

University of Memphis

University of Memphis Digital Commons

---

Electronic Theses and Dissertations

---

12-2-2010

## A Point-of-Purchase Messaging Program Increases Sales of Identified Healthy Items in a University Food Court

Sarah Leslie Bursi

Follow this and additional works at: <https://digitalcommons.memphis.edu/etd>

---

### Recommended Citation

Bursi, Sarah Leslie, "A Point-of-Purchase Messaging Program Increases Sales of Identified Healthy Items in a University Food Court" (2010). *Electronic Theses and Dissertations*. 104.  
<https://digitalcommons.memphis.edu/etd/104>

This Thesis is brought to you for free and open access by University of Memphis Digital Commons. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of University of Memphis Digital Commons. For more information, please contact [khhgerty@memphis.edu](mailto:khhgerty@memphis.edu).

To the University Council:

The Thesis Committee for Sarah Bursi certifies that this is the final approved version of the following electronic thesis: “A Point-of-Purchase Messaging Program Increases Sales of Identified Healthy Items in a University Food Court.”

---

Terra Smith, PhD, RD  
Major Professor

We have read this thesis and recommend  
its acceptance:

---

Robin R. Roach, MPH, EdD, RD

---

Beth M. Egan, MS, RD

Accepted for the Graduate Council:

---

Karen D. Weddle-West, PhD  
Vice Provost for Graduate Programs

**A POINT-OF-PURCHASE MESSAGING PROGRAM INCREASES SALES OF  
IDENTIFIED HEALTHY ITEMS IN A UNIVERSITY FOOD COURT**

by

Sarah Bursi

A Thesis

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Master of Science

Major: Clinical Nutrition

The University of Memphis

December 2010

## ABSTRACT

Bursi, Sarah Leslie. MS. The University of Memphis. December 2010. Point-of-Purchase Messaging Program Increases Sales of Identified Healthy Items in a University Food Court. Major Professor: Dr. Terra Smith.

The obesity epidemic in the United States is effecting the college population. College populations across the country are served by contract foodservice companies that are looking for strategies to promote the purchasing of healthy menu items. To determine if sales of identified healthy items increased in a University food court, in this study, the Point-of-Purchase (POP) messaging technique was implemented. The sales data for 2 low- calorie, low- fat menu items was collected for 11-weeks. The 11- week time period was subdivided into a 6-week baseline phase, 4- week intervention phase, and 1- week follow-up phase. During the intervention 4- POP interventions were implemented to represent each week of the intervention phase. Two statistical differences were located using a t-test. Throughout both the intervention phase ( $p=0.001$ ) and follow-up phase ( $P=0.05$ ) significantly more sandwiches were sold than during the baseline phase.

## TABLE OF CONTENTS

| Chapter |  | Page |
|---------|--|------|
| 1       | Review of Literature   |      |
|         | Introduction   | 1    |
|         | Health Risks and Problems Related to Obesity                       | 2    |
|         | Eating Habits of College Students                                  | 4    |
|         | Environmental Interventions and <i>Point-of-Purchase</i> Messaging | 6    |
|         | POP Messaging Research in Foodservice Settings                     | 8    |
|         | POP Messaging in Fast-Foods  | 11   |
|         | POP Messages in College and University Settings                    | 13   |
|         | Foodservice at the University of Memphis                           | 15   |
|         | The <i>Just4U</i> ® Program, An Environmental Intervention         | 16   |
| 2       | Methodology  | 18   |
|         | Implementing a POP Program to Determine the Effects on Sales       | 18   |
|         | Preliminary Preparations   | 18   |
|         | Baseline Data Collection Period                                    | 19   |
|         | Intervention Data Collection Period                                | 20   |
|         | Follow-up Data Collection Period                                   | 21   |
|         | Statistical Methods of Data Analysis                               | 22   |
| 3       | Results  | 23   |
| 4       | Discussion   | 26   |
|         | Limitations  | 28   |
|         | Conclusions  | 29   |
|         | References   | 31   |
|         | Appendix   | 36   |
|         | <i>Just4U</i> ® stickers/labels                                    | 36   |
|         | <i>Just4U</i> ® flyer  | 38   |
|         | <i>Just4U</i> ® Health Finder Nutrition Criteria Guide             | 39   |

# CHAPTER I

## REVIEW OF LITERATURE

### Introduction

Beginning in the year 1960, The National Health and Examination Survey (NHANES) has collected data on the heights and weights of people in the United States to track prevalence and trends of overweight and obesity (1). In a recent issue of the Journal of the American Medical Association (JAMA), Flegal and colleagues, using NHANES data, examined the patterns of overweight and obesity in 5555 adults during 2007-2008 and the trends in obesity for a 9 year period ending in 2008(1). Overweight is defined as a Body Mass Index (BMI)<sup>1</sup> of 25.0 to 29.9 kg/m<sup>2</sup> while obesity is defined as a BMI  $\geq$  30kg/m<sup>2</sup>. Both conditions result from excessive weight gain (2) The overall prevalence for males and females over the age of 20 for overweight and obesity combined was 68%; 72.3% for men and 64.1% for women. Of these, 34.2% overall were considered overweight with 40.1% for men and 28.6% for women. Thirty-two percent of the men had a BMI over 30 kg/m<sup>2</sup>, while 36% of the women did. Men and women of all ages representing the general adult population are contributing to the increasing prevalence and trends of overweight and obesity. However, the greatest incidence seem to occur in persons between the ages of 18-29 years (2, 3), reflecting for many people, the college years. According to the American College of Health 2010 Executive Reference Study, an average of 33.5% college students is overweight or obese. This breaks down to 40.5% of the males and 29.5% of the females being overweight or

---

<sup>1</sup>Measure of weight adjusted for height. The formula is weight in kilograms/height in meters squared.

obese (4). Weight gain in college is attributed to the widely known phenomenon “The Freshman Fifteen” and is in large part due to the stress of transitioning into a new life stage and lifestyle.

### **Health Risks and Problems Related to Obesity**

Overweight and obesity contribute to the health problems of Americans of all sexes and age groups (5). A 2007 article in Science Daily discussed findings from a University of New Hampshire study in which 800 students enrolled in basic nutrition classes were queried about their nutrition history, had waist circumference measured, BMI calculated and were screened for abnormalities in blood pressure, glucose and lipid levels. The individual results stunned the students and the combined data dispelled the myth that college-aged adults represent the pinnacle of health. More than 350 of the students were overweight or obese, over half the men had hypertension, and two-thirds of the males and half of the females had at least one risk for metabolic syndrome. Sixty-five students actually had metabolic syndrome. The authors concluded that the participants’ futures included suffering from chronic health diseases; they suggested the trend was not unique to UNH (6).

All of us are aware of, and have read report after report on the health consequences of overweight and obesity. See figure 1 health complications associated with obesity from the Center for Disease Control (5).

1. Coronary Heart Disease (CHD)
2. Type 2 Diabetes (Type 2 DM)
3. Cancers (endometrial, breast, and colon) (CA)
4. Dyslipidemia (for example high triglyceride levels)
5. Stroke
6. Liver and Gallbladder Disease
7. Sleep apnea and respiratory problems
8. Osteoarthritis (a degeneration of cartilage and its underlying bone within a joint)
9. Gynecological problems (abnormal menses, infertility)

**Figure 1.** Health consequences of overweight and obesity.

Examination of Figure 1 illustrates three of the diseases have a direct relation to overweight and obesity (CHD, Type 2 DM, dyslipidemia). Hypertension, gallbladder disease, CA, and stroke often result from overweight and obesity while arthritis and gynecological problems are frequently exacerbated by the presence of excess weight.



As noted, weight gain causes overweight and obesity. Simply put, when caloric intake is greater than energy expenditure, fat accumulates and weight gain ensues. Obesity may reflect poor dietary habits and lack of physical activity (3). According to the *Journal of the American Medical Association* (JAMA), poor diet and lack of physical activity contributed to 400,000 deaths in the United States (7). Statistics such as these indicate the need for dietary interventions for all ages. Nutritional intervention has been shown in study after to study to improve lipid profiles, blood glucose, and blood pressure and to stabilize or prevent weight gain to help prevent future risks (8-10). The earlier in a life stage an intervention occurs, the more likely it is to become engrained into habit (11).

### **Eating Habits of College Students**

The college years represent a critical time for weight gain and targeting this population could decrease future health risks (12). Lowry and colleagues examined data from the National College Health Risk Behavior Survey to determine health-related practices among college students in the United States. Only 25% of students met the recommendations for 5 servings of fruits and vegetables a day and almost 80% of students consumed more than 2 serving of high fat foods a day. However, seemingly contradictory, about half of the students were trying to lose weight and of those, 60% were using diet to control their weight. The authors concluded that programs should be implemented in the college setting to help increase the student awareness of tools that encourage a healthy diet, weight management, and physical activity (7).

With a positive correlation between obesity and health complications such as diabetes, hypertension, and high blood pressure the need to control weight gain is imperative (13). The transition from high school to college was identified as a “*critical period*” for weight gain (12). The first year of college is famously known for “the Freshman Fifteen” – the weight gain that is seen in so many young people away from home for the first time. Between the freshman and sophomore year, almost 70% of students gain a significant amount of weight. The amount of weight gain is typically around 9 pounds. The lead investigator (3) noted that the college students are “sedentary, high-fat, fast-food people” who “tend to make poor food choices” (3).

Many college students have restricted funds and may limit their diets to inexpensive high fat foods to fill up. Examples of popular inexpensive foods include Ramen noodles and peanut butter (14). The typical college student diet is high in fat (15) with > 50% of students consuming fast or fried foods at least three times a week (3, 7, 16). They also consume a diet high in sodium and low in nutrient rich vegetable foods (15). Typical college students consume the daily recommendation of fruits and vegetables in a *week's* time rather than in a *day's* time (3, 7, 16). Fast food is often consumed. Fast foods can be extremely high in fat and sodium. For example, a 1500 calorie meal - enough calories for the day - can be purchased for as little as \$4.99. This “meal deal” also provides 2100 grams of sodium. In 2009, Dr. Drew Drewnowski, Director of the Nutritional Sciences Program at the University of Washington led a study comparing prices of almost 400 foods sold in local supermarkets. His results showed that

“energy dense” junk foods were far less expensive than nutrient-rich, lower-calorie foods (17) .

Anecdotally, the investigator of the current study, who served as a graduate assistant in the university food service, noted that one the most popular foods sold was fried chicken. Also observed were students waiting in the grill line for long periods of time to obtain their hamburgers and fries. Pizza, fried chicken fillet and submarine sandwiches were popular selections. And of course, the beverage of choice was the largest size soda available.

Although the college setting provides a suitable environment for unhealthy dietary habits, it also offers a suitable environment for health promotion (18). A typical college food service provides a place where a large number of people congregate in common areas. This provides a venue where positive behaviors can be encouraged (19).

### **Environmental Interventions and *Point-of-Purchase* Messaging**

Environment intervention is a technique in which a setting is modified to remove barriers to following healthy habits, including barriers to following a healthy diet (18, 19). Glance and Mullis describe five types of environmental interventions as an important part of improving health (19). One of the interventions is “point of choice nutrition information”. Point of choice refers to the location and surrounding area in

which a sale is made (20). Point of choice, also referred to as point of sale or Point-of-Purchase messaging (POP), may also be defined as the segment of advertising responsible for developing nutrition information displayed on signage (i.e. posters, labels). Designs, colors, illustrations, and location of signage represent the marketing facet of POP messaging. Using signs that are short and simple is a preferred POP design for consumers with minimal nutrition knowledge (21, 22). Point-of-Purchase messaging design has become a popular topic in foodservice research as a result of its ability to impact dietary behaviors (23).

Strategies, such as environment intervention, are being promoted at the population level because individual approaches are labor-intensive and costly compared to the number of people they impact. Environment intervention holds the promise of reaching potentially thousands of people with minimal outlay of money or labor. Additionally, population interventions, for example, food fortification, have been very successful in treating nutrition problems (18). To summarize, POP is an inexpensive tool that has the potential to positively impact dietary behaviors of large populations (18, 24), including the population of college students (25).

The manipulation of an environment using POP technique to promote health has been implemented in various foodservice establishments to facilitate change in dietary behavior. POP marketing technique has recently been employed to identify and recognize specific food items as healthier options (26-28).

## **POP Messaging Research in Foodservice Settings**

Over the past twenty years interest has increased in POP messaging due to its potential to influence eating habits and facilitate healthy lifestyle changes (18, 29). This has led to the POP intervention as a popular topic in foodservice research (25, 26, 29, 30). In addition to the effects of POP messaging on healthful food choices, previous studies have consumer perceptions of the identified healthy options, effects on sales and customer satisfaction (18, 19). Depending on the research question, the population targeted, and the focus of previous research, different types of POP messaging techniques were emphasized. Numerous studies have been conducted in an assortment of facilities where large numbers of people are fed on a daily basis (18, 19).

POP messaging programs have been implemented in a range of foodservice venues such as cafeterias, fast-food restaurants, on-site convenience stores, vending machines, and in institutions including hospitals and higher education settings. In the college and university settings POP intervention designs have been utilized through the use of vending services and convenience stores as well as through the cafeterias (25, 26, 29-31).

Several studies have examined the effect of POP programs on sales. Kimathi and colleagues conducted a study in which a “Healthy Options Food Station” was

implemented in a worksite cafeteria. The healthy station advertised entrees of 500 calories with less than 30% fat (26) and was compared to the comfort station by measuring sales and gross profit. The comfort station featured “comfort foods” such as fried chicken wings, meatloaf, smothered steak, mashed potatoes, macaroni and cheese, “seasoned” vegetables, and other high calorie, high fat food. Featured at the healthful- options stations were lower calorie, lower fat foods such as a fish of the day and a variety of nutritious entrées, wraps, and salads. Although total sales and gross profit were higher for the comfort food stations, there was only about \$100-150 difference in gross profits and sales between the two options (26). The authors concluded that offering healthier food choices could potentially increase the bottom line for foodservice operations.

Another POP intervention that focused on sales implemented the *Eat Smart* program in a college convenience store. Freedman and colleagues divided the study into a baseline, intervention, and follow-up. Specific food items were tagged with the following identifying phrase *Fuel Your Life* (29). No significant difference was found between the baseline and intervention phases of the study. However, Freedman did find that overall sales of tagged items (cereal, soup, and crackers) increased, as a percentage of total sales. Details of this study are described further in another section of this review.

Cafeterias are an excellent location for POP messages because the surrounding environment allows for effective communication of nutrition information (18, 26, 32). In that thousands of students a day pass through them, college cafeterias can also provide

prime locations for POP messaging. In 2001, Buscher and colleagues examined the effects of POP intervention in a college cafeteria using the acronym BEST to promote purchase of healthy snack choices including vegetables, fruits, and yogurt. BEST refers to 4 descriptive properties of food that consumers consider before purchasing a food item: **B**udget-Friendly, **E**nergizing, **S**ensory/satisfaction/taste, and **T**ime/convenience (21).

The study took place in the largest cafeteria of Canadian university and targeted undergraduates on full meal plans. The intervention occurred over a period of 8 weeks and included a 2 week baseline period in which no messaging was displayed. This was followed with week-long interventions at one week intervals in which vegetable baskets, pretzels, yogurt and fruit were targeted with BEST messages; a two week-follow up in which no messages were present concluded the intervention portion.

The intervention messages were placed on large posters located at the cafeteria entrance along with two index-card sized cards placed directly in front of the targeted BEST food choices. To help catch the students' eyes, the messages were accompanied by a cartoon figure and cartoon renditions of the targeted food items. During all periods, sales of BEST items were analyzed along with the total number of daily sales transactions. Although results indicated no changes in the number of daily sales transactions, sales of pretzels and yogurt increased significantly ( $p < 0.5$ ) during the intervention weeks and remained higher during the follow-up period. The findings from

Buscher's study demonstrated that incorporating POP messaging was successful indicating college students will chose healthier snacks when prompted. Besides cafeterias, fast-food restaurants have been used as locations for POP message research.

### **POP Messaging in Fast-Foods**

Fast-food restaurants are notorious for menus that offer high calorie and fat food options making them a fitting environment for promoting health using POP messages interventions. An initiative established in the early 2000's by the Department of Health and Human Services (DHHS) focused on reducing the major health burden created by obesity and other chronic diseases. As a part of that initiative, the Food and Drug Administration (FDA), a branch of the DHHS, established an Obesity Working Group (OWG) to prepare a report that outlines an action plan to cover critical dimensions of the obesity problem. The OWG report provided recommendations to address multiple facets of the obesity problem, including developing appropriate and effective consumer messages; establishing educational strategies and partnerships to support appropriate messages and encouraging and enlisting restaurants in efforts to provide nutrition information to consumers at the point-of-sale (33).

The FDA conducted focus group research about type of nutrition information participants would like to see in fast-food restaurants. The questions dealt with several



topics including nutrition information and symbols indicating a "healthier" choice. Most participants seemed interested in having nutrition information available to them when they eat at fast-food restaurants. Participants suggested that this information be presented in many locations including on food wrappers and posters placed near the counter (33). This idea is supported by Buscher who stated that success of the BEST intervention was primarily related to placement and also to design and message content of the POP materials (Buscher).

POP messages should be short and simple (21, 22) so that consumers with limited nutrition literacy can easily understand the nutrition message being conveyed. If label information cannot be understood, it follows that information provided will not be employed to make healthier choices (21, 22, 34). In the FDA focus group research, a purple "keyhole" was used as a symbol to identify healthier food choices. The keyhole was placed on mock menu boards next to foods previously distinguished as healthy (22). The keyhole signified the food item had one-third less of a day's calories based on a 2000 calorie diet, one-third less of daily value for saturated fat, cholesterol and less than one-half of the daily value for sodium. The focus group participants favored the simplicity of identifying healthier items with a symbol that had uniform, understandable definition. Although, the FDA focus groups did not involve real situations, the identifier as an intervention method has been used and has been successful in Sweden, Norway, and Denmark (35).

## **POP Messages in College and University Settings**

Several studies on POP interventions have been implemented in higher education settings to determine students' awareness of available nutrition information and healthy food choices or to examine the effects of POP on dietary behavior change or on sales (21, 23, 25, 29). These studies targeted vending machines, convenience stores, and cafeteria offerings (19, 21, 29, 32)

Sales data was the focus in a recent study that used POP messaging nutrition intervention, the *Eat Smart* program, in a college convenience store to determine if the intervention was successful. Freedman and Connors divided the study into baseline and intervention phases. Specific shelf food items deemed "healthful" were tagged with the identifying phrase *Fuel Your Life*. During the 6 week baseline period, none of healthful items were tagged; the intervention phase took place over 5 weeks when the shelf tag located below the item was identified with the *Fuel Your Life* logo. The authors reported no significant difference between the baseline and intervention of the *Fuel Your Life* POP messaging study. However, Freedman did find that overall sales of tagged items (cereal, soup, and crackers) increased, as a percentage of total sales (29).

Results of the studies consistently (25, 26, 29, 36, 37) display the positive effects of provided nutrition information in the form of POP messages and their potential to encourage people to make healthier food choices.

In that foodservice companies want to provide customer satisfaction, national foodservice companies have become more involved in providing healthier options to their consumers (38, 39). In 2007, a world-renowned company offering foodservice management services formed a partnership with The American Dietetic Association to address the increasing health concerns expressed by students at various colleges and universities (40). This professional services company, which ranked number one in its industry (41) has a corporate goal to responsibly address issues that matter to its customers by focusing on a variety of issues including health and wellness initiatives (25, 26, 29, 36, 37).

As a part of their initiative, 100,000 surveys were distributed to college students to better understand their health and nutrition expectations (40). As a result of the survey, it was determined that over 60% of students wanted healthy options available (40). Of the 11 nutrition issues identified, over 50% of the students were concerned about their weight and their fat intake; 43% were concerned about their caloric intake (42).

Responses from the survey were utilized and led to a POP program aimed at educating students on healthy eating. The program, entitled *Just4U*®, was developed by registered dietitians and consists of POP messaging materials such as: handouts, posters, flyers, brochures, and nutrition identifying labels along with an implementation guide for foodservice managers.

## **Food Service at University of Memphis**

A variety of food options are available to consumers residing on or visiting college campuses. These include traditional cafeteria offerings, convenience food stores, and vending services. A new trend in educational food service is implementation of food courts modeled after the food courts commonly found in malls all over the U.S. This trend has reached the University of Memphis (UM), a major metropolitan research institution located in the city center.

The University of Memphis offers bachelors, masters and doctoral degrees and also houses a law school. Enrollment is about 21,000 and UM has a workforce of approximately 2600 faculty and staff. Over 3,000 degrees are awarded annually (43). Thousands use foodservice facilities at the University on a daily basis. Foodservice operations at UM are outsourced to a diversified services corporation that provides dining and other management services to education, industry, healthcare, correctional institutions, conference centers, and recreational venues in thousands of institutions and facilities across America (44, 45). Recently the UM contract food service opened the *Union*, a food court located in the University Center (UC). The UC helps support the educational mission of the University of Memphis by providing high-quality facilities, equipment, services, and student employment opportunities as well as offices for student organizations and University departments and most importantly - a variety of foodservice

options (46). The UC mission and its location in the heart of the university serve as crossroad where 3-5,000 students, faculty, staff, and visitors meet and congregate daily.

The *Union* is composed of five fast food vendors and a section called *Grab n Go* section (47). The *Grab n Go* area is designated for pre-made selections such as salads, sandwiches, wraps, whole fruit, fruit and veggie cups, yogurt and other items intended for customers that are interested in a quick purchase without having to wait in line for protracted periods. The food items in *Grab n Go* are prepared following recipes provided by the contractor. The *Grab n Go* arrangement provides a natural venue for intervention using POP messaging techniques. However, to my knowledge no research has been conducted on the effect of POP messaging on sales of previously prepared and ready-to-go food items such as salads, sandwiches, and fruit cups.

### **The *Just4U*<sup>®</sup> Program, An Environmental Intervention**

The *Just4U*<sup>®</sup> program is a propriety program created by the UM contract food management company's corporate dietitians to make it easier for customers to identify food choices that fit their lives (42). Part of the *Just4U*<sup>®</sup> is the Health Finder Nutrition Messaging Program (HFNMP) which provides materials intended to elevate students' awareness of available healthier choices.

The HFNMP materials include signage that provide a broad range of simple, direct messages that enable quick and easy healthy food choices. The signage is comprised of flyers, brochures, POP messaging labels, and posters. A variety of POP messaging labels exist to address the many nutrition concerns of consumers including six different fat content labels, three labels denoting assorted calorie levels, labels designating cooking technique, a collection addressing sodium or carbohydrate content and labels designating organic, vegetarian, or locally-grown food (For a list of labels, see Appendix C).

There is a notable similarity between The FDA's OWG use of the keyhole symbol to designate healthy choices and the POP messaging information used in the *Just4U*<sup>®</sup> program. Both interventions utilize an emblem that is uniform in meaning, color, and content of label. The *Just4U*<sup>®</sup> program differs in that instead of one label to designate healthy choices, a variety of labels are used based on the nutrient modification that makes the item a healthier choice. The *Just4U*<sup>®</sup> labels also use a rainbow of colors and contain a nutrition message that defines the nutritional focus. For illustrations of the *Just4U* labels, see the Just4U Health-Finder Nutrition Criteria Guide in Appendix C.

## **CHAPTER II**

### **METHODOLOGY**

#### **Implementing a POP Program to Determine Effects on Sales**

An 11-week study, divided into baseline, intervention and follow-up phases was implemented to determine the effects of POP messaging on sales in a university setting. A previously developed POP program, entitled *Just4U*<sup>®</sup> (42) was utilized. The study took place over the summer and was conducted in the major food service area of the university in a section called *Grab n Go*, which provides ready-made food options that can be obtained rapidly and without waiting in line. Food options within the *Grab n Go* section are prepared in advance and consist of salads, wraps, sandwiches and fruit cups. Items from *Grab n Go* were selected to be labeled with POP messages. Only sales data was analyzed for this research study. The cash registers were used to collect the sales data throughout all three phases and sales data collection remained the same throughout the entire study.

#### **Preliminary Preparations**

Two sandwich wraps were chosen to be labeled with POP messages for the study. The identifiers chosen were low calories (<500 calories) and low fat (< 10 gram), because these nutrients had previously been identified as nutrients of concern among college

students (42). The *Mediterranean Hummus* and the *California Crusin* wraps were chosen, because both recipes met the *Just4U*<sup>®</sup> program defined criteria for low calorie and low fat. In addition, wraps were chosen as the foods to be labeled, because they could be easily prepared by foodservice employees without taking time away from other duties. Besides sandwich preparation, the foodservice staff placed a *Just4U*<sup>®</sup> sticker on each wrapper.

In preparation for the data collection period, cash registers were modified so that the cashiers only needed to press 2 keys to register sales of each sandwich. One key was designated for the *Mediterranean Wrap* and the other for the *California Crusin* wrap. Every time a sandwich was purchased, the cashier would push the appropriate key on the register and this data would input into the computer system. Sales data was collected and used to determine the effect of the interventions on sales of sandwiches designated for this study. See appendix A for graphic representations of labels used in this study.

### **Baseline Data Collection Period**

The baseline phase of the *Just4U*<sup>®</sup> program study was undertaken during June – July of 2010. Throughout the 6-week phase, the *Mediterranean Hummus Wrap* and *California Crusin* were available for sale in the *Grab n Go* section of the *Union* food court. No POP messaging appeared on either wrapper. When the sandwiches sold out or



expired they were replaced to the par level of 3. The baseline data collection phase was immediately followed by the intervention phase.

### **Intervention Data Collection Period**

Following the baseline phase, the 4-week intervention phase began. Each week a new intervention method was implemented (see Table 1). During the first week both sandwiches were labeled with the blue *Just4U*<sup>®</sup> sticker. Blue is the color that denotes a low calorie option. The stickers were adhered in a prominent position on the front of each sandwich wrapper and then the sandwiches were placed in the *Grab n Go* cooler. The second week of intervention both of the sandwiches had the low fat *Just4U*<sup>®</sup> label positioned on the front wrapper of the products. Low fat stickers are red. During the third week of intervention the *Just4U*<sup>®</sup> *Eat Well* flyer was implemented in addition to the blue low calorie identifier (see appendix B for *Eat Well* flyer). An 8”x 11” frame containing the *Just4U*<sup>®</sup> *Eat Well* flyer was placed near the sandwiches and centered at eye level on *Grab n Go* cooler. The *Grab n Go* cooler encased both sandwiches labeled with the *Just4U*<sup>®</sup> blue low calorie stickers. Throughout the third week the flyer remained in the same position on the cooler. The fourth and final week of the intervention phase reintroduced the red low fat *Just4U*<sup>®</sup> sticker while maintaining the *Eat Well* flyer as part of the intervention method. Both sandwiches were located in the *Grab n Go* cooler with the *Eat Well* flyer positioned as it had been during week three.

## Follow Up Data Collection Period

The follow-up phase took place for 1 week during the fall semester in the *Grab n Go* section of the *Union*. Prior to the follow-up phase the *Eat Well* flyer was removed. Similarly to the other phases of the study, both sandwiches were placed in the *Grab n Go* cooler; however, no *Just4U*<sup>®</sup> low fat or low calorie stickers were placed on either types of sandwich. When sandwiches were purchased the cashiers were instructed to press the correct register keys. If sandwiches sold out more were prepared for replacement. Table 1 illustrates which POP messages were utilized throughout the baseline, intervention, and follow-up phases of the study.

| <b>Table 1.</b> Phase and number of weeks of each type intervention, for a <i>Just4U</i> <sup>®</sup> program to determine the effects of POP messaging on sales of identified healthy items                                    |                                 |                  |                  |         |
|---|---------------------------------|------------------|------------------|---------|
| Phase   | Number of Weeks of Intervention | Sticker Type     |                  | Flyer * |
|   |                                 | BLC <sup>a</sup> | RLF <sup>b</sup> |         |
| Baseline  | 6                               | - <sup>c</sup>   | - <sup>d</sup>   | -       |
| Intervention  |                                 |                  |                  |         |
| Week 1  | 1                               | +                | -                | -       |
| Week 2  | 1                               | -                | +                | -       |
| Week 3  | 1                               | +                | -                | +       |
| Week 4  | 1                               | -                | +                | +       |
| Follow-Up   | 1                               | -                | -                | -       |
| <sup>a</sup> BLC (Blue low calorie sticker)<br><sup>b</sup> RLF (Red low fat sticker)<br><sup>c</sup> No sticker on product or flyer not present<br><sup>d</sup> Sticker placed on product or flyer present<br>* Eat Well Flyer |                                 |                  |                  |         |

## **Statistical Methods of Data Analysis**

SPSS statistical software was used to enter and analyze the sales data. Two tests were conducted to analyze the sales data; an independent samples t-test and one way ANOVA. The independent samples t-test was utilized twice, first to compare the baseline to intervention phase, and second to compare the baseline to follow-up phase. A comparison using ANOVA was performed to determine if a statistical significance existed between the 4 different intervention strategies. Once analyzed, two tables were formulated based on the SPSS results

## Chapter III

### RESULTS

The results presented in Table 2 indicate that, a significant difference existed between the number of sandwiches sold during the intervention and follow-up phases compared to the baseline phase of the study. There was a 43% increase in sandwiches sold during the intervention and a 38% increase during the follow-up phase. Overall, more sandwiches sold during the intervention phase indicating the *Just4U*® materials were an effective POP messaging program. Although, there was not a significant difference between the POP intervention strategies (see Table 3 for illustration of intervention strategies) there was a 6% increase in sales from the beginning to the end of the intervention period displaying the sales did not plateau.

| <b>Table 2. The percentage of healthy sandwiches sold compared to healthy sandwiches made for each phase of the POP study at the <i>Union</i> food court</b> |                                      |                         |                    |
|--|--------------------------------------|-------------------------|--------------------|
| Period   | Percent sold<br>Mean±SD <sup>a</sup> | Sold/ made <sup>*</sup> | <i>p</i> -value    |
| Baseline <sup>b</sup>  | 25% ± 26%                            | 20/79                   |                    |
| Intervention <sup>c</sup>  | 68% ± 11%                            | 180/259                 | 0.001 <sup>d</sup> |
| Follow-up <sup>e</sup>   | 63% ± 10%                            | 96/150                  | 0.05 <sup>f</sup>  |

<sup>a</sup> SD = Standard deviation  
<sup>b</sup> 19 days of healthy sandwiches were sold before intervention  
<sup>c</sup> 20 days of healthy sandwiches were sold with either low calorie sticker (5 days), low fat sticker (5 days), low calorie sticker & flyer (5 days) low fat sticker and flyer (5 days).  
<sup>d</sup> Independent samples t-test comparison of baseline and intervention percentages.  
<sup>e</sup> 5 days of healthy sandwiches were sold during the follow-up.  
<sup>f</sup> Independent samples t-test comparison of baseline and post-intervention percentages.  
<sup>\*</sup> Number of healthy sandwiches sold/number of healthy sandwiches made.

**Table 3.** Comparison of interventions' effect on percent of healthy sandwiches sold during the 4 week intervention phase at the *Union* food court

| <b>Intervention<sup>b</sup></b> | <b>Percent sold<br/>Mean <math>\pm</math> SD<sup>c</sup></b> | <b>sold/made<sup>d</sup></b> |
|---------------------------------|--|------------------------------|
| Low Calorie Sticker             | 66% $\pm$ 17%  | 31/47                        |
| Low Fat Sticker                 | 67% $\pm$ 11%  | 40/59                        |
| Low Calorie Sticker & Flyer     | 68% $\pm$ 10%  | 51/75                        |
| Low Fat Sticker & Flyer         | 72% $\pm$ 4%   | 54/75                        |

<sup>a</sup> One-way ANOVA comparison of interventions' effect on proportion of healthy sandwiches sold.  
<sup>b</sup> n = 5 days healthy sandwiches were sold for each intervention.  
<sup>c</sup> SD = standard deviation.  
<sup>d</sup> Number of healthy sandwiches sold/number of healthy sandwiches made x 100%.

## CHAPTER IV

### DISCUSSION

The *Just4U*<sup>®</sup> program proved to be an effective and inexpensive POP tool that increased sales of identified healthy items. Although the number of sandwiches sold was small; there was a significant difference in the number of sandwiches sold during the intervention phase compared to the baseline phase. Overall, more sandwiches sold during the 4-week intervention than any other time period of the study. The increase in sales may be due to the prompts provided by the POP stickers. In addition to the intervention phase, the follow up phase was statistically significant compared to the baseline, also reflecting an increase the number of sandwiches sold. The layout of this POP study was similar to Freedman (29) and Connors in that there were baseline and intervention phases.

The 6-week baseline phase of this study included no POP messaging and served as a control for the remaining phases. Fewer sandwiches were made and sold during the baseline phase than any other phase throughout the study. These results were expected considering the less foot traffic in the UC during the summer time and also that POP messaging was absent. During the baseline phase the focus was on training employee (ie cashiers) to ensure sales data would be collected accurately and consistently throughout the 11-week time period.

During the 4-week intervention phase compared to any other phase, there was a significant difference in sandwich sales data between the intervention and follow-up phase. In Freedman and Connors study (29), there was not a significant difference between the intervention and baseline. In the current study more sandwiches were made during the intervention phase compared to the baseline phase in order to maintain the par level of sandwiches available for purchase. Although, sales of sandwiches increased during the study, there was not a significant difference between the 4 individual *Just4U*<sup>®</sup> POP intervention strategies implemented during the intervention phase. Overall, more sandwiches sold during the 4<sup>th</sup> week of the intervention phase possibly indicating that the low-fat sticker and *Eat Well* flyer combination was more appealing to consumers, catching their attention better, and resulting in extra purchases that week. This POP study was similar to previous research (29) because sales of identified items did increase, which may indicate behavior changes in food choices.

The follow-up phase also resulted in more sandwiches being purchased compared to the baseline even though no POP messaging was used. As a result, a significant difference did exist between the baseline sales data and the follow-up phase sales data. Consumers may have recognized the sandwiches as healthier options, as a result of the 4-week intervention exposure prior to the follow-up phase. Or the increase in sales of healthy menu items may simply reflect the results from the *Just4U*<sup>®</sup> study (42) that students wanted lower fat and lower calorie options. There are many avenues as to how the *Just4U*<sup>®</sup> program can be implemented and what may work in one University setting



may collapse in another. Although the *Just4U*<sup>®</sup> study did increase sales and affirm the hypothesis there were limitations that must be considered.

## **Limitations**

The limitations section will be discussed based on the three major components of this study: the baseline, intervention, and follow-up phases. The baseline phase and follow-up phases took place during the summer semester. Summer time presents fewer people and less foot traffic throughout the *Union* so most of the target population was not present on campus. In addition to the typical college student and faculty, there were children camps on the University of Memphis campus. These camps could possibly have contributed to sales, which is a false representation of the normal college population. Another limitation to consider during the summer semester is that *Grab n Go* section of the cafeteria is not utilized as much compared to the fall and spring semesters. As a result of fewer consumers, less waiting time is required to obtain more desirable food and customers are more likely to order from the food court fast-food vendors instead of purchasing an item from the *Grab n Go* section.

The follow-up week was actually part of the fall semester when UM is heavily populated; students are more likely to purchase from the *Grab n Go* section due to heavy foot traffic and long lines at the fast-food counters. Since sales data was the focus of this

study, no other information was obtained. There is no way to identify if the students that purchased sandwiches during the follow-up phase were present during the *Just4U*<sup>®</sup> POP intervention. This may help determine if students have actually recognized a healthier option on their own, indicating a behavior change.

## **Conclusions**

Environmental interventions like Point-of-Purchase messaging have the potential to influence eating behaviors of college students. Due to the increasing prevalence and trends of obesity reported on college campuses this population at risk for future health problems. The *Just4U*<sup>®</sup> Program was implemented as a POP messaging tool in the *Grab n Go* section of *Union* food court at the UM. A 6- week baseline, 4 week intervention, and 1 week follow-up period were the time periods designated for the study. Throughout each phase, sales data was collected to compare the number of sandwiches sold. The results indicate that the *Just4U*<sup>®</sup> program was effective and did significantly increased sales of the targeted items during the intervention and follow-up phases. Using POP tools like the *Just4U*<sup>®</sup> program is an excellent method of promoting health, with limited labor in the college setting, and may contribute to a healthier trend in college students eating habits.

Suggestions for future POP research include longer time periods for each intervention during prime semesters, using a dummy sticker, the same color and shape as the *Just4U*<sup>®</sup> program labels without any visible identifying information, such as low fat

or low calorie, on the actual label. Additionally, data other than sales should be collected in future research studies to gather feedback on POP interventions to better implement programs and consider preferences of the target population.

## REFERENCES

1. Flegal KM, Carroll MD, Ogden CL, Curtin LR. Prevalence and trends in obesity among US adults, 1999-2008. *JAMA*. 2010;303:235-241.
2. National Institute of Health. Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults - Treatment Guidelines. Available at: <http://www.ncbi.nlm.nih.gov/bookshelf/br.fcgi?book=obesity&part=A228>. Accessed August 25, 2010.
3. Racette SB, Deusinger SS, Strube MJ, Highstein GR, Deusinger RH. Weight changes, exercise, and dietary patterns during freshman and sophomore years of college. *J Am Coll Health*. 2005;53:245-251.
4. American College Health Association. Reference Group Executive Summary: Spring 2010. Available at: [http://www.achancha.org/docs/ACHA-NCHA-II\\_ReferenceGroup\\_ExecutiveSummary\\_Spring2010.pdf](http://www.achancha.org/docs/ACHA-NCHA-II_ReferenceGroup_ExecutiveSummary_Spring2010.pdf). Accessed October 10, 2010.
5. Centers for Disease Control and Prevention. Overweight and Obesity:Health Consequences. Available at: <http://www.cdc.gov/obesity/causes/health.html>. Accessed November 1, 2010.
6. Science Daily. College students face obesity, high blood pressure, metabolic syndrome. Available at: <http://www.sciencedaily.com/releases/2007/06/070614113310.htm>. Accessed November 5, 2010.
7. Lowry R, Galuska DA, Fulton JE, Wechsler H, Kann L, Collins JL. Physical activity, food choice, and weight management goals and practices among US college students. *Am J Prev Med*. 2000;18:18-27.
8. Rached-Amrouche C, Jamoussi-Kammoun H, BLouza-Chabchoub S. Effects of dietary intervention on weight loss and improvement of metabolic cormorbidities in a population of obese adults. *Tunis Med*. 2007;85:102-104.

9. Thompson RL, Summerbell CD, Hooper L, Higgins JP, Little PS, Talbot D, Ebrahim S. Dietary advice given by a dietitian versus other health professional or self-help resources to reduce blood cholesterol. *Cochrane Database Syst Rev.* 2003;3:CD001366.
10. McGehee MM, Johnson EQ, Rasmussen HM, Sahyoun N, Lynch MM, Carey M. Benefits and costs of medical nutrition therapy by registered dietitians for patients with hypercholesterolemia. massachusetts dietetic association. *J Am Diet Assoc.* 1995;95:1041-1043.
11. Brotherson S . Understanding Brain Development in Young Children. Available at: <http://www.ag.ndsu.edu/pubs/yf/famsci/fs609w.htm>. Accessed June 12, 2010.
12. Anderson DA, Shapiro JR, Lundgren JD. The freshman year of college as a critical period for weight gain: An initial evaluation. *Eat Behav.* 2003;4:363-367.
13. Nejat EJ, Polotsky AJ, Pal L. Predictors of chronic disease at midlife and beyond--the health risks of obesity. *Maturitas.* 2010;65:106-111.
14. Daily news: Killer Ramen: College students that eat cheap instant foods are at risk for chronic diseases. Available at: [http://www.nydailynews.com/lifestyle/health/2010/05/27/2010-05-27\\_killer\\_ramen\\_college\\_students\\_who\\_eat\\_cheap\\_instant\\_foods\\_are\\_at\\_risk\\_for\\_chron\\_i.html](http://www.nydailynews.com/lifestyle/health/2010/05/27/2010-05-27_killer_ramen_college_students_who_eat_cheap_instant_foods_are_at_risk_for_chron_i.html). Accessed November 9, 2010.
15. Davy SR, Benes BA, Driskell JA. Sex differences in dieting trends, eating habits, and nutrition beliefs of a group of midwestern college students. *J Am Diet Assoc.* 2006;106:1673-1677.
16. Strong KA, Parks SL, Anderson E, Winett R, Davy BM. Weight gain prevention: Identifying theory-based targets for health behavior change in young adults. *J Am Diet Assoc.* 2008;108:1708-1715.
17. Drewnowski A. The cost of US foods as related to their nutritive value. *AM.J.Clin.Nutr.* 2010;92:1181-1188. 18. Seymour JD, Yaroch AL, Serdula M, Blanck
18. HM, Khan LK. Impact of nutrition environmental interventions on point-of-purchase behavior in adults: A review. *Prev Med.* 2004;39:S108-36.

19. Glanz K, Mullis RM. Environmental interventions to promote healthy eating: A review of models, programs, and evidence. *Health Educ Q.* 1988;15:395-415.
20. Online Dictionary. Available at: <http://dictionary.reference.com/browse/point%20of%20purchase>. Accessed May, 2010.
21. Buscher LA, Martin KA, Crocker S. Point-of-purchase messages framed in terms of cost, convenience, taste, and energy improve healthful snack selection in a college foodservice setting. *J Am Diet Assoc.* 2001;101:909-913.
22. Lando AM, Labiner-Wolfe J. Helping consumers make more healthful food choices: Consumer views on modifying food labels and providing point-of-purchase nutrition information at quick-service restaurants. *J Nutr Educ Behav.* 2007;39:157-163.
23. Conklin MT, Crange DA, Lambert CU. College students use point of selection nutrition information. *Top Clin Nutr.* 2005:97-105.
24. Ammerman AS, Lindquist CH, Lohr KN, Hersey J. The efficacy of behavioral interventions to modify dietary fat and fruit and vegetable intake: A review of the evidence. *Prev Med.* 2002;35:25-41.
25. Cinciripini PM. Changing food selections in a public cafeteria: An applied behavior analysis. *Behav Modif.* 1984;8:520-539.
26. Kimathi AN, Gregoire MB, Dowling RA, Stone MK. A healthful options food station can improve satisfaction and generate gross profit in a worksite cafeteria. *J Am Diet Assoc.* 2009;109:914-917.
27. Perlmutter CA, Canter DD, Gregoire MB. Profitability and acceptability of fat- and sodium-modified hot entrees in a worksite cafeteria. *J Am Diet Assoc.* 1997;97:391-395.
28. Lowe MR, Tappe KA, Butryn ML, Annunziato RA, Coletta MC, Ochner CN, Rolls BJ. An intervention study targeting energy and nutrient intake in worksite cafeterias. *Eat Behav.* 2010;11:144-151.

29. Freedman MR, Connors R. Point-of-purchase nutrition information influences food-purchasing behaviors of college students: A pilot study. *J Am Diet Assoc.* 2010;110:1222-1226.
30. Sproul AD, Canter DD, Schmidt JB. Does point-of-purchase nutrition labeling influence meal selections? A test in an army cafeteria. *Mil Med.* 2003;168:556-560.
31. Rogers AB, Kesler LG, Portnoy B, Potosky AL, Patterson B, Tenney J, Thompson SE, Krebs-Smith SM, Breen N, Matthews O, Kahle LL. "Eat for health": A supermarket intervention for nutrition and cancer risk reduction. *Am J of Public Health.* 1994;84:72-76.
32. Perlmutter CA, Canter DD, Gregoire MB. Profitability and acceptability of fat- and sodium-modified hot entrees in a worksite cafeteria. *J Am Diet Assoc.* 1997;97:391-395.
33. Food and Drug Administration. Reports and Labeling: Food Labeling and Nutrition Reports Research. Available at: <http://www.fda.gov/Food/LabelingNutrition/ReportsResearch/default.htm>. Accessed October 30, 2010.
34. Blanck HM, Yaroch AL, Atienza AA, Yi SL, Zhang J, Masse LC. Factors influencing lunchtime food choices among working americans. *Health Educ Behav.* 2009;36:289-301.
35. Smith SC, Stephen AM, Dombrow C, Macquarrie D. Food information programs: A review of the literature. *Can J Diet Pract Res.* 2002;63:55-60.
36. Simone AF, Stables G. Environmental interventions to promote vegetable and fruit consumption among youth in school settings. *Prev Med.* 2003;37:593-610. Accessed August 23, 2010.
37. Temple JL, Johnson K, Recupero K, Suders H. Nutrition labels decrease energy intake in adults consuming lunch in the laboratory. *J Am Diet Assoc.* 2010;110:1094-1097.
38. Healthy Eating-Morrisons. Available at: <http://www.morrisons.co.uk/Food/Healthy-Eating/>. Accessed August 1, 2010.

39. Nutrition and Healthy Menus. Available at:  
<http://www.aramark.com/AboutARAMARK/ARAMARKOn/NutritionandHealthyMenus.aspx>. Accessed August 1, 2010.
40. Business Wire. Students take Charge of Healthy Eating on Campus. Available at:  
[http://findarticles.com/p/articles/mi\\_m0EIN/is\\_2008\\_March\\_13/ai\\_n24920868/?tag=content;coll](http://findarticles.com/p/articles/mi_m0EIN/is_2008_March_13/ai_n24920868/?tag=content;coll). Accessed March 24, 2010.
41. Fortune. World's Most Admired Companies. Available at:  
<http://money.cnn.com/magazines/fortune/mostadmired/2010/champions>. Accessed August/16, 2010.
42. ARAMARK. Just4U health-finder nutrition messaging program:Implementation guide. 2009:3-15.
43. The University of Memphis. History. Available at:  
<http://www.memphis.edu/umhistory.php>. Accessed November 10, 2010.
44. The Higher Education Team. ARAMARK: Colleges and Universities. Available at:  
<http://www.aramark.com/Industries/CollegesandUniversities/>. Accessed February 5, 2010.
45. ARAMARK History. Available at:  
<http://www.aramark.com/AboutARAMARK/History/>. Accessed August 2, 2010.
46. The University of Memphis. Welcome to the University Center. Available at:  
<http://saweb.memphis.edu/uc/aboutus.htm>. Accessed November 1, 2010.
47. ARAMARK. Dining with the University of Memphis. Available at:  
<http://www.campusdish.com/en-US/CSS/UnivMemphis>. Accessed August 23, 2010.

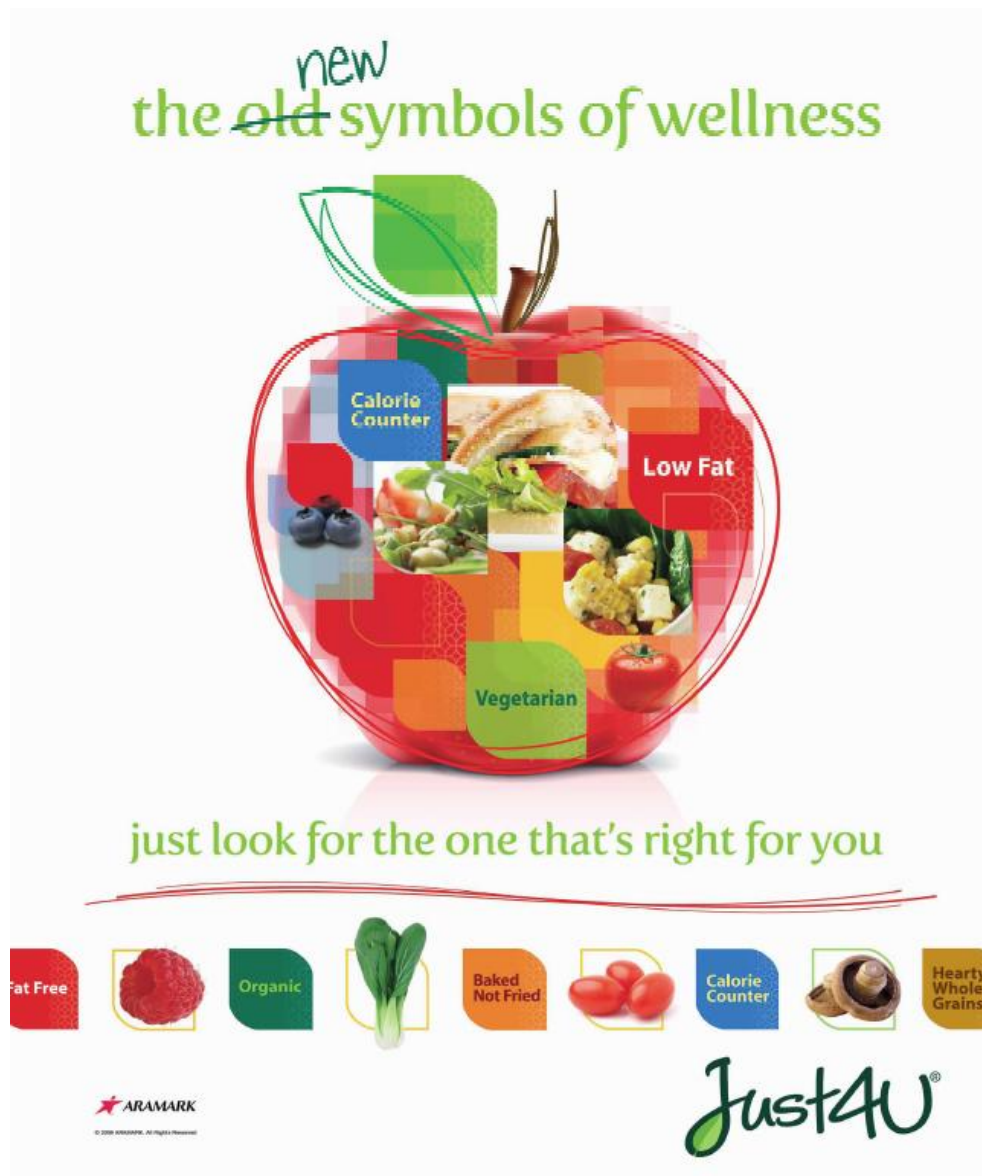


## **APPENDIX**














The POP nutrition labels used on sandwiches



The *Eat Well* flyer used during the last two weeks of intervention phase



## Just4U® HEALTH-FINDER Nutrition Criteria Guide

| Nutritional Focus  | Nutrition Message   | Criteria for Posting (Per Serving)   | Appropriate Usage  | Inappropriate Usage   |
|--|---|--|--|---|
| Finding menu selections lower in fat                                       |  Under 10g Fat   | < 10 grams total fat   | Entrées, full size sandwiches, and other main dishes.  | Fried foods, desserts, side dishes, or soups and foods that meet lower fat messages below.                              |
|  |  Under 5g Fat  | < 5 grams total fat  | Entrées, full size sandwiches and other main dishes. Also appropriate for desserts, side dishes, or soups. | Fried foods and menu items that meet a low fat claim or fat free messages below.  |
|  |  Low Fat   | < 3 grams total fat, per serving <i>and</i> 30% of calories from fat or lower  | All menu items that meet the criteria; local recipe serving size must be at least 3.5 ounces.              | Fried foods and menu items that meet a fat free messages below.   |
|  |  Fat Free  | Zero fat, per serving (must be < 0.5 grams to qualify)   | All menu items that meet the criteria.   | -   |
| Finding menu selections lower in calories                                  |  Calorie Counter 500 Calories or less                            | ≤ 500 total calories and 40% of calories from fat or lower   | Entrées, full size sandwiches, and other main dishes.  | Desserts, side dishes, or soups and menu items that meet the < 300 or < 100 calorie messages below.                     |
|  |  Calorie Counter 300 Calories or less                            | ≤ 300 total calories and 40% of calories from fat or lower   | Entrées, sandwiches, and other main or side dishes, soups, or desserts.                                    | Menu items that meet < 100 calorie message below.   |
|  |  Calorie Counter 100 Calories or less                            | ≤ 100 total calories and 40% of calories from fat or lower   | Side dishes.   | -   |
| Finding menu selections that are lower in fat, calories, <i>AND</i> sodium |  Just4U® Eat Well Selection Calorie, Fat, & Sodium Smart Choices | <b>For Entrées</b><br><i>All of the following:</i><br>· 500 calories or less<br>· 30% of calories from fat or lower<br>· 600 mg sodium or less     | Entrées, full size sandwiches, and other main dishes.  | Fried foods   |
|  |   | <b>For Side Dishes</b><br><i>All of the following:</i><br>· 300 calories or less<br>· 30% of calories from fat or lower<br>· 400 mg sodium or less | Side dishes, soups, and desserts.  | Fried foods   |
| For selections with less of ingredients some consumers try to avoid        |  Carb Counter  | 15 or fewer grams of carbohydrates   | All menu items that meet the criteria.   | -   |
|  |  Naturally Sweet... No Sugar Added                             | No added sugars. Also no added artificial sweeteners.  | Fruit or 100% Fruit Juice.   | Selections that are sweetened with artificial sweetener or other sweeteners (such as corn syrup, honey, molasses, etc.) |
|  |  Sodium Smart 600 mg or less                                   | ≤ 600mg sodium   | Entrées, full size sandwiches, or other main dishes  | Sides or desserts. Also, not appropriate for foods that meet lower sodium messages.                                     |
|  |  Sodium Smart 400 mg or less                                   | ≤ 400mg sodium   | Entrées, full size sandwiches, main or side dishes, soups, or desserts                                     | Not appropriate for foods that meet lower sodium messages.  |
|  |  Sodium Smart Low Sodium                                       | ≤ 140mg sodium   | Entrées, full size sandwiches, main or side dishes, or soups   | Desserts  |

\*A < 15% calorie from saturated fat limit is set for the following Just4U® nutrition messages: Under 10g Fat, Under 5g Fat, Calorie Counter, Sodium Smart, and Good Source of Calcium

©2009 ARAMARK Corporation. All rights reserved.

#Selections that bear a sodium message should also be < 50% calories from fat.

## Just4U® HEALTH-FINDER Nutrition Criteria Guide

| Nutritional Focus                                    | Nutrition Message  | Criteria for Posting (Per Serving)  | Appropriate Usage   | Inappropriate Usage  |
|--|--|---|---|--|
| Menu items made using healthier preparation methods  | Baked Not Fried  | Prepared by oven baking, not deep fried.  | Entrées and sides that are commonly fried, but instead are prepared in the oven as a more healthful alternative (e.g., oven-baked chicken, baked potato wedges, oven-baked fish, etc.). | Menu items that are rarely fried (lasagna), or that are higher in fat (> 20 g of fat per serving).                                     |
|  | We Use Zero Trans Fat Frying Oil                           | Fried in ARAMARK specified zero trans fat oil.  | Any fried food (deep fried in zero trans fat oil).  | Sautéed or stir-fried items that are not deep fried.   |
|  | Steamed . . . Without Any Butter, Margarine, or Oil        | Menu items that are steamed. (Cannot have any added butter, margarine, oil, or fat of any kind).  | Primarily for vegetables and rice.  | Any menu items that have been fried, sautéed, or grilled with butter, margarine, or oil.   |
| For vegetarian and organic selections                | Vegetarian   | No meat, fish or poultry. Note: Can include dairy, eggs, or honey.  | All menu items that meet the criteria. Includes all vegan selections.   | Menu items with any meat, fish, or poultry ingredient of any amount.   |
|  | Vegan  | No animal products of any kind. (Items can not include dairy, eggs, or honey)   | All menu items that meet the criteria.  | Menu items with any meat, fish, poultry, dairy, eggs, honey, or any other animal product of any amount.                                |
|  | Locally Grown  | Menu selections that contain fruits or vegetables that were grown in the region local to the serving location. The locally grown ingredient should be the <b>leading</b> item in the ingredient list. | Fresh fruits and vegetables.  | Any product transported from outside the local growing area.   |
|  | Organic  | Products purchased by ARAMARK that are labeled organic by the grower, distributor, or manufacturer.   | Any menu item that meets the criteria.  | Menu items that include any products that are not organic.   |
|  | Very Veggie  | Menu items that contain at least one serving of vegetables. (Should also be < 700 calories)   | Entrées, full size sandwiches, other main dishes and salads.  | Vegetable side dishes, salads, menu items > 700 calories, and menu items that contain less than one serving of vegetables.             |
| For Selections with other "good-for-you" ingredients | Hearty Whole Grains made with the goodness of whole grains | For items that contain <i>whole</i> grains. Whole grains should be a <i>leading</i> item in the ingredient list.  | Whole grain breads, pastas, pizzas, and cereals (ingredient listing must say <i>whole</i> grain or <i>whole</i> wheat for a leading ingredient).  | Breads or pizza dough that are not <i>whole</i> wheat (e.g., not appropriate for 'degermed' wheat breads). Not for bean/legume dishes. |
|  | Good Source of Calcium                                     | Items with > 10% Daily Value calcium on the label or e-recipe nutrition panel.  | Milk, yogurt, cheese, fortified O.J., fortified soy milk.   | -  |

\* A < 15% calorie from saturated fat limit is set for the following Just4U® nutrition messages: Under 10g Fat, Under 5g Fat, Calorie Counter, Sodium Smart, and Good Source of Calcium

©2009 ARAMARK Corporation. All rights reserved.

# Selections that bear a sodium message should also be < 50% calories from fat.