

# **Evaluation of the Effectiveness of the Salad Bar Program in the Los Angeles School District**

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# Special Thank You To:

The three school principals, cafeteria managers, teachers, students and parents who participated in the program and evaluation.

# A Very Special Thank You To:

Carol Noelting, Assistant Head of Food Services in LAUSD who agreed to start the salad bar program, and to the Center for Advanced Studies in Nutrition and Social Marketing for funding the evaluation.

# Background

- **1994: Los Angeles Times anecdotal reports of hunger in the LAUSD elementary school children**
- **1996: UCLA School of Public Health Hunger Project pilot study**
- **1996: Farmer's Market Salad Bar Program launched in the Santa Monica School district.**
- **1998: Cross-sectional study to establish the extent and distribution of nutritional problems and their main determinants among children from low-income families, attending 14 LAUSD elementary schools.**

# 1998 Survey Sample

- **919 children in grades 2-5 from 14 schools were measured and interviewed.**
- **Hispanics made up the majority of the sample (56.8%), with African-Americans (23.7%) and Asians (8.7%) next. Other races were represented in the sample in small numbers, specifically, European descent, both east and west, Eastern Indians, and Filipinos.**

# **Results of the 1998 Survey**

- **The children consumed high amounts of sodium and fat and low amounts of vitamin C.**
- **Most of the high fat and sodium consumption took place during out of school hours; however, children were also eating fatty and salty foods at school.**
- **Children consumed on average a frequency of 2.8 fruits and vegetables per day.**
- **Over 40% of the sample were classified as obese, using percent of median of weight for age.**

# Results of the 1998 Survey

- Slightly more males (42.4%) than females (38.6%) were obese.
- The highest percent of obese children were in the African-American (46.5%) and Hispanic (41.2%) groups.
- The percent of obese children were similar across grades 2-5.

# **Components of Primary Obesity Prevention Programs**

- **Target young children**
- **Include multiple interventions**
- **utilize the school as the site for the intervention program**

# Why School Based Programs?

- **A large proportion of all children attend school**
- **A great deal of a child's eating and activities are carried out in the school setting**
- **An organizational structure exists in schools that can potentially shape, sustain, reinforce, and support positive health behaviors**

Gil TP 1997; Luepker RV, Perry CL, Mckinlay SM, Nader PR et al..., 1996).

# **Salad Bar Program**

**A salad bar menu option has been introduced by the LAUSD Department of Food Services in collaboration with the Community Food Security Project at Occidental College in 3 of the 14 schools that were part of the 1998 study.**

# **Rationale for the Salad Bar Program**

- **Interventions that combine food service changes at the school with child and parent education are critical to impacting the overall nutritional status of the child**
- **By providing the fruits and vegetables at school, children will increase their fruit and vegetable consumption and will in turn decrease their consumption of more fatty foods.**

**From: Epstein, Valoski, Wing et al. 1990; Fitzgibbon, Stolley, Kirschenbaum, 1995; Birch, Fisher, 1998; Luepker, Perry, Mckinlay, et al., 1996; Perry, Bishop, Taylor et al., 1998.**

# **Rationale for the Salad Bar**

**Elementary school age children in families from the lower socioeconomic groups eat the majority of their meals at school.**

**From: Snyder, 1999**

# **Rationale for the Salad Bar**

**Surgeon General Satcher recommends that schools: “provide food options that are low in fat, calories and added sugars such as fruits, vegetables, whole grain and low-fat or nonfat dairy foods.”**

**From: U.S. Department of Health and Human Services. The Surgeon General’s call to action to prevent and decrease overweight and obesity. (Rockville, MD): U.S. Department of Health and Human Services, Public Health Service Office of the Surgeon General; (2001). Available from : US GPO, Washington**

# **Implementation of the Salad Bar Program**

- **School District**
  - **Head of Food Services**
- **School**
  - **Principal**
  - **Teachers**
  - **Parents**
  - **Students**
  - **Cafeteria Manager**

# **Description of the Salad Bar Program**

- **Broadens the food choices in the USDA's reimbursable lunch program at three LAUSD elementary schools.**
- **Contains a child and teacher nutrition education component.**
- **Utilizes produce from either a farmer's market or the LAUSD school district's central supplier.**

## **Purpose of the Evaluation**

**To measure the possible change of fruit and vegetable consumption of elementary school children attending 3 schools in the LAUSD after the introduction of the salad bar program as a lunch menu option in the United States Department of Agriculture (USDA) reimbursable lunch program.**

# **Evaluation Project: primary hypothesis**

**By promoting the consumption of fruits and vegetables through nutrition education and providing the fruits and vegetables through a salad bar, in a school setting, the elementary school children from low income families in the combined schools to be studied will increase their fruit and vegetable consumption by an average of 0.63 servings frequencies per day.**

# THE STUDY POPULATION

- **Participation criteria:**
  - attended second through fifth grade
  - attended one of the three LAUSD elementary schools participating in the salad bar program
- **The majority of the children were:**
  - eligible for the USDA's reimbursable lunch program.
  - Hispanic, African American or Asian.

# **THE STUDY POPULATION**

**Three cafeteria managers, 1 food purchaser  
and the Deputy Director of food services.**

# Methods

## **24-hour food recall:**

- **Methods for the 24-hour food recall were adapted from the 24-hour food recall instrument used in the 1998 study.**
- **Each student was interviewed face to face using food models as prompts.**
- **Interviews took place over a one week period in each school during the same season as the 1998 survey.**
- **Interviews took place at least 2 months after the initiation of the salad bar program (“steady state”).**

# **Methods**

**Interviews with the cafeteria managers, food purchaser, the deputy head of food services and Occidental College Farmer's Market Coordinator to document lessons learned regarding the implementation of the salad bar.**

## **Description of the Sample of Children in the Years of 1998 and 2000**

	1998	2000
Total	96	241
Male	42.7%	44.1%
Female	57.3%	55.9%

## **Description of the Sample of Children in the Years of 1998 and 2000**

	<b>1998</b>	<b>2000</b>
<b>Grade 2</b>	<b>24%</b>	<b>29.6%</b>
<b>3</b>	<b>21.9%</b>	<b>19.6%</b>
<b>4</b>	<b>44.8%</b>	<b>29.6%</b>
<b>5</b>	<b>9.4%</b>	<b>21.3%</b>

## **Description of the Sample of Children in the Years of 1998 and 2000**

	<b>1998</b>	<b>2000</b>
<b>Hispanic</b>	<b>25.3%</b>	<b>19%</b>
<b>African American</b>	<b>34.7%</b>	<b>32%</b>
<b>Asian</b>	<b>38%</b>	<b>31%</b>
<b>Other</b>	<b>2.2%</b>	<b>9%</b>
<b>Unknown</b>	<b>0%</b>	<b>11%</b>

# **Percent of Children who ate from the Salad Bar the Day Before the Interview**

- 50% Yes**
- 48% No**

# Mean Total Fruit and Vegetable Serving Frequencies in One Day Pre and Post Salad Bar Intervention in three LAUSD Elementary Schools

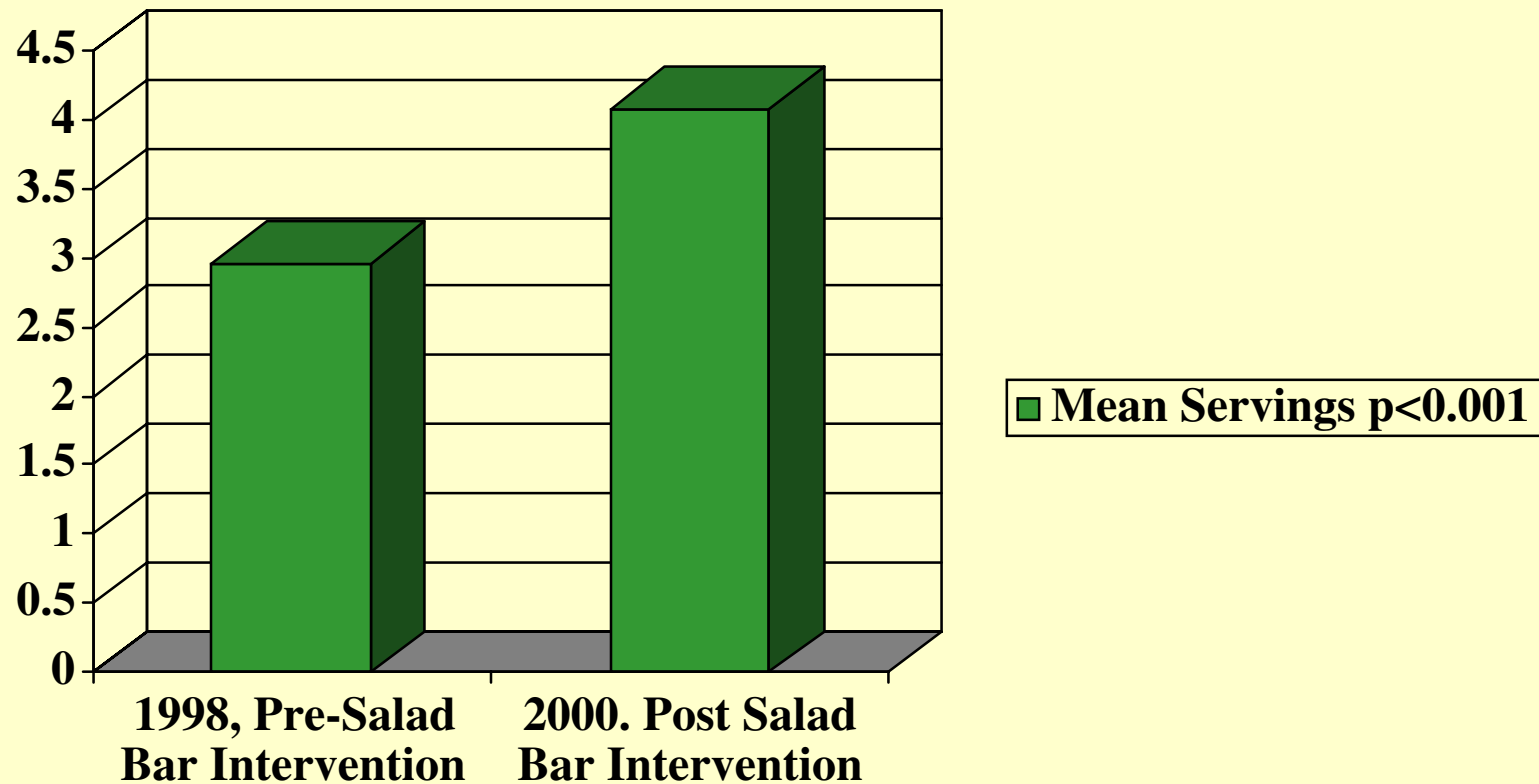
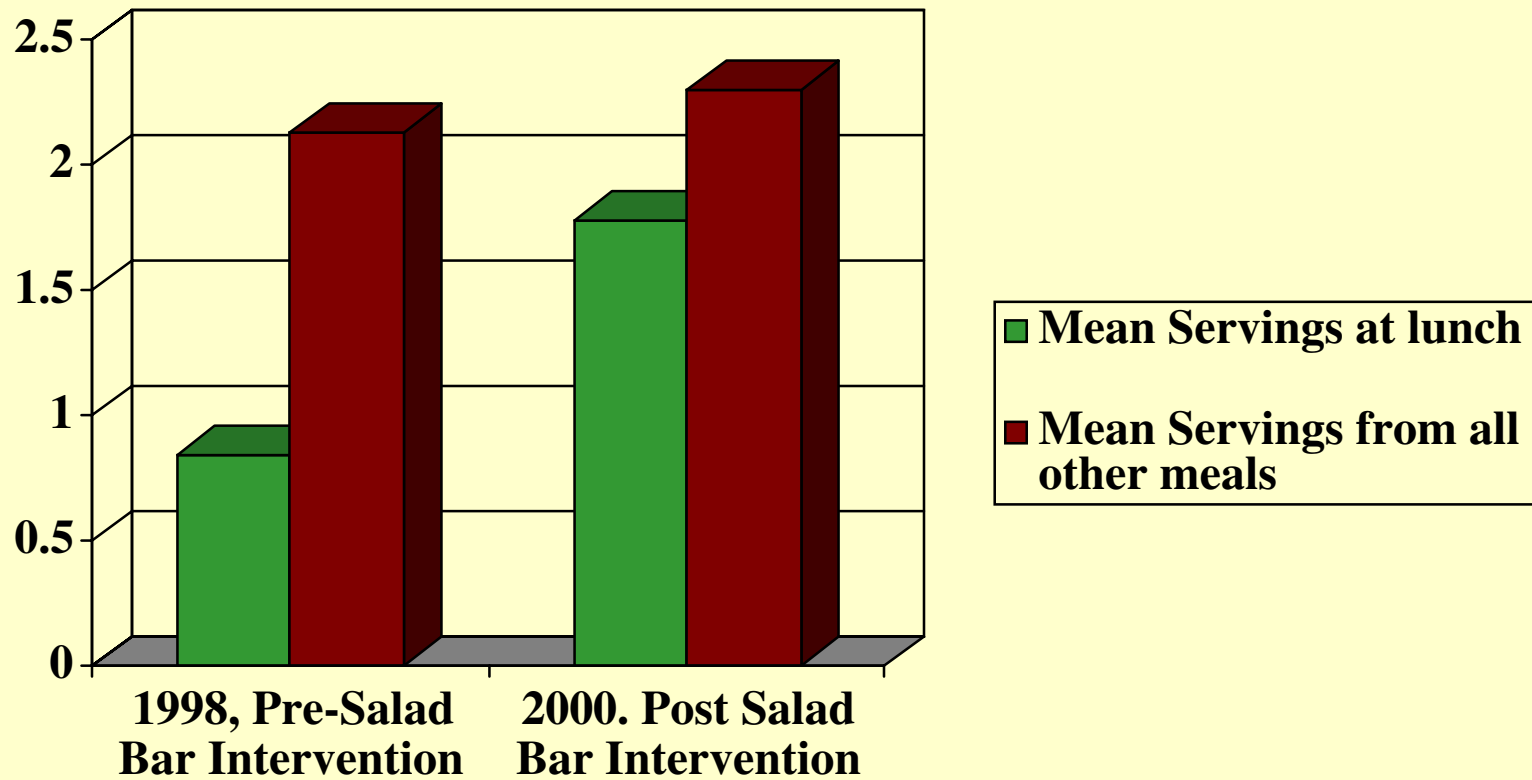


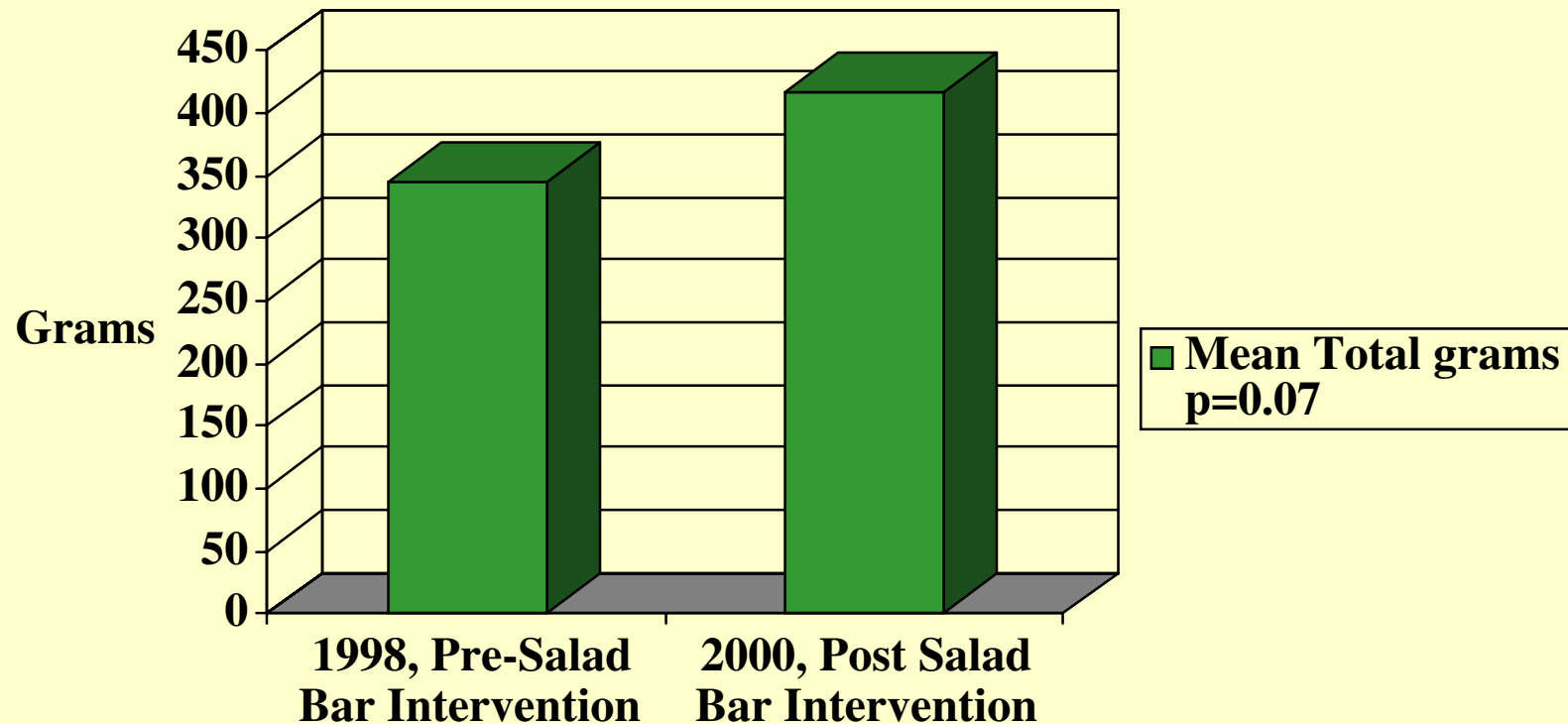
Figure 3: Mean Total Fruit and Vegetable Serving Frequencies during lunch and all other meals in One Day Pre and Post Salad Bar Intervention in three LAUSD Elementary Schools



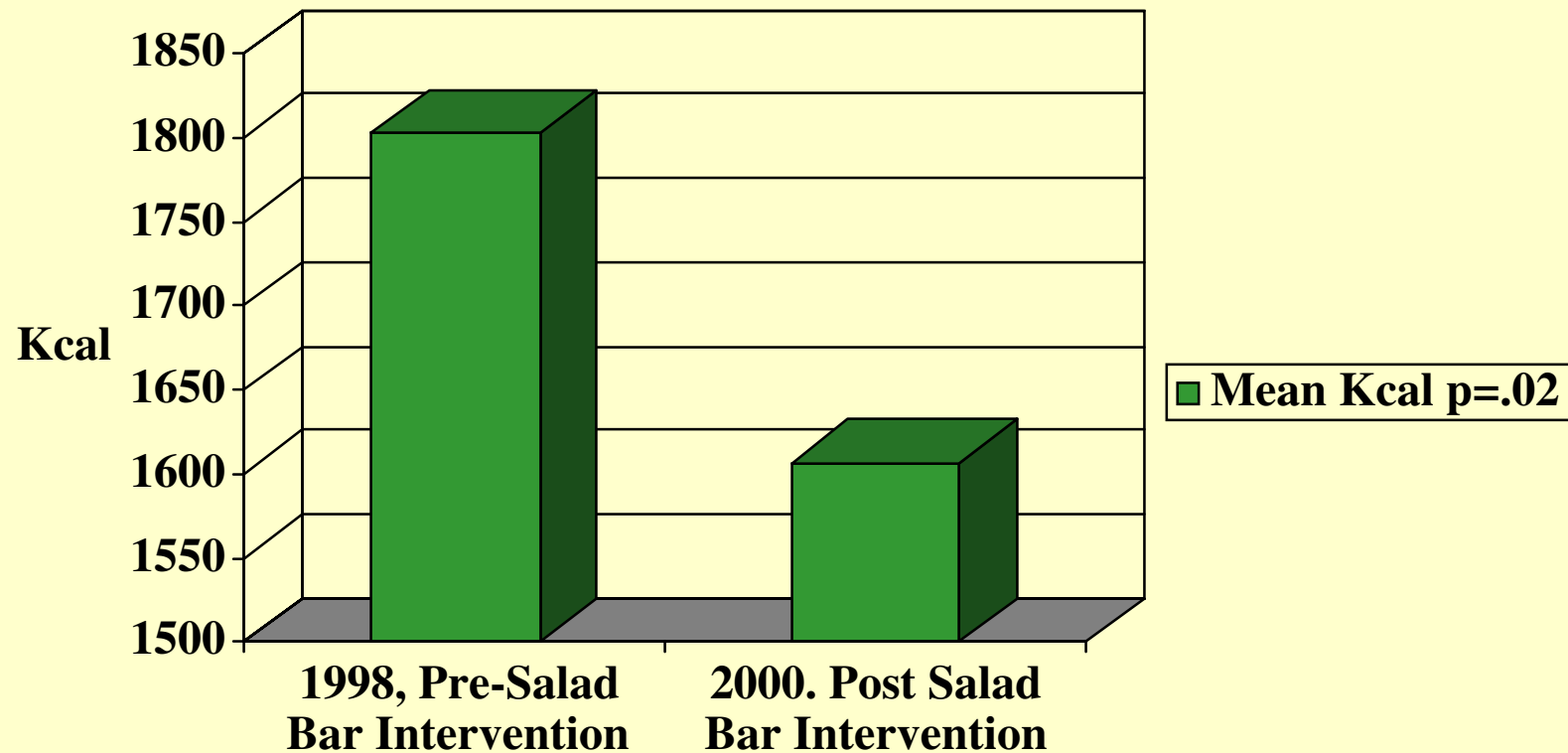
# Mean Frequency of Fruit and Vegetable Intake by Grade

Grade	1998	2000
2	3.22	3.72
3	3.05	3.89
4	2.63	4.54
5	3.78	4.16
	P=0.40	P=0.30

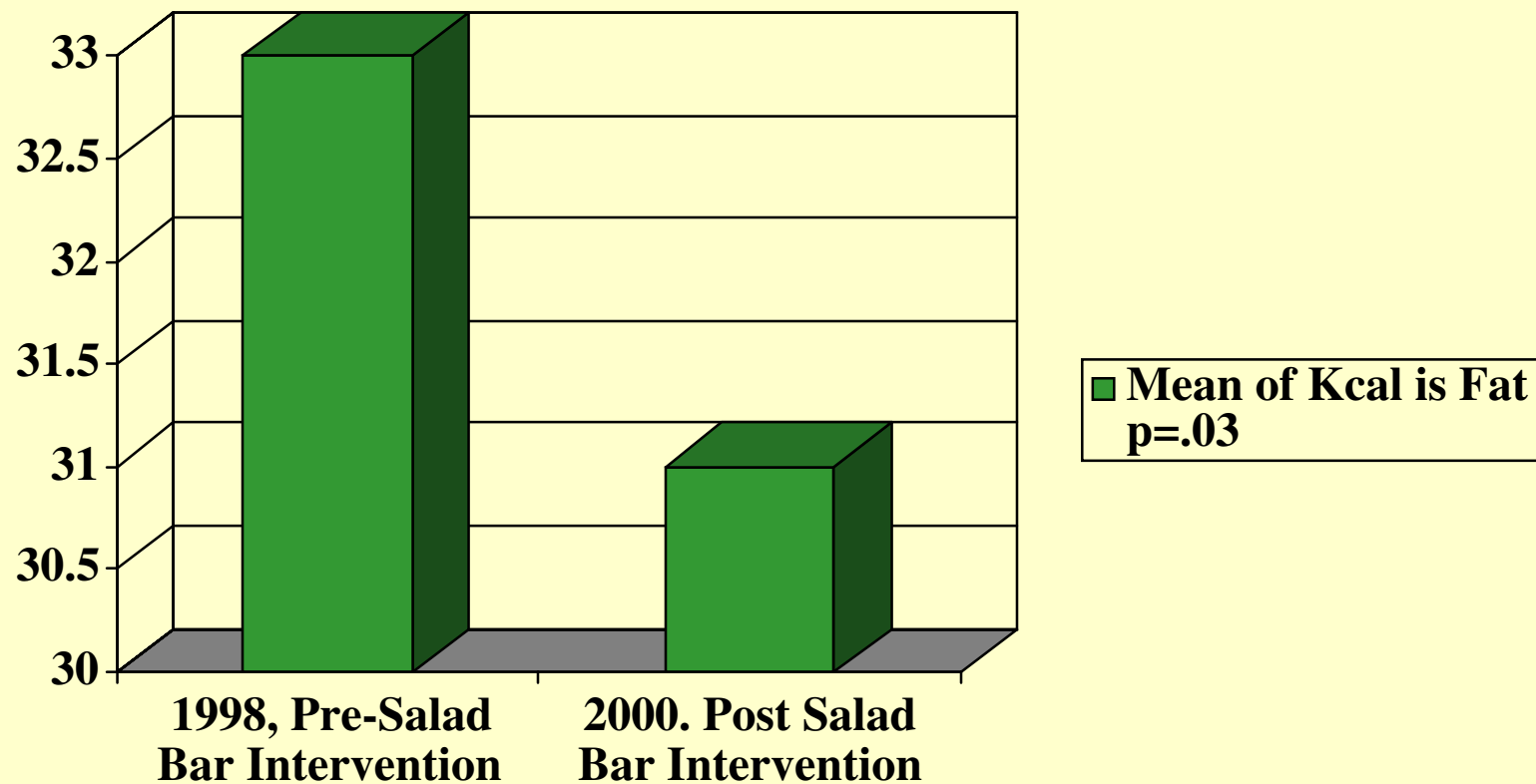
# Mean Total Grams of Fruit and Vegetables in One Day Pre and Post Salad Bar Intervention in three LAUSD Elementary Schools



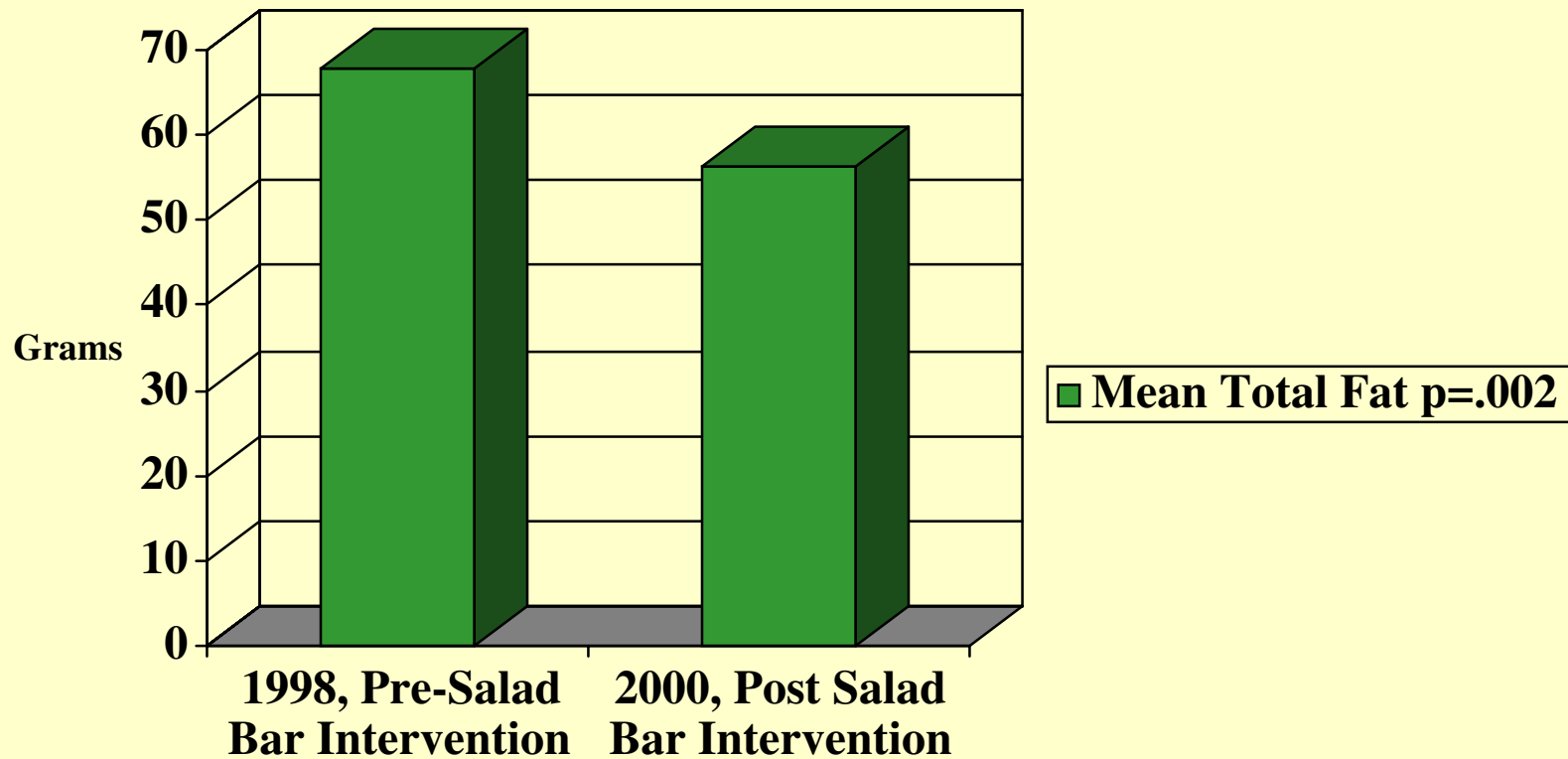
# Mean Total Kcal in One Day Pre and Post Salad Bar Intervention in three LAUSD Elementary Schools



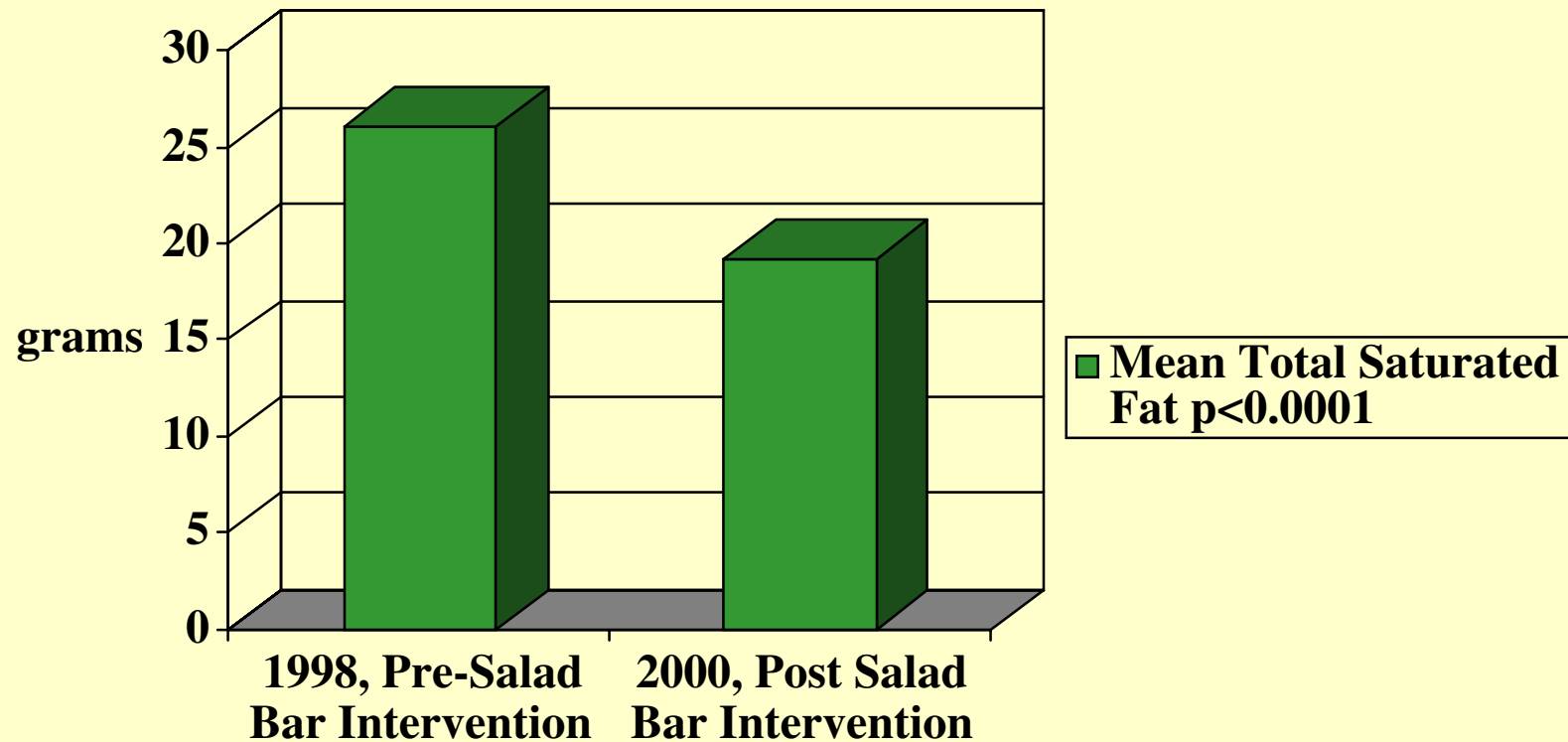
# Mean % of Kcal From Fat in One Day Pre and Post Salad Bar Intervention in three LAUSD Elementary Schools



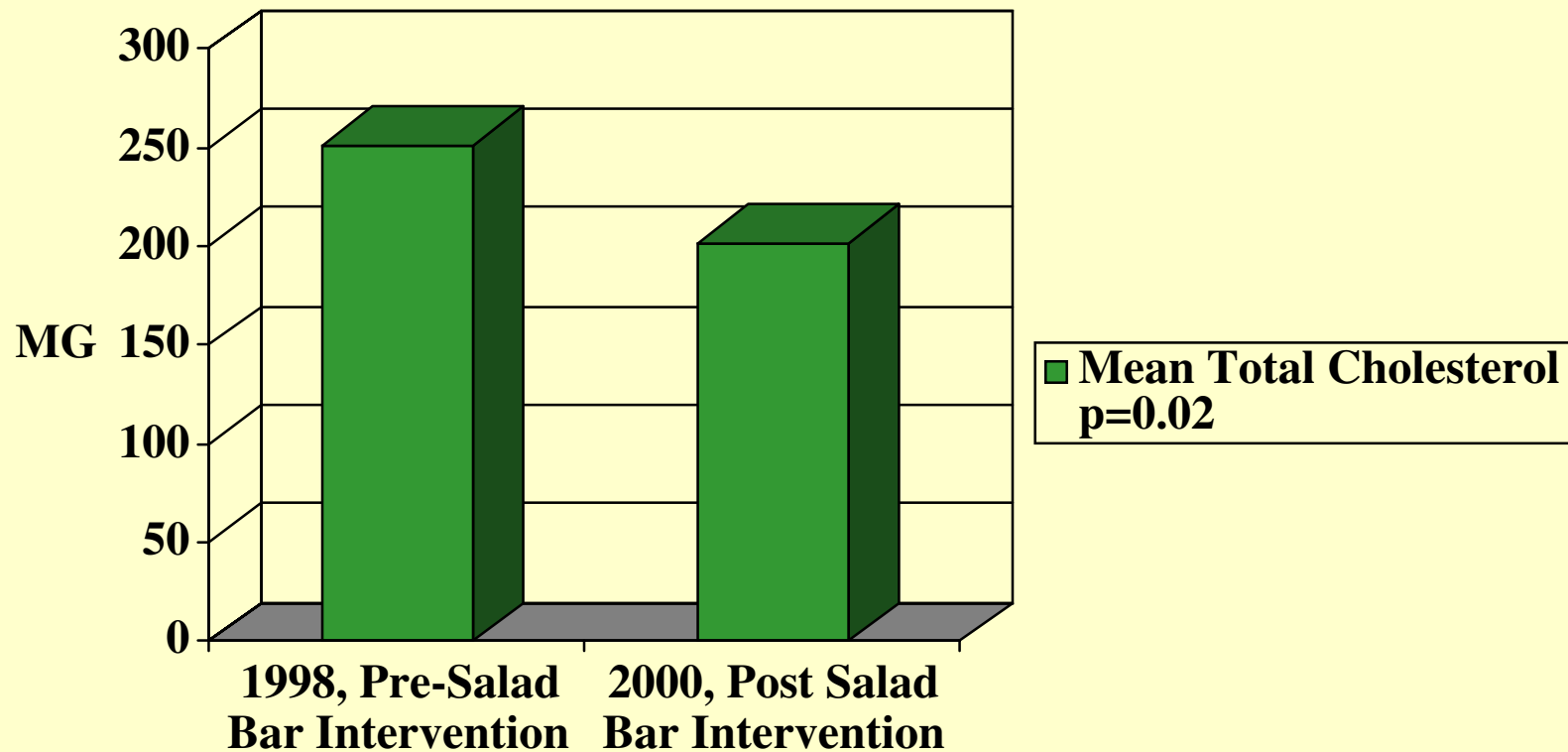
# Mean Total Fat in One Day Pre and Post Salad Bar Intervention in three LAUSD Elementary Schools



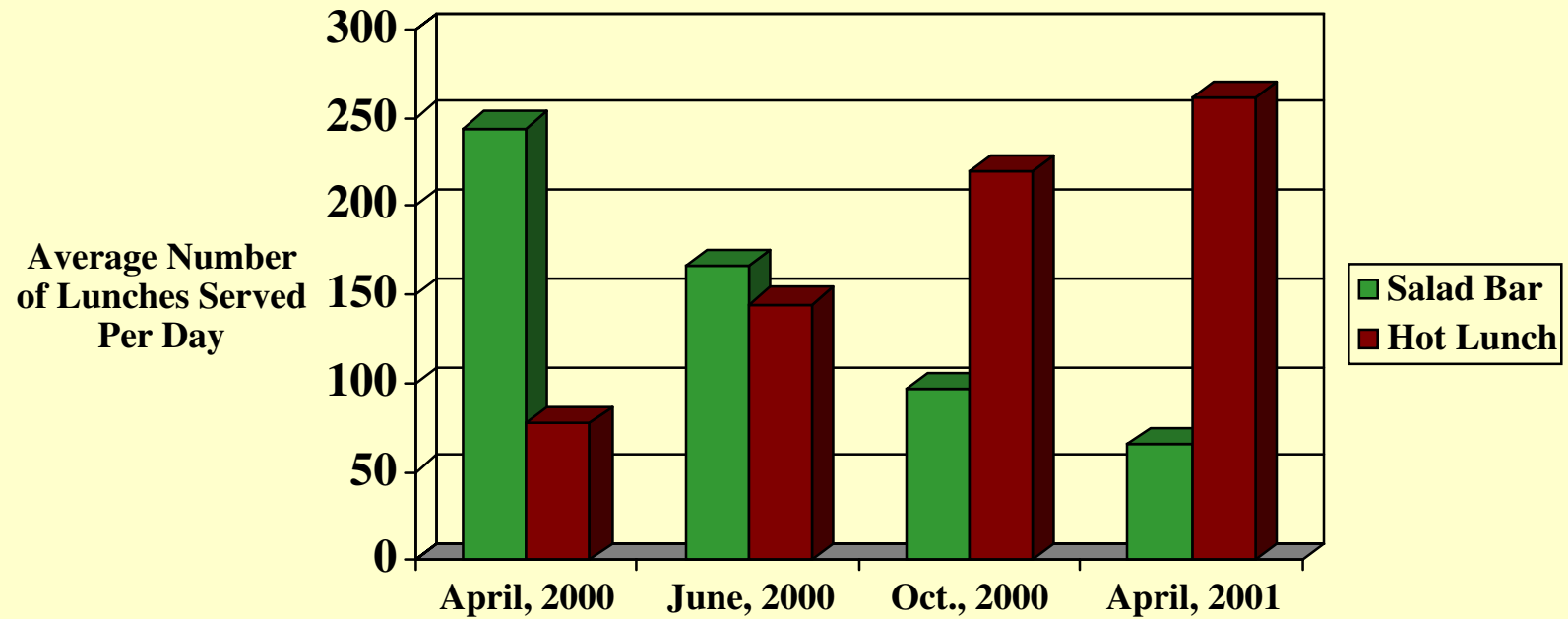
# Mean Total Saturated Fat in One Day Pre and Post Salad Bar Intervention in three LAUSD Elementary Schools



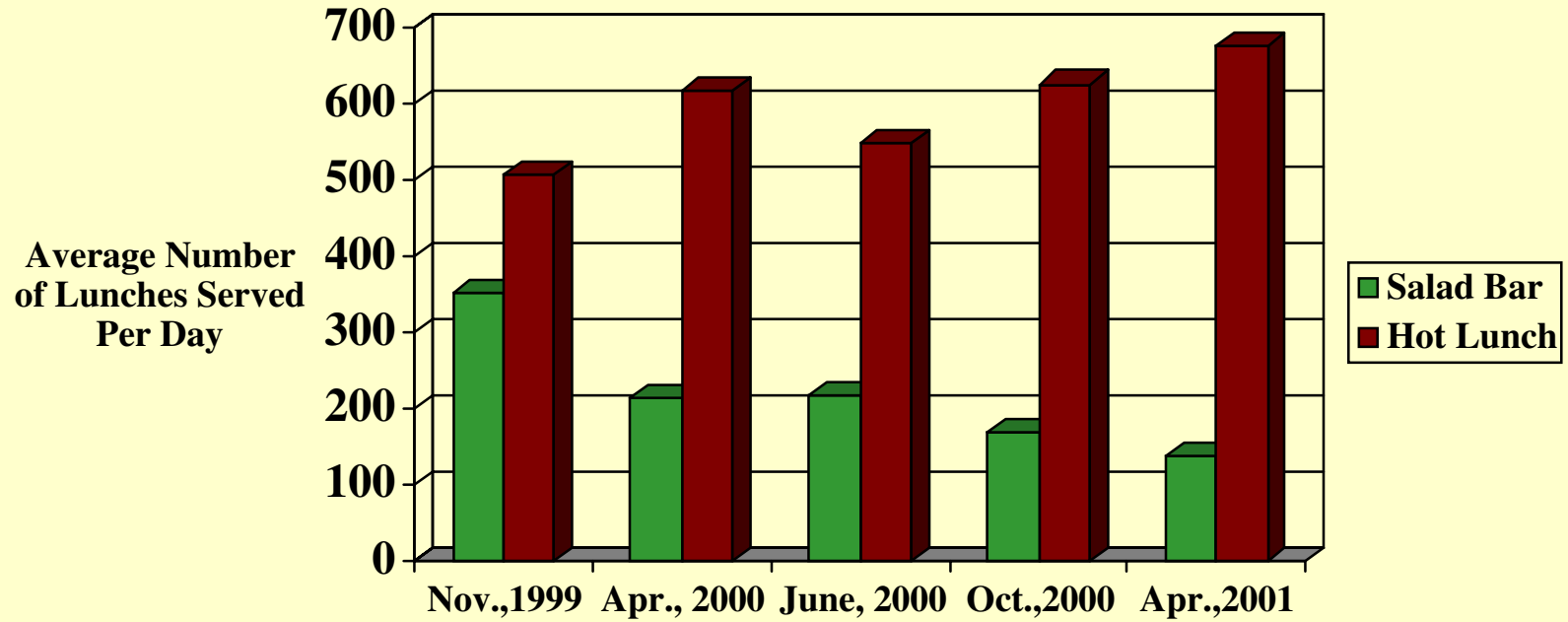
# Mean Total Cholesterol in One Day Pre and Post Salad Bar Intervention in three LAUSD Elementary Schools



# Salad Bar Participation at 59th Street Elementary School



# Salad Bar Participation at Castelar Elementary School



# **Frequency of Salad Bar Participation Among Children Interviewed**

- **21% Everyday**
- **35% Most days (3-4)**
- **27% Some days (1-2)**
- **8% Not very often (<1day)**
- **3% Never**

# **Why Children chose to Eat from the Salad Bar?**

- **33% Concerned about weight loss**
- **26% Don't like hot lunch**
- **21% Like fruits on Salad Bar**
- **4% Like vegetables on Salad Bar**

# Challenges

- **Expanding the program because of structural barriers in many of the elementary schools.**
- **Evaluating the farmer's market versus central supplier produce.**

# Challenges

- **Reaching the parents with nutritional messages.**
- **Funding the nutrition education component to the salad bar.**
- **Expanding the salad bar program in school districts that have limited Federal funding.**

# Challenges

- **Maintaining the interest among the children in the salad bar program.**
- **Engaging the Cafeteria Managers.**

# Future Research

Investigate the eating patterns among the group of children who want to lose weight.

# Future Research

Evaluate an intervention that combines parent education with lunch menu changes.

# Future Research

Investigate why boys are less likely to eat from the salad bar at lunch and ways to increase their participation rates in the salad bar lunch menu option.

# Future Research

Evaluate programs designed to maintain participation in the salad bar lunch menu option.

# Conclusions

- **The Bad News: There are high rates of obesity and low levels of fruit and vegetable consumption among the elementary school children in LAUSD.**

# Conclusions

- **The Good News:**
  - **Salad Bar Lunch Menu option can significantly increase the frequency of fruit and vegetable consumption of children living in low income households.**
  - **There is a high level of cooperation from the Deputy Director of LAUSD Food Services to develop intervention programs to address this problem.**

# Conclusions

- **The Good News:**
  - **The LAUSD California Nutrition Network Project is working closely with LAUSD Food Services in promoting and supporting the salad bar program.**