# Effect of Fresh Fruit Availability at Worksites on the Fruit and Vegetable Consumption of Low-Wage Employees

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# Purpose of the Study

- To examine the impact of fresh fruit deliveries at low-wage worksites on the fruit and vegetable consumption and related psychosocial determinants of employees

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# Methods

- June-September 2005
- Delivered fresh fruit to worksites 3 times per week
- 1 serving of fruit per employee per delivery
- Participants completed a 52-item survey prior to the intervention, twice during the intervention period, and once after the intervention concluded.
  - Fruit and vegetable consumption and purchasing habits
  - Self-efficacy
  - Job satisfaction
  - Overall health


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# Data Analysis

- Descriptive Statistics were used to analyze the demographic data.
- Hierarchical Linear Modeling (HLM) statistical program and Growth Curve Analysis were used to analyze the outcome data.

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# Demographics

- 559 primarily Latino employees
- 9 worksites in Los Angeles
  - 7 apparel manufacturers
  - 2 food processing sites
- Average age: 33 years
- Average wage: $7.75/hour or $15,500/year
- No statistical difference between control and intervention worksites

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# Results

- Statistically significant increases in the following measures as compared to the control group:
  - Fruit consumption
  - Vegetable consumption
  - Total fruit and vegetable consumption
  - Self-efficacy toward fruit consumption
  - Family's purchasing of vegetables

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# The Effect of the Intervention on Fruit and Vegetable Consumption

| | **Intercepts** (baseline) | | **Slopes** (change over time) | |
|---|---|---|---|---|
| | Coefficient | T(df)<br>p | Coefficient | T(df)<br>p |
| **Fruit Consumption** | -0.267 | -2.00(525)<br>**.05** | 0.083 | 2.07 (873)<br>**.04** |
| **Vegetable Consumption** | -0.678 | -3.77 (525)<br>**.001** | 0.178 | 3.26 (699)<br>**.002** |
| **Total Fruit & Vegetable Consumption** | -0.784 | -3.67 (525)<br>**.001** | 0.221 | 3.45 (673)<br>**.001** |

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# Mean Servings and 95% Confidence Intervals (CI) for Fruit and Vegetable Consumption in the Intervention and Control Worksites

| | **Baseline** **Mean Servings** *± 95% CI* | **Month 2** **Mean Servings** *± 95% CI* | **Month 3** **Mean Servings** *± 95% CI* | **Month 4** **Mean Servings** *± 95% CI* |
|---|---|---|---|---|
| **Fruit Consumption** | | | | |
| Intervention | 2.33 ± .42 | 2.10 ± .31 | 2.18 ± .32 | 2.61 ± .36 |
| Control | 3.21 ± .12 | 2.37 ± .62 | 2.38 ± .59 | 2.58 ± .63 |
| **Vegetable Consumption** | | | | |
| Intervention | 2.49 ± .47 | 2.84 ± .53 | 2.55 ± .38 | 3.63 ± .71 |
| Control | 4.69 ± 1.60 | 3.00 ± .90 | 3.55 ± 1.02 | 3.63 ± 1.34 |
| **Total Consumption** | | | | |
| Intervention | 4.51 ± .76 | 5.06 ± .83 | 4.88 ± .69 | 6.27 ± .1.00 |
| Control | 8.02 ± 2.57 | 5.13 ± 1.32 | 5.94 ± .1.54 | 6.01 ± .1.76 |

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# The Effect of the Intervention on Fruit and Vegetable Purchasing

| | **Intercepts** (baseline) | | **Slopes** (change over time) | |
|---|---|---|---|---|
| | Coefficient | T(df)<br>p | Coefficient | T(df)<br>p |
| **Self-Purchasing** | | | | |
| Fruit | -0.395 | -2.40(525)<br>**.02** | 0.083 | 3.42 (930)<br>**.04** |
| Vegetable | -0.330 | -1.95 (525)<br>**.05** | 0.178 | 1.66(835)<br>.10 |
| **Family Purchasing** | | | | |
| Fruit | -0.115 | -0.70 (525)<br>.49 | 0.089 | 1.74 (923)<br>.08 |
| Vegetable | -0.185 | -1.07 (525)<br>.29 | 0.136 | 2.54 (925)<br>**.01** |

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# Mean Servings and 95% Confidence Intervals (CI) for Self and Family Purchasing of Fruits and Vegetables in the Intervention and Control Worksites

| | **Baseline** **Mean Servings** *± 95% CI* | **Month 2** **Mean Servings** *± 95% CI* | **Month 3** **Mean Servings** *± 95% CI* | **Month 4** **Mean Servings** *± 95% CI* |
|---|---|---|---|---|
| **Fruit Purchasing** | | | | |
| Intervention | 3.09 ± .13 | 3.26 ± .14 | 3.43 ± .11 | 3.60 ± .10 |
| Control | 3.47 ± .25 | 3.16 ± .22 | 3.18 ± .19 | 3.35 ± .16 |
| **Vegetable Purchasing** | | | | |
| Intervention | 3.01 ± .13 | 3.20 ± .13 | 3.16 ± .13 | 3.42 ± .11 |
| Control | 3.29 ± .24 | 3.23 ± .24 | 3.30 ± .20 | 3.32 ± .16 |
| **Family Fruit Purchasing** | | | | |
| Intervention | 3.15 ± .12 | 3.37 ± .13 | 3.56 ± .11 | 3.52 ± .10 |
| Control | 3.38 ± .27 | 3.26 ± .23 | 3.20 ± .21 | 3.38 ± .17 |
| **Family Vegetable Purchasing** | | | | |
| Intervention | 3.10 ± .13 | 3.41 ± .13 | 3.66 ± .13 | 3.57 ± .11 |
| Control | 3.35 ± .28 | 3.38 ± .21 | 3.38 ± .21 | 3.30 ± .17 |

# The Effect of the Intervention on Self-Efficacy, Job Satisfaction, and Perceived Health

| | **Intercepts** (baseline) | | **Slopes** (change over time) | |
|---|---|---|---|---|
| | Coefficient | T(df)<br>p | Coefficient | T(df)<br>p |
| **Sure you can eat** | | | | |
| Two servings of fruit each day | -0.520 | -2.06(525)<br>**.04** | 0.179 | 2.23 (985)<br>**.03** |
| Three servings of vegetables each day | -0.309 | -1.27 (525)<br>.20 | 0.130 | 1.69 (899)<br>.09 |
| **Job Satisfaction** | 0.343 | 1.77(525)<br>.08 | 0.041 | 0.71 (983)<br>.48 |
| **Perceived Health** | 0.247 | 1.77(525)<br>.08 | 0.002 | 0.04 (1000)<br>.97 |

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# Mean Servings and 95% Confidence Intervals (CI) for Self and Family Purchasing of Fruits and Vegetables in the Intervention and Control Worksites

| | **Baseline Mean Servings** *± 95% CI* | **Month 2 Mean Servings** *± 95% CI* | **Month 3 Mean Servings** *± 95% CI* | **Month 4 Mean Servings** *± 95% CI* |
|---|---|---|---|---|
| **Sure you can eat 2 servings of fruits each day** | | | | |
| Intervention | 3.42 ± .21 | 3.55 ± .18 | 3.75 ± .17 | 3.74 ± .15 |
| Control | 3.94 ± .34 | 3.59 ± .39 | 3.78 ± .32 | 3.61 ± .23 |
| **Sure you can eat 3 servings of vegetables each day** | | | | |
| Intervention | 3.33 ± .20 | 3.58 ± .17 | 3.77 ± .17 | 3.68 ± .15 |
| Control | 3.91 ± .59 | 3.22 ± .36 | 3.70 ± .33 | 3.62 ± .24 |
| **Job Satisfaction** | | | | |
| Intervention | 4.10 ± .17 | 4.17 ± .12 | 4.03 ± .13 | 4.17 ± .11 |
| Control | 3.61 ± .47 | 3.77 ± .36 | 3.51 ± .32 | 3.36 ± .23 |
| **Perceived Health** | | | | |
| Intervention | 3.27 ± .11 | 3.47 ± .10 | 3.46 ± .10 | 3.60 ± .10 |
| Control | 3.14 ± .23 | 3.19 ± .22 | 3.19 ± .20 | 3.38 ± .16 |

# Study Limitations

- Measures were based on self-report and subject to comprehension, memory, and reporting errors
- Self-selection bias of those who chose to participate in the study
- No long-term follow-up

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# Conclusions and Recommendations

- Fresh produce deliveries have multiple positive effects:
  - Significantly increases consumption, purchasing habits, and self-efficacy of low-income Latino workers.
  - Provides an easy, cost-effective, and sustainable strategy that employers can use for their worksite wellness efforts.
  - Links agricultural community to worksites.

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# Network for a Healthy California- Worksite Program
# Fruit Club

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