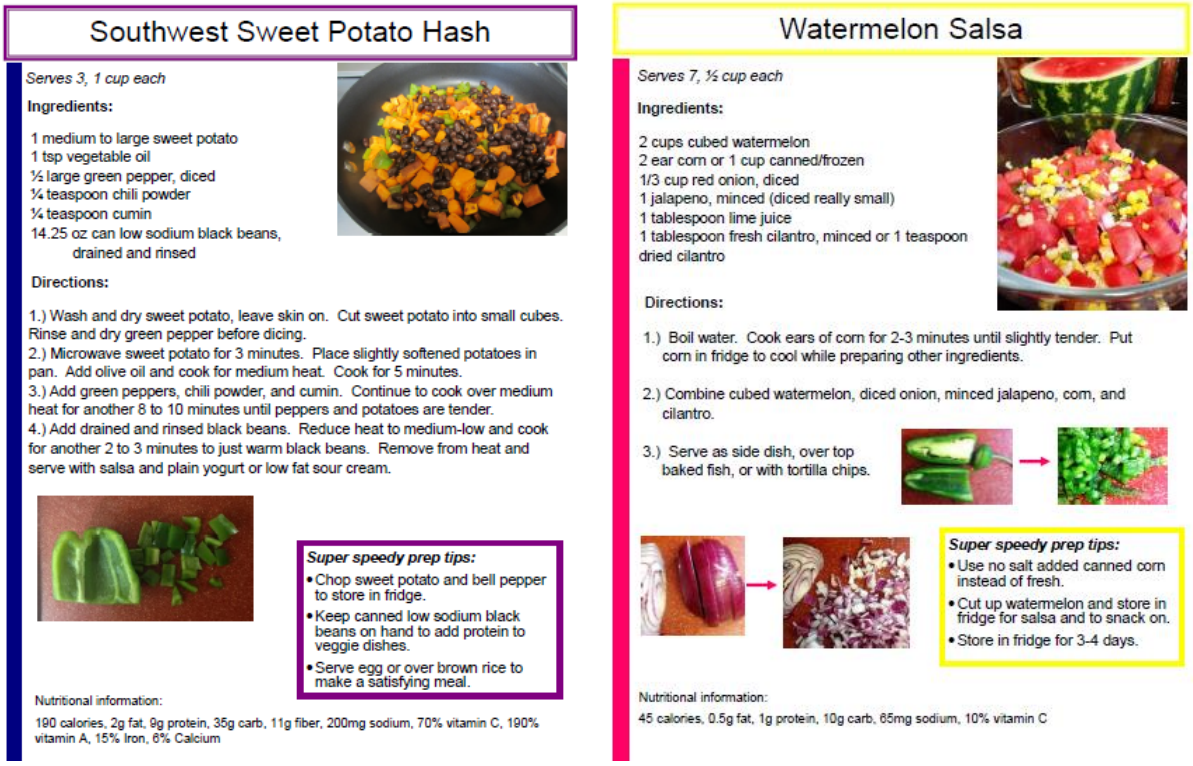
*For Reported median: 1=Strongly disagree 2= Disagree 3=Neutral 4=Agree 5=Strongly agree
Statistical significance *P <0.05,* Wilcoxon test

Figure 3.1 Eat Georgia Grown Cookbook Sample Pages



Recipe Index

Figure 3.2 Sample Recipes Pages from Cookbook



Southwest Sweet Potato Hash

Serves 3, 1 cup each

Ingredients:

1 medium to large sweet potato
1 tsp vegetable oil
½ large green pepper, diced
¼ teaspoon chili powder
¼ teaspoon cumin
14.25 oz can low sodium black beans, drained and rinsed

Directions:

1.) Wash and dry sweet potato, leave skin on. Cut sweet potato into small cubes. Rinse and dry green pepper before dicing.
2.) Microwave sweet potato for 3 minutes. Place slightly softened potatoes in pan. Add olive oil and cook for medium heat. Cook for 5 minutes.
3.) Add green peppers, chili powder, and cumin. Continue to cook over medium heat for another 8 to 10 minutes until peppers and potatoes are tender.
4.) Add drained and rinsed black beans. Reduce heat to medium-low and cook for another 2 to 3 minutes to just warm black beans. Remove from heat and serve with salsa and plain yogurt or low fat sour cream.

Super speedy prep tips:

- Chop sweet potato and bell pepper to store in fridge.
- Keep canned low sodium black beans on hand to add protein to veggie dishes.
- Serve egg or over brown rice to make a satisfying meal.

Nutritional information:

190 calories, 2g fat, 9g protein, 35g carb, 11g fiber, 200mg sodium, 70% vitamin C, 190% vitamin A, 15% Iron, 6% Calcium

Watermelon Salsa

Serves 7, ½ cup each

Ingredients:

2 cups cubed watermelon
2 ear corn or 1 cup canned/frozen
1/3 cup red onion, diced
1 jalapeno, minced (diced really small)
1 tablespoon lime juice
1 tablespoon fresh cilantro, minced or 1 teaspoon dried cilantro

Directions:

1.) Boil water. Cook ears of corn for 2-3 minutes until slightly tender. Put corn in fridge to cool while preparing other ingredients.

2.) Combine cubed watermelon, diced onion, minced jalapeno, corn, and cilantro.

3.) Serve as side dish, over top baked fish, or with tortilla chips.

Super speedy prep tips:

- Use no salt added canned corn instead of fresh.
- Cut up watermelon and store in fridge for salsa and to snack on.
- Store in fridge for 3-4 days.

Nutritional information:

45 calories, 0.5g fat, 1g protein, 10g carb, 65mg sodium, 10% vitamin C

CHAPTER 4

SUMMARY AND CONCLUSIONS

The purpose of this study was to evaluate Georgia EFNEP program assistant's acceptance of newly developed recipes featuring Georgia grown fruits and vegetables as well as to determine if self-efficacy for teaching concepts related to fresh fruits and vegetables can be improved through cooking demonstrations and recipe sampling. Additional components of this study were to describe program assistant's intake of fruit and vegetables and attitudes related to fresh fruits and vegetables and assess change in attitudes and intake in response to the intervention. It was hypothesized that participating in cooking demonstrations and recipe samplings would increase the program assistant's self-efficacy as this would address common barriers to including fresh fruits and vegetables in meals. It was also hypothesized that the recipes would be accepted by this group and the acceptance of the recipes would increase the purchase and consumption of the featured fruits and vegetables.

The recipes featured a variety of local Georgia fruits and vegetables and used creative ingredient pairing and preparation methods. The recipes were found to be acceptable and would be easily included into a program assistant's current family meals, which are important indicators for the success of these recipes with other low income audiences. The recipe sampling influenced the likelihood of program assistants plan to purchase the featured fruit and vegetables and make the recipe at home. Of those recipes that the group was undecided about making if they had not tried the recipe, the program assistants responded that they were "likely to buy" the produce in the recipe and "probably, yes" planning to make the recipe at home. Using common

foods in new ways may help increase the variety of fruits and vegetables consumed. In the group nutrition education setting used by EFNEP, peer support and encouragement aids in the adoption of behaviors and openness to new foods (85,86,87,88). EFNEP paraprofessionals may be able to sell these recipes to their clients in order to make them more likely to use the recipes at home and increase intake and variety of fruits and vegetables.

EFNEP program assistants use cooking demonstrations and recipes in their nutrition education curriculum. This audience may be more inclined to try new recipes and is more familiar with cooking methods than other low income Georgians. Results from a focus group conducted with Georgia EFNEP paraprofessionals revealed that this group improved their own nutrition practices and felt they were more knowledgeable after serving as a peer educator (83,84). Despite a significant decrease in self-efficacy on one measure, teaching how to make fresh fruits and vegetables more affordable, and no significant change in the other six measures, program assistants retained some degree of self-efficacy for teaching concepts related to fresh fruits and vegetables. The significant decreases due to affordability may be due to differences in pre and post-test administration. High baseline self-efficacy made detecting an increase difficult. Due to high self-efficacy, Georgia EFNEP paraprofessionals would be likely to implement a curriculum featuring fresh fruits and vegetables and be effective at relaying these concepts to their clients.

Georgia EFNEP program assistants' mean intake of fruits and vegetables is below the recommendations per the 2010 Dietary guidelines, despite high self-efficacy and positive attitudes. The cooking demonstration and recipe sampling did not significantly increase fruit and vegetable intake in the following 1-3 weeks. However, sampling the recipes and receiving the cookbook lead to the purchase of the fruits and vegetables, increased comfort with trying new

foods, and helped in planning meals. Supplying recipes developed for low income groups and educating on how to overcome perceived barriers like prep time and taste preference populations that feature fruits and vegetables found at these markets may lead to increased intake over a longer period of time.

The effectiveness of incorporating these recipes into current EFNEP curriculum needs to be evaluated. EFNEP participants may be less likely than the program assistant's to try new recipes and be open to fresh fruits and vegetables. The program assistants' buy in to promote the recipes and concept of using fresh produces could be examined in relation to the degree of acceptance by their respective participants. The influence of sampling the recipes during the course of the EFNEP lessons verse just receiving a recipe card would also shed light on the importance of sampling to the acceptance of fresh produce in this population.

The recipes could be used at farmers' markets and grocery stores to examine the effect of these recipes on point-of purchase decisions. Providing recipe cards is a relatively low cost and sustainable intervention to increase fruit and vegetable purchases and ideally consumption. The effectiveness of this type of intervention needs to be evaluated in a low income population.

Additional examination of program assistant fruit and vegetable intake is needed as current intake is not meeting guidelines. To successfully increase the participant's intake the program assistants should be meeting fruit and vegetable daily intake recommendations. They may share reasons for not meeting guidelines and determining what is influencing inadequate intake could improve program outcomes. Additional contact with program assistants and a longer follow up period may impact changes in fruit and vegetable intake.

In conclusion, the results of this study demonstrate the ability of recipes to influence the purchase and acceptance of fresh fruits and vegetables by Georgia EFNEP program assistants,

which represent their respective communities. Use of recipes that meet the needs of a specific low income community may increase intake when incorporated into a nutrition education program that addresses the need for increased cooking skills. Georgia EFNEP program assistants would be able to effectively use these recipes to influence their client's ability to include Georgia grown fresh fruits and vegetables in their diet.

REFERENCES

1. Boeing H, Bechthold A, Bub A, et al. Critical review: vegetables and fruit in the prevention of chronic diseases. Eur J Nutr 2012;51:637–63.

2. Flock, M. R., & Kris-Etherton, P. M. (2011). Dietary Guidelines for Americans 2010: implications for cardiovascular disease. Current Atherosclerosis Reports *13*(6), 499–507.

3. U.S. Department of Agriculture (USDA) and U.S. Department of Health and Human Services. Dietary Guidelines for Americans 2010 7th Edition. Washington, DC: U.S. Government Printing Office, 2010.

4. Casagrande S, Wang Y, Anderson C, Gary T. Have Americans increased their fruit and vegetable intake? The trends between 1988 and 2002. Am J Prev Med 2007;32:257–63

5. U.S. Department of Agriculture (USDA). Expanded food and nutrition education program (EFNEP). Internet: http://www.nifa.usda.gov/nea/food/efnep/about.html (accessed 2 May 2014).

6. Guenther P, Dodd K, Reedy J, Krebs-smith S. Most Americans eat much less than recommended amounts of fruits and vegetables. J Am Diet Assoc 2006;106:1371-1379.

7. Grimm K, Foltz J, Blanck H, Scanlon K. Household income disparities in fruit and vegetable consumption by state and territory: results of the 2009 behavioral risk factor surveillance system. J Acad Nutr Diet 2012;112:2014-2021

8. Yeh M, Ickes S, Lowenstein L, Shuval K, Ammerman A, Farris R, Katz D. Understanding barriers and facilitators of fruit and vegetable consumption amon a diverse multi-ethnic population in the USA. Health Promot Int 2008;23:42-51.

9. Graham D, Pelletier J, Neumark-sztainer D, Lust K, Laska M. Perceived social-ecological factors associated with fruit and vegetable purchasing, and preparation consumption among young adults. J Acad Nutr Diet 2013;113:1366-1374.

10. Shankar S, Klassen A. Influences on fruit and vegetable procurement and consumption among urban African-American public housing residents, and potential strategies for intervention. *Fam* Econ Nutr Rev 2001;13:34-46.

11. Condrasky M, Griffin S, Catalano P, Clark C. A formative evaluation of the cooking with a chef program. J Ext 2010;48:1-18.

12. Nichol H, Retallack J, Panagiotopoulos C. Cooking for your life! A family-centered, community-based nutrition education program for youth with type 2 diabetes or impaired glucose tolerance. Can J Diabetes 2008;32:29-36.

13. Wrieden W, Anderson A, Longbottom P, et al. The impact of a community-based food skills intervention on cooking confidence, food preparation methods and dietary choices an exploratory trial. Public Health Nutr 2007;10:203-211.

14. Freedman D, Mattison-Faye A, Alia K, Guest A, Hebert J. Comparing farmers' market revenue trends before and after the implementation of monetary incentive for recipients of food assistants. Prev Chronic Dis 2014;11:130347.

15. Heimendinger J, Van Duyn M, Chapelsky D, Foerster S, Stables G. The national 5 A Day for Better Health Program: a large-scale nutrition intervention. J Public Health Manag Pract 1996;2:27–35.

16. Kimmons J, Gillespie C, Blank H. Fruit and vegetable intake among adolescents and adults in the United States: percentage meeting individualized recommendations. Medscape J Med 2009;11:26.

17. State Indicator Report on Fruit and Vegetables 2013. National Center for Chronic Disease Prevention and Health Promotion. Division of Nutrition, Physical Activity and Obesity CDC Atlanta Georgia

18. Leung C, Ding E, Catalano P, Villamor E, Rimm E, Willett W. Dietary intake and dietary quality of low-income adults in the supplemental nutrition assistance program. Am J Clin Nutr 2012;96:977-88.

19. Dubowitz T, Heron M, Bird C, Lurie N, Finch B, Basurto-Davila R, Hale L, Escarce J. Neighborhood socioeconomic status and fruit and vegetable intake among whites, blacks, and Mexican Americans in the United States. Am J Clin Nutr 2008;87:1883-91.

20. Bowman S. Low economic status is associated with suboptimal intakes of nutritious foods by adults in the National Health and Nutrition Examination Survey 1999-2002. Nutr Res 2007;27:515-523.

21. Conklin A, Forouhi N, Suhrcke M, Surtees P, Wareham N, Monsivais P. Variety more than quantity of fruit and vegetable intake varies by socioeconomic status and financial hardship. Findings from older adults in the EPIC cohort. Appetite 2014;83:248-255.

22. Bowman, S. A comparison of the socioeconomic characteristics, dietary practices, and health status of women food shoppers with different food price attitudes. Nutr Res 2006 *26*:318–324.

23. Leenders M, Sluijs I, Ros M, Boshuizen H, Siersema P, Ferrari P, Bueno-de-Mesquita H. Fruit and vegetable consumption and mortality: European prospective investigation into cancer and nutrition. Am J Epidemiol 2013178:590–602.

24. Rodgers A, Vaughan P, Prentice T, Edejer T, Evans D, Lowe J. The World Health Report 2002: Reducing Risks, Promoting Healthy Life. Geneva, Switzerland World Health Organization

25. Tohill B, Seymour J, Serdula M, Kettel-Khan L, Rolls B. What epidemiologic studies tell us about the relationship between fruit and vegetable consumption and body weight. Nutrition Reviews 2004;62:365-374.

26. Roahen S, Edge J, editors. The Southern Foodways Alliance community cookbook. Athens: The University of Georgia Press; 2010.

27. Fulton S, McKinley M, Young I, Cardwell C, Woodside J. The effect of increasing fruit and vegetable consumption on overall diet: a systematic review and meta-analysis. Crit Rev Food Sci Nutr 2014.

28. Murphy M., Barraj, L, Herman, D, Cheatham, R, Randolph, R. Phytonutrient intake by adults in the United States in relation to fruit and vegetable consumption. J Acad Nutr Diet 2012;112: 222–229.

29. Lichtenstein A, Appel L, Brands M, Carnethon M, Daniels S, Franch H, Wylie-Rosett J. Diet and lifestyle recommendations revision 2006: a scientific statement from the American Heart Association Nutrition Committee. Circulation 2006;114:82–96.

30. John J, Ziebland S, Yudkin P, Roe L, Neil, H. (2002). Effects of fruit and vegetable consumption on plasma antioxidant concentrations and blood pressure: a randomized controlled trial. Lancet 2002:359:1969–1974.

31. Alburto N, Hanson S, Gutierrez H, Hooper L, Elliott P, Cappuccio F. Effect of increased potassium intake on cardiovascular risk factors and disease: systematic review and meta-analyses. BMJ 2013;346:1378-1397.

32. Aaron K, Sanders P. Role of dietary salt and potassium intake in cardiovascular health and disease: A review of the evidence. Mayo Clin Proc 2013;88:987-995.

33. Chuang S, Murphy N, Olsen A, et al. Fiber intake and total and cause-specific mortality in the European Prospective Investigation into cancer and nutrition cohort. Am J Clin Nutr 2012;96:164-74.

34. Saydah S, Bullard K, Cheng Y, Ali M, Gregg E, Geiss L, Imperatore G. Trends in Cardiovascular disease risk by obesity level in adults in the United States, NHANES 1999-2010. Obesity 2014;22:1888-1895.

35. Rolls B, Ello-Martiin J, Carlton B. What can intervention studies tell us about the relationship between fruit and vegetable consumption and weight management. Nutr Rev 2004;62:1-17.

36. Bell E, Rolls B. Energy density of foods affects energy intake across multiple levels of fat content in lean and obese women. Am J Clin Nutr 2001;73:1010-8.

37. Saquib N, Natarajan L, Rock C, Flatt S, Madlensky L, Kealey S, Pierce J. The impact of fa long-term reduction in dietary energy density on body weight within a randomized diet trial. Nutr Cancer 2008;60:31-38.

38. Larsson S, Virtamo J, Wolk A. Total and specific fruit and vegetable consumption and risk of stroke: A prospective study. Atherosclerosis 2013;227:147-152.

39. Bazzano L, He J, Ogden L, Loria C, Vupputuri S, Myers L, Whelton P. Fruit and vegetable intake and risk of cardiovascular disease in US adults: the first national health and nutrition examination survey epidemiologic follow-up study. Am J Clin Nutr 2002;76:93-99.

40. Gan Y, Tong X, Li Liqing. Consumption of fruit and vegetable and risk of coronary heart disease: A meta-analysis of prospective cohort studies. Int J Cardiol 2015;183:129-137.

41. Joshipura K, Hu F, Manson J. The effect of fruit and vegetable intake on risk for coronary heart disease. Ann Intern Med 2001;134:1106-1114,

42. Riboli E, Norat T. Epidemiologic evidence of the protective effect of fruit and vegetables on cancer risk. Am J Clin Nutr 2003;78:559S-69S.

43. Larsson S, Andersson S, Johansson J, Wolk A. Fruit and vegetable consumption and risk of bladder cancer: A prospective cohort study. Cancer Epidemiol Biomarkers Prev 2008;17:2519-22.

44. Michaud D, Pietinen P, Taylor P, Virtanen M, Virtamo J, Albanes D. Intake of fruits and vegetables, carotenoids and vitamins A, E, C in relation to the risk of bladder cancer in the ATBC cohort study. Br J Cancer 2002;87:960-965

45. Aoyama N, Kawado M, Yamada H, et al. Low intake of vegetables and fruits and risk of colorectal cancer: The Japan collaborative cohort study. J Epidemiol 2014;24:353-360.

46. Gandini S, Herzenich H, Robertson C, Boyle P. Meta-analysis of studies on breast cancer risk and diet: the role of fruit and vegetable consumption and the intake of associated micronutrients. Eur J Cancer 2000;36:636-646.

47. Park Y, Subar A, Kipnis V, et al. Fruit and vegetable intakes and risk of colorectal cancer in the NIH-AARP diet and health study. Am J Epidemiol 2007;166:170-180.

48. Smith-warner S, Spiegelman, Yaun S, et al. Fruits, vegetables and lung cancer: A pooled analysis of cohort studies. Int J Cancer 2003;107:1001-1011.

49. Harding A, Wareham N, Bingham S, et al. Plasma vitamin C level, fruit and vegetable consumption, and the risk of new-onset type 2 diabetes mellitus. Arch Intern Med 2008;168:1493-1499.

50. Wu Y, Zhang D, Jiang X, Jiang W. Fruit and vegetable consumption and risk of type 2 diabetes mellitus: A dose-response meta-analysis of prospective cohort studies. Nutr Metab Cardiovasc Dis 2014;25:140-147.

51. Cooper A, Sharp S, Lentjes M, Luben R, Khaw K, Wareham N, Foroughi N. A prospective study of the association between quantity and variety of fruit and vegetable intake and incident type 2 diabetes. Diabetes Care 2012;35:1293-1300.

52. Villegas R, Shu X, Gao Y, et al. Vegetable but not fruit consumption reduces the risk of type 2 diabetes in Chinese women. J Nutr 2008;138:574-580.

53. Mursu J, Virtanen J, Tuomainen T, Nurmi T, Voutilainen S. Intake of fruit, berries, and vegetables and risk of type 2 diabetes in Finnish men: the Kuopio ischaemic heart disease risk factor study. Am J Clin Nutr 2014;99:328-33.

54. Copper A, Forouhi N, Ye Z, et al. Fruit and vegetable intake and type 2 diabetes: EPIC-InterAct prospective study and meta-analysis. Eur J Clin Nutr 2013;66:1082-1092.

55. Cohen N, Stoddard A, Sarouhkhanians, Sorensen G. Barriers toward fruit and vegetable consumption in a Multiethnic worksite population. J Nutr Educ 1998;30:381-386.

56. Darmon N, Drewnowski. Does social class predict diet quality. Am J Clin Nutr 2008;87:1107-17.

57. Henry H, Reicks M, Smith C, Reimer K, Atwell J, Thomas R. Identification of factors affecting purchasing and preparation of fruit and vegetables by stage of change for low-income African American mothers using think-aloud method. J Am Diet Assoc 2012;103:1643-1646.

58. Lucan S, Barg F, Long J. Promoters and barriers to fruit, vegetable, and fast-food consumption among urban, low-income African Americans a qualitative approach. Am J Public Health 2010;100:631-635.

59. Chen D, Gazmararian J. Impact of personal preference and motivation on fruit and vegetable consumption of WIC-participating mothers and children in Atlanta, Ga. J Nutr Educ Behav 2014;46:62-67.

60. Haynes-Maslow L, Parsons S, Wheeler S, Leone L. A quality study of perceived barriers to fruit and vegetable consumption among low-income populations, North Carolina 2011. Prev Chronic Dis 2013;10:120206.

61. Larson N, Story M, Nelson M. Neighborhood environments disparities in access to health foods in the U.S. Am J Prev Med. 2009;36:74-81.

62. Glanz K, Yaroch. Strategies for incrasing fruit and vegetable intake in grocery stores and communities: policy, pricing, and environmental change. Prev Med 2004;39:S75-S80

63. Evans A, Jennings R, Smiley A, et al. Introduction of farm stands in low-income communities increases fruit and vegetable among community residents. Health and Place 2012;18:1137-1143.

64. McCormack L, Laska M, Larson N, Story M. Review of the nutritional implications of farmers' markets and community gardens: a call for evaluation and research efforts. J Am Diet Assoc 2010;110:399-408.

65. Cummins S, Flint E, Matthews S. New neighborhood grocery store increased awareness of food access but did not alter dietary habits or obesity. Health Aff 2014;33:283-291.

66. Williams L, Ball K, Crawford D. Why do some socioeconomically disadvantaged women eat better than others? An investigation of the personal, social and environmental correlates of fruit and vegetable consumption. Appetite 2010;55:441-446.

67. Treiman K, Freimuth V, Damron D, et al. Attitudes and behaviors related to fruits and vegetables among low-income women in the WIC program. J Nutr Educ Behav 28:146-156.

68. Wenrich T, Brown J, Miller-day M, Kelley K, Lengerich E. Family members' influence on family meal vegetable choices. J Nutr Educ Behav 2010;42:225-234.

69. Hartmann C, Dohle S, Siegrist. Importance of cooking skills for balanced food choices. Appetite 2013;65:125-131.

70. Stewart H, Hyman J, Frazao E, Buzby J, Carlson A. Can low income Americans afford to satisfy Mypyramid fruit and vegetables guidelines. J Nutr Educ Behav 2011;43:173-179.

71. Carlson A, Lino M, Juan W, Hanson K, Basiotis P. Thrifty Food Plan, 2006 (CNPP-19). Center for Nutrition Policy and Promotion, U.S. Department of Agriculture. 2007.

72. United States Department of Agriculture. Official USDA food plans: cost of food at home at four levels U.S. average, February 2015. http://www.cnpp.usda.gov/sites/default/files/CostofFoodFeb2015.pdf (Accessed 15 April 2015).

73. Friedman School of Nutrition Science and Policy, Tufts University. http://www.nutrition.tufts.edu/research/thrifty-food-plan-calculator (Accessed 15 April 2015).

74. Rose D. Food stamps, the Thrify Food Plan, and meal preparation: The importance of the time dimension for US nutrition policy. J Nutr Educ Behav 2007;39:226-232.

75. Andrews M, Kantor L, Lino M, Ripplinger D. Using USDA's Thrifty Food Plan to assess food availability and affordability. Food Revew 2001;24:45-53

76. Chen Q, Goto K, Wolff C, Bianco-Simeral S. Cooking up diversity. Impact of a multicomponent, multicultural, experiential intervention on food and cooking behaviors among elementary-school students from low-income ethnically diverse families. Appetite 2014;80:144-122.

77. Brown B, Hermann J. Cooking classes increase fruit and vegetable intake and food safety behaviors in youth and adults. J Nutr Educ Behav 2005;37:104-105.

78. Stephenson T, Stephenson L, Mayes L, Webber K. Plate It Up! Kentucky Proud: A case study of a local food system fruit and vegetable point-of-purchase social marketing campaign. *Cases in* Public Health Communication and Marketing 2013;7:61-76.

79. United States Department of Agriculture. 2013 impact report: The Expanded Food and Nutrition Education Program. http://www.csrees.usda.gov/sites/default/files/resource/2013%20Impact%20Report_0.pdf

80. National Institute of Food and Agriculture (NIFA) program leadership. The expanded food and nutrition education program policies. U.S. Department of Agriculture 2013. Internet: http://www.nifa.usda.gov/nea/food/efnep/pdf/program-policy.pdf (accessed 2 May 2014).

81. Devine C, Farrell T, Hartman R. Sisters in health: experiential program emphasizing social interaction increases fruit and vegetable intake among low income adults. J Nutr Educ Behav 2005;37:265-270.

82. Plescia M, Groblewski M, Chavis L. A lay health advisor program to promote community capacity and change among change agents. Health Promot Pract 2008;9:434-439.

83. Goldfinger J, Amiella G, Wylie-Rosett J, Horowitz C. Project HEAL: peer education leads to weight loss in Harlem. J Health Care Poor Underserved 2008;19:180-192.

84. Perez-Escamilla R, Hromi-fiedler H, Vega-Lopez S, Bermudez-Millan A, Segura-Perez S. Impact of peer nutrition education on dietary behaviors and health outcomes among latinos: A systematic literature review. J Nutr Educ Behav 2008;40:208-225.

85. Eng E, Parker E, Harlan C. Lay health advisor intervention strategies: A continuum from natural helping to paraprofessional helping. Health Educ Behav 1997;24:413-417.

86. Hibbs J, Sandmann L. Psychosocial impact of training and work experience on EFNEP paraprofessionals. J Ext 2011;49:1-10.

87. Auld G, Baker S, Bauer L, Koszewski W, Procter S, Steger M. EFNEP's impact on the quality of life of its participants and educators. J Nutr Educ Behav 2013;45:482-489.

88. Eng E. The save our sisters project: A social network strategy for reaching rural black women. Cancer 1993;72:1071-7.

89. Campbell M, Demark-Wahnefried W, Symons M, et al. Fruit and vegetable consumption and prevention of cancer: The black churches untied for better health project. Am J Public Health 1999;89:1390-1396.

90. Buller D, Morrill C, Taren D, et al. Randomized trial testing the effect of peer education at increasing fruit and vegetable intake. *J Natl Cancer Inst* 1999;91:1491-1500.

91. Glasson C, Chapman K, Gander K, Wilson T, James E. The efficacy of a brief, peer-led nutrition education intervention in increasing fruit and vegetable consumption: a wait-list, community-based randomized controlled trial. Public Health Nutr 2012;15:1318-1326.

92. Bandura A. The self system in reciprocal determinism. Am Psychol 1978;33:344-358.

93. Bandura A. Social cognitive theory of self-regulation. Organ Behav and Hum Decis Processes 1991;50:248-287.

94. Bandura A. Self-efficacy: toward a unifying theory of behavioral change. Psychol Rev 1977;84:191–215.

95. Stajkovic A, Luthans F. Social cognitive theory and self-efficacy: Going beyond traditional motivational and behavioral approaches. Organ Dyn1998;26:62-74.

96. Bandura A. Health promotion by social cognitive means. Health Education and Behavior 2004;31:143-164.

97. Schwarzer R. Modeling health behavior change: how to predict and modify the adoption and maintenance of health behaviors. Applied Psychology: An International Review 2008;57:1-29.

98. Richert J, Reuter T, Wiedemann A, Lippke S, Ziegelmann J, Schwarzer R. Differential effects of planning and self-efficacy on fruit and vegetable consumption. Appetite 2010;54:611-614.

99. Luszczynska A, Tryburcy M, Schwarzer R. Improving fruit and vegetable consumption: a self-efficacy intervention compared with a combined self-efficacy and planning intervention. Health Educ Res 2007;22:630-638.

100. Ochsner S, Scholz U, Hornung R. Testing phase-specific self-efficacy beliefs in the context of dietary behavior change. Appl Psychol Health Well Being 2013;5:99-117.

101. Greene G, Rossi S, Rossi J, Velicer W, Fava J, Prochaska J. Dietary applications of the stages of change model. J Am Diet Assoc 1999;99:673-678.

102. Sorensen G, Stoddard A, Dubowitz T, Barbeau E, Bigby J, Emmons K, Berkman L, Peterson K. The influence of social context on changes in fruit and vegetable consumption: results of the healthy directions studies. Am J Public Health 2007;97:1216-1227.

103. Langenberg P, Ballesteros M, Feldman R, Damron D, Anliker J, Havas S. Psychosocial factors and intervention-associated changes in those factors as correlates of change in fruit and vegetable consumption in Maryland WIC 5 A Day promotion program. Ann Behav Med 2000;22:307-315.

104. Horwath C, Schembre S, Motl R, Dishman R, Nigg C. Does the transtheoretical model of behavior change provide a useful basis for interventions to promote fruit and vegetable consumption. Am J Health Promot 2013;27:351-357.

105. Thomson C, Ravia J. A systematic review of behavioral interventions to promote intake of fruit and vegetables. J Am Diet Assoc 2011;111:1523-1535

106. Fuemmeler B, Masse L, Yaroch A, Resnicow K, Campbell M, Carr C, Wang T. Psychosocial mediation of fruit and vegetable consumption in the body and soul effectiveness trial. Health Psychol 2006;25:474-483.

107. Cullen K, Smalling A, Thompson D, Wantson K, Reed D, Konzelmann K. Creating healthful home food environments: results from a study with participants in the expanded food and nutrition education program. J Nutr Educ Behav 2009;41:380-388.

108. Fahlman M, McCaughtry N, Martin J, Shen B. Efficacy, intent to teach, and implementation of nutrition education increases after training for health educators. American Journal of Health Education 2011;42:181-190.

109. Diker A, Cunningham L, Bachman K, Stacey J, Walters L, Wells L. Nutrition educator adoption and implementation of an experiential foods curriculum. J Nutr Educ Behav 2013;45:499-509.

APPENDIX A

EAT GEORGIA GROWN FOCUS GROUP QUESTIONS

1. What fruits and vegetables are most available in your community?
    a. What, if any, fruit and vegetables would you like to be more available in your community?
    b. What, if any, fruit and vegetables are available, but you don't purchase or know how to use?
2. How or where do you usually purchase fruits and vegetables?
    a. What barriers or challenges do you face in purchasing fruits and vegetables?
    b. What other things factor into how much fruits and vegetables you eat per day?
        i. What types of factors do you feel you have control over?
        ii. What types of factors do you feel you don't have control over?
3. What skills or knowledge do you feel you have for purchasing and preparing fruits and vegetables?
    a. Where do you find information on this topic?
    b. What cooking equipment do you have in your home?
    c. What do you look for when choosing recipes to prepare?
4. Do you feel you have control over how many fruits and vegetables you eat?
        i. If not, what other things that factor into how many servings you eat per day?
5. What is your understanding of the health benefits of fruits and vegetables?
6. What fruits and vegetables are you currently eating on a regular basis (circle all that apply from list below)?
    a. Sweet potatoes
    b. Collards
    c. Vidalia onions
    d. Black berries

e. Apples
f. Blue berries
g. Sweet Corn
h. Carrots
i. Broccoli
j. Lima beans
k. Cantaloupe
l. Cabbage
m. Mushrooms
n. Okra
o. Peaches
p. Pears
q. Kale
r. Bell pepper
s. Squash (yellow)
t. Strawberries
u. Tomatoes
v. Watermelon

7. How do you usually prepare the fruits and vegetables that you eat regularly?

8. What fruits and vegetables have you not tried or do not eat? (circle all that apply from list below)
   a. Sweet potatoes
   b. Collards
   c. Vidalia onions
   d. Black berries
   e. Apples
   f. Blue berries
   g. Sweet Corn
   h. Carrots
   i. Broccoli
   j. Lima beans
   k. Cantaloupe
   l. Cabbage
   m. Mushrooms
   n. Okra
   o. Peaches
   p. Kale
   q. Pears
   r. Bell pepper
   s. Squash (yellow)
   t. Strawberries
   u. Tomatoes
   v. Watermelon

   a) Of those which would you be interested in tying?

   b) Are there others you are interested in trying? If so please indicate which ones

APPENDIX B

UNIVERSITY OF GEORGIA
CONSENT FORM

Eat Georgia Grown Fruit and Veggies Focus Group: Increasing self-efficacy of preparing and eating Georgia grown produce

We are asking you to take part in a focus group, which is part of a research study. Before you decide to participate in this study, it is important that you understand why the research is being done and what it will involve. This form is designed to give you the information about the study so you can decide whether to be in the study or not. Please take the time to read the following information carefully. Please ask the researcher if there is anything that is not clear or if you need more information. When all your questions have been answered, you can decide if you want to be in the study or not. This process is called "informed consent." A copy of this form will be given to you

Principal Investigator: Dr. Caree Cotwright
Department of Foods and Nutrition
University of Georgia
Athens, GA 30602
Email: cjcot@uga.edu

Purpose of the Study

Fruit and vegetable intake is linked to prevention of many chronic diseases, but many Americans do not meet recommendations. The reason for this focus group is to find out what fruits and vegetables are commonly consumed in your community, what new fruits and vegetables would be of interest, and common preparation methods. You are being asked to participate because of your role as an EFNEP program assistant

Study Procedures

If you agree to participate, you will be asked to …

- Attend a focus group and answer questions related to your fruit and vegetable consumption and preparation methods as wells as produce that is available in your community
- The time commitment for the focus group will be approximately 45 minutes.

Risks and discomforts

- We do not anticipate any risks from participating in this research.

Benefits

- Your participation in this focus group will help guide the development of low cost fruit and vegetable recipes. The goal for these recipes is to increase fruit and vegetable intake and improve health in Georgia communities.

Incentives for participation

Participants will receive a recipe booklet and a $10 Wal-Mart Gift Cards being in the study.

Audio/Video Recording
An audio recording of the focus group will be made to ensure accuracy of participant responses. Upon completion of the research the recordings will be destroyed after 1 year.

Please provide initials below if you agree to have this focus group audio recorded or not. You may still participate in this study even if you are not willing to have the interview recorded.

_____I do not want to have this focus group recorded.
_____I am willing to have this focus group recorded.

Privacy/Confidentiality
No data collected from participants will include information that identifies them directly (e.g., name, e-mail address). Codes may be used to compare pre and posttest data. All data from the pilot intervention will be recorded directly onto paper surveys and be transferred later into a secure computer database in the Community Nutrition Research Lab of the Department of Foods and Nutrition. The questionnaire and all study materials will be stored in a metal file cabinet under lock and key with access to only the key research team. Computer files and will be password protected with access to only the key research team. All data will be stored for one year after the study completion and all data collection. The paper version of the data and audio recordings will be destroyed after one year of completion of the project. Although, the investigator will emphasize to all participants that comments made during the focus group sessions should be kept confidential; it is possible that participants may repeat comments outside of the group at some time in the future.

Taking part is voluntary
Your involvement in the study is voluntary, and you may choose not to participate or to stop at any time without penalty or loss of benefits to which you are otherwise entitled. If you decide to withdraw from the study, the information that can be identified as yours will be kept as part of the study and may continue to be analyzed, unless you make a written request to remove, return, or destroy the information.

If you have questions
The main researcher conducting this study is Dr. Caree Cotwright. Please ask any questions you have now. If you have questions later, you may contact Dr. Cotwright at cjcot@uga.edu or 706.542.3073. You may also contact Sara Pritschet, co-investigator at spritsc2@gmail.com. If you have any questions or concerns regarding your rights as a research participant in this study, you may contact the Institutional Review Board (IRB) Chairperson at 706.542.3199 or irb@uga.edu.

Research Subject's Consent to Participate in Research:
To voluntarily agree to take part in this study, you must sign on the line below. Your signature below indicates that you have read or had read to you this entire consent form, and have had all of your questions answered.

_____ _____ _____

Name of Researcher	Signature	Date
_____	_____	_____
Name of Participant	Signature	Date

Please sign both copies, keep one and return one to the researcher.

APPENDIX C

UNIVERSITY OF GEORGIA

CONSENT FORM

Eat Georgia Grown Fruit and Veggies: Increasing self-efficacy of preparing and eating Georgia grown produce

Researcher's Statement

We are asking you to take part in a research study. Before you decide to participate in this study, it is important that you understand why the research is being done and what it will involve. This form is designed to give you the information about the study so you can decide whether to be in the study or not. Please take the time to read the following information carefully. Please ask the researcher if there is anything that is not clear or if you need more information. When all your questions have been answered, you can decide if you want to be in the study or not. This process is called "informed consent." A copy of this form will be given to you.

Principal Investigator: Dr. Caree Cotwright
Department of Foods and Nutrition
University of Georgia
Athens, GA 30602
Email: cjcot@uga.edu

Purpose of the Study

Fruit and vegetable intake is linked to prevention of many chronic diseases, but many Americans do not meet recommendations. The purpose of this study to increase self-efficacy for preparing and consuming fruits and vegetables with the goal of increasing intakes to improve health. Participants will view and participate in a cooking demonstration and be given recipe cards that utilize Georgia grown fruit and vegetables. You are being asked to participate because of your role as an EFNEP program assistant.

Study Procedures

If you agree to participate, you will be asked to …

- Attend cooking demonstration session, where an initial survey will be given assessing current intake and self-efficacy related to fruit and vegetables
- A follow-up survey will be mailed to your county extension office two weeks after cooking session
- The time commitment for the initial survey is about 5 to 10 minutes and the cooking sessions with recipe sampling will last 45-60, and follow-up survey given three weeks after attending session is about 5 to 10 minutes. The total time commitment is about 80 minutes

Risks and discomforts

- We do not anticipate any risks from participating in this research.

Benefits

- By participating in this research study you will learn new recipes to increase your and your family's fruit and vegetable intake. Information gained through this study may help promote increased fruit and vegetable intake in Georgia communities for improved health.

Incentives for participation
Participants will receive a recipe booklet and a $10 Wal-Mart Gift Card for being in the study.

Privacy/Confidentiality
No data collected from participants will include information that identifies them directly (e.g., name, e-mail address). Codes may be used to compare pre and posttest data. All data from the pilot intervention will be recorded directly onto paper surveys and be transferred later into a secure computer database in the Community Nutrition Research Lab of the Department of Foods and Nutrition. The questionnaire and all study materials will be stored in a metal file cabinet under lock and key with access to only the key research team. Computer files and will be password protected with access to only the key research team. All data will be stored for one year after the study completion and all data collection. The paper version of the data and will be destroyed after one year of completion of the project.

Taking part is voluntary
Your involvement in the study is voluntary, and you may choose not to participate or to stop at any time without penalty or loss of benefits to which you are otherwise entitled. If you decide to withdraw from the study, the information that can be identified as yours will be kept as part of the study and may continue to be analyzed, unless you make a written request to remove, return, or destroy the information.

If you have questions
The main researcher conducting this study is Dr. Caree Cotwright. Please ask any questions you have now. If you have questions later, you may contact Dr. Cotwright at cjcot@uga.edu or 706.542.3073. You may also contact Sara Pritschet, co-investigator at spritsc2@uga.edu. If you have any questions or concerns regarding your rights as a research participant in this study, you may contact the Institutional Review Board (IRB) Chairperson at 706.542.3199 or irb@uga.edu.

Research Subject's Consent to Participate in Research:
To voluntarily agree to take part in this study, you must sign on the line below. Your signature below indicates that you have read or had read to you this entire consent form, and have had all of your questions answered.

_____	_____	_____
Name of Researcher	Signature	Date
_____	_____	_____
Name of Participant	Signature	Date

Please sign both copies, keep one and return one to the researcher.

APPENDIX D

EAT GEORGIA GROWN SURVEY PART 1

Background Information:

1. How old are you? _____

2. Are you:
   ☐ Male ☐ Female

3. How do you describe yourself?
   ☐ American Indian or Alaska Native ☐ Asian ☐ Black or African American ☐ Hispanic or Latino ☐ Native Hawaiian or Other Pacific Islander ☐ White, non-Hispanic, non-Latino ☐ Other

4. What is your marital status
   ☐ Married ☐ Single ☐ Divorced ☐ Separated ☐ Widowed

5. How many children do you have living in your home? _____ Children

6. What is the highest grade of school you have completed?
   ☐ 1-8 years ☐ 9-11 years, some high school ☐ High school, GED ☐ Some college, technical school, no degree ☐ College degree

7. Are you eligible to receive Food Stamps or WIC?
   ☐ No ☐ Yes

8. Which of the following do you have in your home? Please check all that apply
   ☐ Refrigerator ☐ Stove/oven ☐ Microwave ☐ Measuring cups ☐ Cutting board ☐ Knife ☐ Pot and pan ☐ Baking sheet

Fruit and Vegetable Intake:

1. In the past month, about how often did you drink (or eat):

   a) Green salad (with or without other vegetables)?

   ☐ Never ☐ Less than 1 a month ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week daily ☐ 2-3 times a day ☐ 4-5 times a day ☐ ≥5 times a day

   b) French fries or fried potatoes?

   ☐ Never ☐ Less than 1 a month ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week daily ☐ 2-3 times a day ☐ 4-5 times a day ☐ ≥5 times a day

   c) Baked, boiled, or mashed potatoes?

   ☐ Never ☐ Less than 1 a month ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week daily ☐ 2-3 times a day ☐ 4-5 times a day ☐ ≥5 times a day

   d) 100% fruit juice (NOT COUNTING fruit drinks such as Hi-C or fruit punch)?

   ☐ ever ☐ Less than 1 a month ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week daily ☐ 2-3 times a day ☐ 4-5 times a day ☐ ≥5 times a day

2. On how many days did you eat fruit for your morning meals or snacks (Do not count juices)?

   ☐ I don't eat in the morning ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week ☐ 5-6 times a week ☐ daily

3. When you ate fruit in the morning, how many total portions of fruit did you usually eat? (count each piece or ½ cup you ate as one portion, whether it was one fruit or different fruits)

   ☐ 1 portion or less ☐ 2 portions ☐ 3 or more portions

4. On how many days did you eat fruit for your afternoon meals or snacks (Do not count juices)?

   ☐ I don't eat in the afternoon ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week ☐ 5-6 times a week ☐ daily

5. When you ate fruit in the afternoon, how many total portions of fruit did you usually eat? (count each piece or ½ cup you ate as one portion, whether it was one fruit or different fruits)

   ☐ 1 portion or less ☐ 2 portions ☐ 3 or more portions

6. On how many days did you eat fruit for your evening meals or snacks (Do not count juices)?

   ☐ I don't eat in the evening ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week ☐ 5-6 times a week ☐ daily

7. When you ate fruit in the evening, how many total portions of fruit did you usually eat? (count each piece or ½ cup you ate as one portion, whether it was one fruit or different fruits)

   ☐ 1 portion or less ☐ 2 portions ☐ 3 or more portions

8. On how many days did you eat vegetables for your morning meals or snacks (Do not count potatoes)?

   ☐ I don't eat in the morning ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week ☐ 5-6 times a week ☐ daily

9. When you ate vegetables in the morning, how many total portions of vegetables did you usually eat? (count each ½ cup you ate as one portion, whether it was one vegetable or different vegetables)

   ☐ 1 portion or less ☐ 2 portions ☐ 3 or more portions

10. On how many days did you eat vegetables for your afternoon meals or snacks (Do not count potatoes)?

    ☐ I don't eat in the afternoon ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week ☐ 5-6 times a week ☐ daily

11. When you ate vegetables in the afternoon, how many total portions of vegetables did you usually eat? (count each ½ cup you ate as one portion, whether it was one vegetable or different vegetables)

    ☐ 1 portion or less ☐ 2 portions ☐ 3 or more portions

12. On how many days did you eat vegetables for your evening meals or snacks (Do not count potatoes)?

    ☐ I don't eat in the evening ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week ☐ 5-6 times a week ☐ daily

13. When you ate vegetables in the evening, how many total portions of vegetables did you usually eat? (count each ½ cup you ate as one portion, whether it was one vegetable or different vegetables)

    ☐ 1 portion or less ☐ 2 portions ☐ 3 or more portions

Teaching on Fresh Fruit and Vegetables:

How confident are you that you could:

1. Teach how to prepare recipes using fresh fruits and vegetables?
   ☐ Not at all Confident ☐ Not very confident ☐ Neutral ☐ Fairly confident ☐ Totally confident

2. Explain the benefits of eating fresh produce?
   ☐ Not at all Confident ☐ Not very confident ☐ Neutral ☐ Fairly confident ☐ Totally confident

3. Using recipes to increase your client's intake of fresh fruits and vegetables?
   ☐ Not at all Confident ☐ Not very confident ☐ Neutral ☐ Fairly confident ☐ Totally confident

4. Demonstrate preparation of recipes shown to you today?
   ☐ Not at all Confident ☐ Not very confident ☐ Neutral ☐ Fairly confident ☐ Totally confident

5. Can answer questions on how to include more fresh fruits and vegetables in your client's diet?
   ☐ Not at all Confident ☐ Not very confident ☐ Neutral ☐ Fairly confident ☐ Totally confident

6. Convince your clients to purchase and prepare more fresh fruits and vegetables?
   ☐ Not at all Confident ☐ Not very confident ☐ Neutral ☐ Fairly confident ☐ Totally confident

7. Teach how to purchase fresh fruits and vegetables to make it more affordable?
   ☐ Not at all Confident ☐ Not very confident ☐ Neutral ☐ Fairly confident ☐ Totally confident

Opinions on Fresh Fruits and Vegetables:

Answer the following questions based on your own thoughts and feelings:

1. Fresh fruits and vegetables can easily be included into my daily diet?
   ☐ Do not agree at all ☐ Do not agree ☐ Neutral ☐ Agree ☐ strongly agree

2. Fresh fruits and vegetables can be affordable?
   ☐ v Do not agree at all ☐ Do not agree ☐ Neutral ☐ Agree ☐ strongly agree

3. It is important to eat fresh produce?

☐ Do not agree at all ☐ Do not agree ☐ Neutral ☐ Agree ☐ strongly agree

4. Using fresh fruits and vegetables does not greatly increase meal prep time?

☐ Do not agree at all ☐ Do not agree ☐ Neutral ☐ Agree ☐ strongly agree

APPENDIX E

EAT GEORGIA GROWN SURVEY PART 2

Recipe demonstration and card evaluation:

1. Have you purchased any of the fruits or vegetable you sampled?
   - ☐ No
   - ☐ Yes

   If yes which ones?_____

2. Have you purchased any of the other fruits or vegetables in the recipe booklet that were not prepared during the cooking demonstration?
   - ☐ No
   - ☐ Yes

   If yes which ones?_____

3. Recipe cards have helped me:

   a. Feel more comfortable in trying new fruits and vegetables?
      - ☐ No
      - ☐ somewhat
      - ☐ Yes

   b. Plan my future purchases at the market/grocery store?
      - ☐ No
      - ☐ Somewhat
      - ☐ Yes

Fruit and Vegetable Intake:

1. In the past month, about how often did you drink (or eat):

   a) Green salad (with or without other vegetables)?

   ☐ Never ☐ Less than 1 a month ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week daily ☐ 2-3 times a day ☐ 4-5 times a day ☐ ≥5 times a day

   b) French fries or fried potatoes?

   ☐ Never ☐ Less than 1 a month ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week daily ☐ 2-3 times a day ☐ 4-5 times a day ☐ ≥5 times a day

   c) Baked, boiled, or mashed potatoes?

   ☐ Never ☐ Less than 1 a month ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week daily ☐ 2-3 times a day ☐ 4-5 times a day ☐ ≥5 times a day

   d) 100% fruit juice (NOT COUNTING fruit drinks such as Hi-C or fruit punch)?

   ☐Never ☐ Less than 1 a month ☐1-3 times a month ☐1-2 times a week ☐ 3-4 times a week daily ☐ 2-3 times a day ☐ 4-5 times a day ☐ ≥5 times a day

2. On how many days did you eat fruit for your morning meals or snacks (Do not count juices)?

   ☐ I don't eat in the morning ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week ☐ 5-6 times a week ☐ daily

3. When you ate fruit in the morning, how many total portions of fruit did you usually eat? (count each piece or ½ cup you ate as one portion, whether it was one fruit or different fruits)

   ☐ 1 portion or less ☐ 2 portions ☐ 3 or more portions

4. On how many days did you eat fruit for your afternoon meals or snacks (Do not count juices)?

   ☐ I don't eat in the afternoon ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week ☐ 5-6 times a week ☐ daily

5. When you ate fruit in the afternoon, how many total portions of fruit did you usually eat? (count each piece or ½ cup you ate as one portion, whether it was one fruit or different fruits)

   ☐ 1 portion or less ☐ 2 portions ☐ 3 or more portions

6. On how many days did you eat fruit for your evening meals or snacks (Do not count juices)?

   ☐ I don't eat in the evening ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week ☐ 5-6 times a week ☐ daily

7. When you ate fruit in the evening, how many total portions of fruit did you usually eat? (count each piece or ½ cup you ate as one portion, whether it was one fruit or different fruits)

   ☐ 1 portion or less ☐ 2 portions ☐ 3 or more portions

8. On how many days did you eat vegetables for your morning meals or snacks (Do not count potatoes)?

   ☐ I don't eat in the morning ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week ☐ 5-6 times a week ☐ daily

9. When you ate vegetables in the morning, how many total portions of vegetables did you usually eat? (count each ½ cup you ate as one portion, whether it was one vegetable or different vegetables)

   ☐ 1 portion or less ☐ 2 portions ☐ 3 or more portions

10. On how many days did you eat vegetables for your afternoon meals or snacks (Do not count potatoes)?

    ☐ I don't eat in the afternoon ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week ☐ 5-6 times a week ☐ daily

11. When you ate vegetables in the afternoon, how many total portions of vegetables did you usually eat? (count each ½ cup you ate as one portion, whether it was one vegetable or different vegetables)

    ☐ 1 portion or less ☐ 2 portions ☐ 3 or more portions

12. On how many days did you eat vegetables for your evening meals or snacks (Do not count potatoes)?

    ☐ I don't eat in the evening ☐ 1-3 times a month ☐ 1-2 times a week ☐ 3-4 times a week ☐ 5-6 times a week ☐ daily

13. When you ate vegetables in the evening, how many total portions of vegetables did you usually eat? (count each ½ cup you ate as one portion, whether it was one vegetable or different vegetables)

    ☐ 1 portion or less ☐ 2 portions ☐ 3 or more portions

Teaching on Fresh Fruit and Vegetables:

How confident are you that you could:

14. Teach how to prepare recipes using fresh fruits and vegetables?
    ☐ Not at all Confident ☐ Not very confident ☐ Neutral ☐ Fairly confident ☐ Totally confident

15. Explain the benefits of eating fresh produce?
    ☐ Not at all Confident ☐ Not very confident ☐ Neutral ☐ Fairly confident ☐ Totally confident

16. Using recipes to increase your client's intake of fresh fruits and vegetables?
    ☐ Not at all Confident ☐ Not very confident ☐ Neutral ☐ Fairly confident ☐ Totally confident

17. Demonstrate preparation of recipes shown to you today?
    ☐ Not at all Confident ☐ Not very confident ☐ Neutral ☐ Fairly confident ☐ Totally confident

18. Can answer questions on how to include more fresh fruits and vegetables in your client's diet?
    ☐ Not at all Confident ☐ Not very confident ☐ Neutral ☐ Fairly confident ☐ Totally confident

19. Convince your clients to purchase and prepare more fresh fruits and vegetables?
    ☐ Not at all Confident ☐ Not very confident ☐ Neutral ☐ Fairly confident ☐ Totally confident

20. Teach how to purchase fresh fruits and vegetables to make it more affordable?
    ☐ Not at all Confident ☐ Not very confident ☐ Neutral ☐ Fairly confident ☐ Totally confident

Opinions on Fresh Fruits and Vegetables:

Answer the following questions based on your own thoughts and feelings:

5. Fresh fruits and vegetables can easily be included into my daily diet?
   ☐ Do not agree at all ☐ Do not agree ☐ Neutral ☐ Agree ☐ strongly agree

6. Fresh fruits and vegetables can be affordable?
   ☐ Do not agree at all ☐ Do not agree ☐ Neutral ☐ Agree ☐ strongly agree

7. It is important to eat fresh produce?

☐ Do not agree at all ☐ Do not agree ☐ Neutral ☐ Agree ☐ strongly agree

8. Using fresh fruits and vegetables does not greatly increase meal prep time?

☐ Do not agree at all ☐ Do not agree ☐ Neutral ☐ Agree ☐ strongly agree

APPENDIX F

FOLLOW UP SURVEY

1. Have you purchased any of the fruits or vegetables featured in the cookbook
    a) Yes
    b) No

2. If yes, which ones? _____

3. Have you made any of the recipes from the cookbook at home?
    a) Yes
    b) No
4. If yes which ones? _____

5. Did you like the recipe/recipes you tired?
    a) No
    b) Somewhat
    c) Yes

6. Which ones did you like? _____

7. Which ones did you not like and why?_____

8. Were the recipes you tried easy to prepare
    a) No
    b) Somewhat
    c) Yes

9. Did family or friends try the recipes? If yes did they like the recipe/recipes?
    _____

APPENDIX G

RECIPE EVALUATION

1. As a result of tasting this recipe, how likely are you to buy this fruit or vegetable
   - ☐ Definitely will not buy ☐ Probably unlikely to buy ☐ Undecided
   - ☐ Probably likely to buy ☐ Definitely will buy

2. Did sampling the recipe contribute to your plan to try the recipe at home?
   - ☐ Definitely not ☐ Probably not ☐ Undecided ☐ Probably yes ☐ Definitely yes

3. Would you have prepared the fruit or vegetable recipe if you had not tried sample?
   - ☐ Definitely not ☐ Probably not ☐ Undecided ☐ Probably yes ☐ Definitely yes
   - ☐ Didn't try the recipe

4. The recipe sampled today would be easily incorporated into your family meals?
   - ☐ Definitely not ☐ Probably not ☐ Not sure ☐ Probably yes ☐ Definitely yes

5. The ingredients in the recipe would be easy for me to find and purchase?
   - ☐ Definitely not ☐ Probably not ☐ Not sure ☐ Probably yes ☐ Definitely yes

6. The recipe sampled today is similar to dishes I prepare at home.
   - ☐ Not at all similar ☐ Somewhat similar ☐ Very similar ☐ Not sure

7. I find this recipe to be acceptable.

   ☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

APPENDIX H

Cost of Recipes

	Total Cost of Recipe	Cost per Serving
Harvest Kale Salad	$6.37	$0.91
Sweet Pear Chicken Salad	$5.64	$1.41
Fresh Summer Veggie Salad	$3.77	$0.75
Savory Pork and Kale Soup	$9.00	$0.90
Pear Grilled Cheese	$2.29	$0.57
Creamy Ranch Pasta Salad	$3.77	$0.38
Italian Eggplant Sliders	$2.85	$0.47
Roast Winter Veggies	$4.24	$0.61
Southwest Sweet Potato Hash	$1.88	$0.63
Watermelon Salsa	$3.09	$0.44
Blueberry pizza	$1.39	$1.39
Speedy apple pie	$1.48	$0.74

Prices vary by season, store, and region
Price of ingredients collected from Kroger and Walmart in Athens, Ga August – October 2014

APPENDIX I:

Percentage of Program Assistant Response to Recipe Evaluation Question 1

Q1. Result of tasting, how likely are you to buy the fruit or vegetable?					
	Definitely will not buy (%)	*Unlikely to buy (%)*	*Undecided (%)*	*Likely to buy (%)*	*Definitely will buy (%)*
Blueberry fruit pizza (n=8)	0	0	0	63	38
Eggplant sliders (n=25)	0	0	28	36	36
Harvest kale salad (n=19)	0	11	11	42	37
Kale and pork soup (n=7)	0	14	29	29	29
Pear chicken salad (n=19)	0	5	5	32	58
Pear grilled cheese (n=7)	14	0	0	14	71
Ranch pasta salad (n=18)	6	11	11	50	22
Roasted winter vegetables (n=7)	0	0	14	29	57
Speedy apple pie (n=17)	0	0	0	29	71
Sweet potato hash (n=24)	8	4	8	21	58
Watermelon salsa (n=18)	6	11	17	44	22
Fresh summer veggie salad (n=7)	0	0	14	43	43

APPENDIX J

Percentage of Program Assistant Response to Recipe Evaluation Question 2

Q2. Did sampling the recipe contribute to your plan to try the recipe at home?					
	Definitely not (%)	*Probably not (%)*	*Undecided (%)*	*Probably yes (%)*	*Definitely yes (%)*
Blueberry fruit pizza (n=8)	0	0	0	50	50
Eggplant sliders (n=25)	0	0	16	44	40
Harvest kale salad (n=19)	0	16	16	26	42
Kale and pork soup (n=7)	0	29	0	43	29
Pear chicken salad (n=19)	5	0	11	37	47
Pear grilled cheese (n=7)	14	0	0	29	57
Ranch pasta salad (n=18)	11	6	22	33	22
Roasted winter vegetables (n=7)	0	0	14	57	29
Speedy apple pie (n=17)	0	6	12	29	53
Sweet potato hash (n=24)	4	4	13	33	46
Watermelon salsa (n=18)	6	11	39	33	11
Fresh summer veggie salad (n=7)	0	14	29	29	29

APPENDIX K

Percentage of Program Assistant Response to Recipe Evaluation Question 3

Q3. Would you have prepared the fruit or vegetable recipe if you had not tried the Sample?					
	Definitely not (%)	*Probably not (%)*	*Undecided (%)*	*Probably yes (%)*	*Definitely yes (%)*
Blueberry fruit pizza (n=8)	0	13	0	25	50
Eggplant sliders (n=25)	4	32	16	28	12
Harvest kale salad (n=19)	11	32	11	32	5
Kale and pork soup (n=7)	14	43	0	14	14
Pear and chicken salad (n=19)	0	26	11	37	26
Pear grilled cheese (n=7)	29	29	14	0	29
Ranch pasta salad (n=18)	6	28	11	33	22
Roasted winter vegetables (n=7)	43	14	14	0	29
Speedy apple pie (n=17)	12	6	12	35	35
Sweet potato hash (n=24)	13	29	4	17	29
Watermelon salsa (n=18)	17	17	17	28	22
Fresh summer veggie salad (n=7)	0	0	29	14	57

APPENDIX L

Percentage of Program Assistant Response to Recipe Evaluation Question 4

Q4. Recipe sampled would be easily incorporated into your family meals?					
	Definitely not (%)	*Probably not (%)*	*Undecided (%)*	*Probably yes (%)*	*Definitely yes (%)*
Blueberry fruit pizza (n=8)	0	0	25	38	38
Eggplant sliders (n=25)	0	8	16	44	32
Harvest kale salad (n=19)	0	0	21	53	26
Kale and pork soup (n=7)	0	14	14	43	29
Pear chicken salad (n=19)	0	11	11	37	42
Pear grilled cheese (n=7)	14	0	14	0	71
Ranch pasta salad (n=18)	11	0	22	44	22
Roasted winter vegetables (n=7)	0	0	43	57	0
Speedy apple pie (n=17)	0	0	0	35	65
Sweet potato hash (n=24)	4	8	17	38	33
Watermelon salsa (n=18)	11	6	33	22	28
Fresh summer veggie salad (n=7)	0	14	29	43	14

APPENDIX M

Percentage of Program Assistant Response to Recipe Evaluation Question 5

Q5. Ingredients in recipe would be easy for me to find and purchase?					
	Definitely not (%)	*Probably not (%)*	*Undecided (%)*	*Probably yes (%)*	*Definitely yes (%)*
Blueberry fruit pizza (n=8)	0	0	0	63	38
Eggplant sliders (n=25)	0	0	4	36	6
Harvest kale salad (n=19)	0	0	5	58	37
Kale and pork soup (n=7)	0	0	43	29	29
Pear chicken salad (n=19)	0	0	0	37	58
Pear grilled cheese (n=7)	0	0	0	29	71
Ranch pasta salad (n=18)	0	0	5	39	56
Roasted winter vegetables (n=7)	0	0	14	57	29
Speedy apple pie (n=17)	0	0	0	24	76
Sweet potato hash (n=24)	0	0	4	33	63
Watermelon salsa (n=18)	0	5	0	44	50
Fresh summer veggie salad (n=7)	0	0	0	29	71

APPENDIX N

Percentage of Program Assistant Response to Recipe Evaluation Question 6

Q6. Recipe sampled today is similar to dishes I prepare at home?				
	Not at all similar (%)	*Somewhat similar (%)*	*Very similar (%)*	*Not sure (%)*
Blueberry fruit pizza (n=8)	13	50	13	25
Eggplant sliders (n=25)	44	36	12	8
Harvest kale salad (n=19)	42	32	16	11
Kale and pork soup (n=7)	43	29	14	14
Pear chicken salad (n=19)	37	37	26	0
Pear grilled cheese (n=7)	43	0	57	0
Ranch pasta salad (n=18)	33	17	44	6
Roasted winter vegetables (n=7)	29	43	29	0
Speedy apple pie (n=17)	18	41	29	12
Sweet potato hash (n=24)	46	29	8	17
Watermelon salsa (n=18)	67	11	22	0
Fresh summer veggie salad (n=7)	29	43	14	14

APPENDIX O

Percentage of Program Assistant Response to Recipe Evaluation Question 7

Q7. I find this recipe acceptable?					
	Strongly disagree (%)	*Disagree (%)*	*Neutral (%)*	*Agree (%)*	*Strongly agree (%)*
Blueberry fruit pizza (n=8)	0	0	0	50	50
Eggplant sliders (n=25)	0	0	8	56	36
Harvest kale salad (n=19)	0	0	16	47	37
Kale and pork soup (n=7)	0	0	43	14	43
Pear chicken salad (n=19)	0	5	16	21	58
Pear grilled cheese (n=7)	14	0	0	43	43
Ranch pasta salad (n=18)	11	0	17	39	33
Roasted winter vegetables (n=7)	0	0	29	71	0
Speedy apple pie (n=17)	6	0	0	29	65
Sweet potato hash (n=24)	4	0	21	50	25
Watermelon salsa (n=18)	11	0	33	28	28
Fresh summer veggie salad (n=7)	0	0	43	29	29