



Network for a Healthy California
Impact/Outcome Evaluation Project
(Statewide Aggregated Data)

FFY 2010

12/15/2010

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Section B: State Nutrition Education Final Report Summary FFY 10

Section B. Final Report Summary for Evaluations.

Provide the information requested below for any significant evaluation efforts (costing greater than \$400,000) that were completed during the previous year.

In FFY 2004, and pre-dating the current federal requirements, the *Network* asked contractors receiving over \$500,000 in Federal Share to conduct outcome or impact evaluation to proactively demonstrate fiscal responsibility. The term “outcome” refers to evaluation conducted to assess change among individuals exposed to an intervention. The term “impact” refers to evaluation conducted to assess change in a group exposed to an intervention and a group not exposed to the intervention or an alternative intervention. Twelve contractors participated in the first year and in FFY 05 the *Network* lowered the participation threshold to \$350,000 in Federal Share which resulted in a peak participation of 48 in FFY 07 and most recently to 44 in FFY 10. The 44 contractors in FFY 10 represented over \$52 million in Federal funds, just over half of the *Network’s* federal funding. The total cost of the evaluations conducted by these 44 contractors was approximately \$658,929 with a maximum of \$234,172, well below the USDA’s reporting requirement. In FFY 2008 USDA guidance specified “If any proposed SNAP-Ed evaluation activity exceeds \$400,000 in a State in any year, it is highly recommended that the State agency include an impact assessment that meets the criteria described in the FNS Principles of Sound Impact Evaluation found at: www.fns.usda.gov/oane/menu/Published/NutritionEducation/Files/EvaluationPrinciples.pdf”

1. Name of Project or Social Marketing Campaign

If multiple projects or campaigns were part of a single impact evaluation, please list them all.

ABC USD	School/District
Alameda County Health Care Services Agency	Local Health Department
Alameda County Office of Education(Coalition) Hayward USD	School/District
Alhambra USD	School/District
Alisal Union School District	School/District
Berkeley USD	School/District
California State University, Chico Research Foundation - SCNAC	College/University
Compton USD	School/District
Contra Costa County Health Services	Local Health Department

Del Norte USD	School/District
East Los Angeles College	College/University
El Monte City School District	School/District
Fresno County Office of Education	County Office of Education
Hawthorne School District	School/District
Health Education Council	Local Food and Nutrition Education Project (non-profit)
Humboldt County Office of Education	County Office of Education
Huntington Beach Union High School District	School/District
Kernville Union School District	School/District
Long Beach Unified School District	School/District
Long Beach, City of, Department of Public Health	Local Health Department
Los Angeles County Office of Education	County Office of Education
Los Angeles Trade-Technical College	College/University
Los Angeles Unified School District	School/District
Marin County, Dept. of Health and Human Services	Local Health Department
Merced Office of Education	County Office of Education
Monrovia Unified School District	School/District
Monterey County Health Department	Local Health Department
Montebello Unified School District	School/District
Mount Diablo Unified School District -After School Program	School/District
Newport-Mesa Unified School District	School/District
Orange County Health Care Agency	Local Health Department
Orange County Superintendent of Schools - ACCESS	County Office of Education
Orange County Superintendent of Schools - Coalition	County Office of Education
Pasadena Unified School District	School/District
Riverside, County of, Health Care Services Agency	First 5 Children and Families Commission
San Bernardino, County of, Department of Public Health	Local Health Department
San Francisco Unified School District	School/District
Santa Ana Unified School District	School/District
Shasta County Health and Human Services Agency, Public Health Branch	Local Health Department
Shasta County Office of Education	County Office of Education
Tulare County Office of Education	County Office of Education
Ukiah Unified School District	School/District
University of California, Cooperative Extension of Alameda County	University of California Cooperative Extension
Ventura Unified School District	School/District

2. Key Evaluation Impact(s)

Identify each impact being assessed by the evaluations. For example are SNAP-Ed participants more likely than non-participants to report they intend to increase their fruit and vegetable intake? Or do a greater proportion of SNAP-Ed participants choose low-fat (1% or skim) milk in the school cafeteria compared to non-participants?

The primary outcome for the impact evaluation project was fruit and vegetable consumption. The secondary outcomes were factors that influence it including those listed in Table 1.

Table 1: Impacts Assessed by the Evaluation	
1. Fruit and vegetable consumption	6. Perceived parental consumption
2. Other food/beverage consumption	7. Perceived peer behavior
3. Access to fruit and vegetables	8. Attitudes and beliefs
4. Knowledge	9. Self-efficacy
5. Outcome expectations	10. Teacher encouragement

3. Evaluation participants.

Describe the population being evaluated and its size. For example, all (1200) kindergarten students at public schools in one school district.

Forty-four contractors, in seven channels, collected data from a total of 10,368 individuals (Table 2). Most of the contractors provided nutrition education in schools even though they were not in the school channel. The sample was 88% school-age youth.

Table 2: Number of Matched Surveys, Intervention and Control, for All Contractors			
Channel of Impact/Outcome Evaluation Contractor	Number of Matched Surveys- Intervention	Number of Matched Surveys- Control	Total
School/District (21)	2,688	1,142	3,830
College/University (4)	1,584	1,117	2,701
County Office of Education (8)	1,362	105	1,467
First 5 Children and Families Commission (1)	150	0	150
Local Health Department (8)	1,820	173	1,993
University of California Cooperative Extension (1)	94	0	94
Local Food and Nutrition Education Projects (1)	133	0	133
Total (44)	7,831	2,537	10,368

4. Assignment to intervention and control or comparison conditions

a. Describe the unit of assignment to intervention and control groups.

For example, an intervention focused on kindergarten students may assign school districts, individual schools, classrooms, or individual student to intervention and control groups.

Most frequently, the site (e.g. the particular school setting) was the unit of assignment. Impact was assessed by measuring change in individuals that had a pre-test and a post-test.

b. Describe how assignment to intervention and control groups was carried out.

Be explicit about whether or not assignment was random. For example, ten kindergarten classrooms were randomly assigned to intervention and control groups.

Contractors recruited participants using **convenience sampling** methods. One contractor endeavored to select schools or classrooms randomly but all others did not use random assignment.

c. Describe how many units and individuals were in the intervention and control groups at the start of the intervention.

A total of 10,368 individuals participated in the 44 evaluations. Of these, 7,831 received the contractor-specific intervention and 2,537 were in a control group selected by the contractor. Table 3 shows the individuals by age group.

- Intervention: 7,831 (76%)
- Control: 2,537 (24%)

Table 3: Individuals By Age And Condition Of Assignment			
Age Category	Intervention Group Participants	Control Group Participants	Total
<5	0	0	0
5-8	654	403	1,057
9-11	5,500	1,572	7,072
12-13	262	90	352
14-17	489	147	636
18-59	911	320	1,231
60+	15	5	20
Total	7,831	2,537	10,368

5. Impact Measure(s)

For each evaluation impact, describe the measure(s) used. Descriptions should indicate if the focus is on knowledge, skills, attitudes, intention to act, behavior or something else. Each measure should also be characterized in terms of its nutritional focus, e.g. low fat food preparation, number of whole grain servings consumed, ability to accurately read food labels. Finally indicate if impact data were collected through observation, self-report, or another method.

Table 4 shows the tools used to measure the change in fruit and vegetable consumption, the number of contractors that used the tool and the number that showed a statistically significant difference.

Table 4. Measures of Fruit and Vegetable Consumption and Physical Activity for Adults, Teens, and Youth	
Measures of Fruit and Vegetable Consumption for Adults* (author)	Number of Contractors Using the Tool (Number with Significant Results for Fruit & Vegetables Combined)
• <i>Food Behavior Checklist (FBC)</i> (Townsend, 2003)	10(6)
• <i>Fruit and Vegetable Checklist (FVC)</i> (Townsend, et al., 2006) with instruction guide (Townsend et al., 2007)	4(2)
Measures of Fruit and Vegetable Consumption for Youth	
• <i>Day in the Life Questionnaire (DILQ)</i> (Edmunds and Ziebland, 2002)	1(0)
• <i>School and Physical Activity Nutrition project (SPAN)</i> (Hoelscher 2003)	4(3)
• <i>Network Youth Survey</i> (i.e. SPAN, but coded differently) (Hoelscher 2003)	24(9)
• <i>California Health Kids Survey (CHKS)</i>	2(1)
• <i>Network High School Survey</i> (i.e. <i>Youth Risk Behavior Survey (YRBS)</i>)	4(0)

* The number of contractors in Table 4 adds up to 49 because CSU Chico, Del Norte USD, Kernville USD, Marin County Health Department, and Alameda County Nutrition Services had multiple interventions in sites with varying ages.

Contractors measured change in 7 factors using 11 different survey tools. Table 5 shows the name of the factors used to measure factors that influence fruit and vegetable consumption for adults and children.

Table 5: Measure of factors that influence fruit and vegetable consumption	
Factor that was Measured for Youth	Number of contractors that measured this Factor (Number with Positive Significant Results for Fruit & Vegetables Combined)
• Perceived peer behavior (Vereecken et al. 2005 ¹)	3(1)
• Perceived parental consumption (Vereecken et al., 2005 ¹)	22(9)
• Socialization-encouragement (Vereecken et al., 2005 ¹)	2(0)
• Access (Hearn 1993 ²)	27(10)
• Self Efficacy for Eating, Asking and Preparing Survey (Reynolds, et al., 2002 ³)	1(1)
• Self Efficacy for Eating Fruits and Vegetables (Baranowski, et al., 2000 ⁴)	1(0)
• Self Efficacy for Asking and Shopping (Baranowski, et al. 2000 ⁴)	2 (2)
• Outcome Expectations Survey (Reynolds, et al., 2002 ³)	2(2)
• Outcome Expectations Survey for Eating Fruits and Vegetables (Baranowski, et al., 2000 ⁵)	2(0)
• Knowledge Survey (adapted from Reynolds et al., 2002 ³ and Hoelscher et al., 2004 ⁶)	2(0)
• Knowledge Survey (Hawthorne and Russell)	2(1)

a. Describe the points at which data were collected from intervention and control group participants.

For example, these points may include pre-test or baseline, midway through the intervention, post-test as intervention ends or follow-up some weeks or months after the intervention ends.

For most contractors, the pre-test took place before the beginning of intervention and post-tests took place after the last intervention session. The span of time between pre-test and post-test varied widely between contractors. For some it was less than four weeks and for others it was greater than 40 weeks.

6. Results

Compare intervention and control groups at each measurement point, by individual measure. Report the number of intervention and the number of control group participants measured at each point. Describe any tests of statistical significance and the results.

Fruit and Vegetable Consumption-Adults

The *Food Behavior Checklist (FBC)* and *Fruit and Vegetable Checklist (FVC)* were used to measure adult consumption of fruit and vegetables of 14 contractors. These surveys were validated with low-income populations in California making them a strong measure of consumption for this evaluation. In FFY 10, contractors only used the *FBC* and *FVC* measuring consumption in cups. Contractors provided data using the *FBC* and *FVC* from 1,138 individuals in intervention and control. Results showed that 902 individuals receiving an intervention reported an increase of 0.68 cups of total fruits and vegetables as compared to a decrease of 0.26 cups in 206 control subjects (Table 6). The increase in each fruit and vegetables alone, and total consumption of fruits and vegetables combined were statistically significant ($p < 0.001$).

Table 6. FBC and FVC Combined Results in Cups, Intervention and Control					
	N	Pre-test	Post-test	Difference	p-value
Intervention					
Total Consumption	902	2.58	3.26	0.68	0.000
Fruit	928	1.28	1.63	0.35	0.000
Vegetable	920	1.31	1.63	0.32	0.000
Control					
Total Consumption	206	2.74	2.48	-0.26	0.001
Fruit	210	1.39	1.25	-0.14	0.009
Vegetable	210	1.35	1.23	-0.12	0.001

Fruit and Vegetable Consumption-Youth

A total of 24 contractors collected fruit and vegetable consumption data from 3,891 youth using the *Network Youth Survey*. Four contractors collected fruit and vegetable consumption data from 556 youth using the *Network High School Survey*. The *Network Youth Survey* utilizes fruit and vegetable questions from the

School Physical Activity and Nutrition Project (SPAN), however, data were coded differently for contractors using the *Network Youth Survey* versus *SPAN*, thus, results are presented separately. Results from the *Network Youth Survey* show that youth receiving an intervention had a 0.41 increase in times per day they ate fruits and vegetables ($p < 0.001$) (Table 7). Increases in fruit alone and vegetables alone were also significant ($p < 0.001$). Juice was measured in the *Network Youth Survey*, however, due to a coding error in some contractor surveys, the question was discounted for analysis. Results from the *Network High School Survey*, which utilizes the six *Youth Risk Behavior Survey (YRBS)* fruit and vegetable questions, show improvement in both fruit and vegetable consumption as individual components, and combined, fruit and vegetable consumption increased by 0.31 times per day ($p = 0.032$) (Table 8).

Table 7. Network Youth Survey Combined Results, Intervention and Control

	N	Pre-test	Post-test	Difference	p-value
Intervention					
Total Consumption	3,036	3.76	4.17	0.41	0.000
Fruit	3,038	1.95	2.20	0.25	0.000
Vegetable	3,054	1.81	1.96	0.15	0.000
Control					
Total Consumption	830	3.55	3.70	0.15	0.133
Fruit	832	1.85	2.02	0.17	0.004
Vegetable	837	1.70	1.67	-0.03	0.636

Table 8. Network High School Survey Combined Results, Intervention and Control

	N	Pre-test	Post-test	Difference	p-value
Intervention					
Total Consumption	452	3.54	3.85	0.31	0.032
Fruit	454	0.98	1.06	0.08	0.130
Vegetable	453	1.68	1.84	0.16	0.071
Juice	456	0.88	0.95	0.07	0.187
Control					
Total Consumption	98	3.88	4.38	0.50	0.118
Fruit	100	1.16	1.23	0.07	0.534
Vegetable	99	1.71	2.05	0.34	0.127
Juice	99	1.00	1.09	0.09	0.430

A total of five contractors collected fruit and vegetable consumption data from 2,156 youth using the *SPAN*. Two contractors used the *California Healthy Kids Survey (CHKS)* with a total of 388 youth. Results from the *SPAN* show significant improvements in fruit and vegetable consumption alone and combined with juice ($p < 0.001$) (Table 9). Results from the *CHKS* show significant improvement in juice and total fruit, vegetable, and juice consumption ($p = 0.007$ and $p = 0.046$) (Table 10).

Table 9. SPAN Combined Results, Intervention and Control					
	N	Pre-test	Post-test	Difference	p-value
Intervention					
Total Consumption	2,136	3.85	4.13	0.28	0.000
Fruit	2,176	1.48	1.64	0.16	0.000
Vegetable	2,154	1.20	1.30	0.10	0.000
Juice	2,167	1.17	1.19	0.02	0.356
Control					
Total Consumption	20	4.20	2.65	-1.55	0.028
Fruit	20	1.85	1.10	-0.75	0.012
Vegetable	20	1.40	0.85	-0.55	0.061
Juice	21	0.95	0.67	-0.28	0.300

Table 10. CHKS Combined Results, Intervention and Control					
	N	Pre-test	Post-test	Difference	p-value
Intervention					
Total Consumption	253	7.44	7.94	0.50	0.046
Fruit	253	2.65	2.81	0.16	0.147
Vegetable	253	2.38	2.42	0.04	0.788
Juice	254	2.40	2.72	0.32	0.007
Control					
Total Consumption	135	8.07	7.70	-0.37	0.283
Fruit	135	2.76	2.75	-0.01	0.925
Vegetable	137	2.50	2.38	-0.12	0.447
Juice	135	2.84	2.60	-0.24	0.141

One contractor, Long Beach City Department of Public Health, used the *Day in the Life Questionnaire (DILQ)*. Because they were the only contractor to use this instrument in FY 10, their results cannot be combined with other contractors. Their sample of 102 intervention participants showed significant increases in vegetable consumption ($p < 0.001$), and decreases in juice consumption ($p < 0.001$), but only a small insignificant increase in fruit consumption. Overall, the total fruit and vegetable increase of 0.19 times per day was not significant.

Cognitive, Social, Environmental, and Behavioral Factors

Some contractors measured changes in cognitive, social and environmental factors using different modular surveys offered in the *Network Compendium of Surveys*. The *Network Youth Survey* and the *Food Behavior Checklist* offered questions about food and beverage consumption, other than fruits and vegetables, and food preparation practices. Contractors could pick and choose the sets of questions that matched their interventions and administered a survey with those questions. When possible, the data from these surveys were aggregated and analyzed together yielding a larger sample size.

Cognitive Factors

Several contractors measured the changes observed in cognitive factors (Table 11). Contractors used two knowledge surveys. For the 5-item survey the scores from 2 contractors ($n=740$) for the five knowledge questions ranged from 0, all incorrect, to 5, all correct. The score of 3.00 at post-test means that the respondents, on average, answered three of five questions correctly. The question answered incorrectly most often was: Almost all fruits and vegetables contain a lot vitamins and fiber. Despite this, students did significantly better on this question at post-test ($p < 0.001$). With combined results for this survey, student knowledge increased by 0.67 ($p < 0.001$) (Table 11). One contractor used the 7-item knowledge survey with 178 students. Students improved nearly one-third of a point from pre-test to post-test ($p=0.012$).

Table 11. Changes Observed in Cognitive Factors					
	N	Pre-test	Post-test	Difference	p-value
Intervention					
Self Efficacy, 8-Item (Baranowski)	235	32.63	31.91	-0.72	0.121
Self Efficacy, 13-Item (Baranowski)	88	49.07	49.86	0.79	0.442
Self Efficacy, 17-Item (Reynolds)	106	39.31	39.87	0.56	0.338
Outcome Expectations, 9-Item (Baranowski)	710	36.39	37.09	0.70	0.004
Outcome Expectations, 7-Item (Reynolds)	355	18.52	19.21	0.69	0.000
Knowledge, 7-Item (Reynolds, Hoelscher)	178	4.39	4.69	0.30	0.012
Knowledge, 5-Item (Hawthorne, Russell)	740	2.33	3.00	0.67	0.000

Change in outcome expectations was assessed by two contractors (n=355) using a 7-item instrument validated by Reynolds, et al., 2002³. The three response categories were: disagree=1, not sure=2, agree=3 leading to a summary scale that ranged from 7 to 21 points. The increase of 0.69 to 19.21 at post-test was significant ($p<0.001$) (Table 11). The question with the lowest average score at pre-test was “I will have healthier skin if I eat fruits and vegetables.” This question also had the lowest average score at post-test, though it improved by 0.19 points ($p<0.001$). Two contractors (n=710) used a 9-item instrument to measure outcome expectations (Table 11). The question with the lowest average score at pre-test was “If I eat fruits and vegetables everyday, my friends will start eating them too.” This question also had the lowest average score at pre-test, and did not improve at post-test.

Four contractors measured changes in self-efficacy using three different validated tools. Two contractors measured self-efficacy for asking and shopping for fruit and vegetables from 235 youth using an eight-item instrument (Baranowski, et al. 2000⁵). Response categories ranged from ‘I disagree very much’ (coded as 1) to ‘I agree very much’ (coded as 5) and scores ranged from 8 – 40. Results for contractors using this survey decreased, however, this decrease was not significant (Table 11).

Another contractor (n=106) assessed change in self-efficacy for eating, asking and preparing with a 17-item tool (Reynolds, et al., 2002³). The p-values were not significant for this group with an increase of 0.56 from pre-test to post-test (Table 11).

One contractor (n=88) used a 13-item tool (Baranowski, et al., 2000⁶) to assess change in self-efficacy for eating fruits and vegetables. These results were also not significant.

Social Factors

Several contractors measured the changes observed in social factors, including perceived peer behavior, socialization and encouragement, and perceived parent consumption (Table 12 & 13). Three contractors measured perceived peer behavior using a 6-item instrument (Vereecken, et al., 2005¹) with a range of (range 0-12 for six items combined). The difference observed between pre-test and post-test was not significant. Two contractors used the 8-item socialization-encouragement (range 0-16 for questions combined). The socialization-encouragement survey asked students to complete the sentence “Does your teacher tell you...” with a variety of statements about fruits and vegetables. The answer choices were *yes*, *no*, and *I don’t know*. The statement students most often answered *no* to was “Does your teacher tell you that vegetables taste good?” There was a significant decrease in the answer to this question between pre-test and post-test ($p=0.004$). Twenty-two contractors used the 2-item parent

consumption factors (Vereecken, et al., 2005¹). Results showed significant increases between pre-test and post-test for both fruits and vegetables ($p < 0.001$) (Table 13).

Table 12. Changes Observed in Social Factors					
	N	Pre-test	Post-test	Difference	p-value
Intervention					
Teacher Encouragement (Vereecken)	249	8.47	8.23	-0.24	0.253
Perceived Peer Behavior (Vereecken)	735	18.49	18.56	0.07	0.900

Table 13. Changes Observed in Parent Consumption					
	N	Pre-test	Post-test	Difference	p-value
Intervention					
How often do your parents eat fruit?	2,785	1.72	1.87	0.15	0.000
How often do your parents eat vegetables?	2,784	1.78	1.88	0.10	0.000

Access to fruit and vegetables

A total of 4,576 students answered questions about access to fruit and vegetables. The questions were: At your *home* do you have fruits / vegetables to eat? The four response categories ranged from *never* to *always*, with an '*I don't know*' option, with scores ranging from 0-2. Access to both fruits and vegetables showed 0.03 point increase, with fruit being the most available at post-test (Table 14). Though this change was small, it was statistically significant ($p = 0.002$).

Table 14. Changes Observed in Access to Fruits and Vegetables					
	N	Pre-test	Post-test	Difference	p-value
Intervention					
At your home, do you have fruit to eat?	4,576	1.72	1.75	0.03	0.002
At your home, do you have vegetables to eat?	4,570	1.67	1.70	0.03	0.002

Physical Activity

The 2-item physical activity survey from the *Nutrition Education Survey* asked: Over the *past 7 days*, on how many days were you physically active for a total of at least 60 minutes per day? and Over a *typical or usual week*, on how many days are you physically active for a total of at least 60 minutes per day? Response categories ranged from 0-7. At pre-test, respondents reported being physically active for 60 minutes 5 days this past week, which was lower than the number of days during a typical week (5.15 times). For both measures, at post-test the score decreased to 4.89 days per week. This decrease was significant for physical activity during a typical week ($p=0.033$) (Table 15).

	N	Pre-test	Post-test	Difference	p-value
Intervention					
Physical Activity \geq 60 Minutes (Last 7 Days)	149	5.00	4.89	-0.11	0.508
Physical Activity \geq 60 Minutes (Typical Week)	149	5.15	4.89	-0.26	0.033

The 2-item physical activity survey from the *Network Youth Survey* and *Network High School Survey* asked: 'Check the days you exercised or took part in physical activity that made your heart beat fast and made you breathe hard for at least 60 minutes' and 'Check the days you play outdoors for at least 30 minutes'. Response categories ranged from 0-7. At pre-test, youth respondents reported being physically active for 60 minutes 3.19 days this past week, and 3.71 days at post-test ($p<0.001$) (Table 16). High school students also saw a significant increase for this measure, with nearly a half day more physical activity at post-test. Both youth and high school students showed increases in outdoor play ($p<0.001$ and $p=0.010$).

Table 16. Changes Observed in Physical Activity, Network Youth Survey and Network High School Survey					
	N	Pre-test	Post-test	Difference	p-value
Intervention					
Youth					
Physical Activity ≥ 60 Minutes	2,727	3.19	3.71	0.52	0.000
Play Outdoors ≥ 30 Minutes	2,723	2.91	3.60	0.69	0.000
High School					
Physical Activity ≥ 60 Minutes	176	2.29	2.75	0.46	0.013
Play Outdoors ≥ 30 Minutes	176	1.78	2.30	0.52	0.010

Adult Consumption-Other Foods

The *FBC* measures dietary practices other than consumption of fruits and vegetables, and adults showed improvement in many of these areas. Adults reported drinking significantly more milk and significantly less sugar sweetened beverages ($p < 0.001$) (Table 17). Sugar sweetened beverage consumption decreased by nearly $\frac{1}{2}$ a point. Results showed more adults were removing the skin from chicken and using food labels at post-test ($p < 0.001$). Though intervention participants were eating less fish and reported running out of food more often, they rated their overall eating habits just over one point higher on a 1-10 scale at post-test ($p = 0.041$, $p = 0.137$, $p < 0.001$).

Table 17. Changes Observed in Consumption of Other Foods, Adults					
	N	Pre-test	Post-test	Difference	p-value
Intervention					
Drink Milk	574	2.94	3.10	0.16	0.000
Drink Sugar Sweetened Beverages	570	3.97	3.52	-0.45	0.000
Take Skin off Chicken	573	3.10	3.28	0.18	0.000
Eat Fish	577	1.49	1.45	-0.04	0.041
Use Food Labels	678	2.42	2.85	0.43	0.000
Run Out of Food	667	2.12	2.18	0.06	0.137
Rate Eating Habits	575	5.75	6.79	1.04	0.000

Youth Consumption-Other Foods

The *Network Youth Survey* and the *Network High School Survey* also surveyed consumption of foods other than fruits and vegetables. Both youth and teens reported drinking more milk, however, only the increase in youth consumption was significant (Table 18). Only teens decreased their sugar sweetened

beverage consumption, and this change was not significant. French fry and chip consumption in both groups remained relatively unchanged. Among the youth, results showed that intervention participants significantly decreased their consumption of baked goods ($p=0.001$).

Table 18. Changes Observed in Consumption of Other Foods, Youth					
	N	Pre-test	Post-test	Difference	p-value
Intervention					
Youth					
Dairy (Milk, Yogurt, Cheese)	2,595	2.22	2.38	0.16	0.000
Hot or Cold Cereal	2,634	0.80	0.82	0.02	0.453
French Fries or Chips	2,643	0.68	0.69	0.01	0.550
Sugar Sweetened Beverages	2,607	1.53	1.58	0.05	0.109
Sweets (Baked Goods)	2,630	0.75	0.68	-0.07	0.001
High School					
Dairy (Milk, Yogurt, Cheese)	177	1.41	1.58	0.17	0.084
Hot or Cold Cereal	176	0.43	0.49	0.06	0.228
French Fries or Chips	174	0.75	0.78	0.03	0.783
Sugar Sweetened Beverages	175	1.88	1.78	-0.10	0.432
Sweets (Baked Goods)	176	0.86	0.77	-0.09	0.294

Summary

In sum, data were collected from 10,368 individuals by 44 contractors in seven intervention channels. Contractors measured fruit and vegetable and other food and beverage consumption, physical activity and nine factors that influence those behaviors.

The results show that contractors increased fruit and vegetable consumption significantly in the youth, teen, and adult populations. Combined results from the *FBC* and *FVC* showed adults increased consumption by 0.68 cups. The three youth surveys, the *Network Youth Survey*, *SPAN*, and *CHKS*, showed increases of 0.41, 0.28, and 0.50 times per day, respectively. The teen population increased fruit and vegetable consumption by 0.31 times per day.

The interventions implemented could reasonably be expected to change only some of the factors that were measured. The results showed statistically significant change for some of these including outcomes related to students' fruit and vegetable-related knowledge and outcome expectations. Interventions did not target some other factors but they were measured to help explain change. If the behavior of a parent changed, then it would be reasonable to see change in

the results for those factors. Perceived parental fruit and vegetable consumption increased significantly in youth. Even though access was not directly targeted by the interventions, results showed a statistically significant increase.

The added measure of testing the consumption of other foods and beverages has close ties with fruit and vegetable consumption, given, fruits and vegetables may be a replacement for less healthy options. It was observed that with increased consumption of fruits and vegetables, there was a concurrent decrease in sugar sweetened beverages (adults) and sweets (youth), and an increase in milk (adults, youth).

While very positive, these results do not capture the full impact of *Network*-funded nutrition education. The changes reported here resulted from varied interventions implemented in settings where contractors have little control over conditions that influence fruit and vegetable consumption. Advertising, availability of high quality fruit and vegetables in schools and homes, policies that favor the consumption of calorie dense foods are among those that limit the impact of the nutrition education delivered by *Network*-funded contractors.

7. Reference

Provide a contact for additional details and a reference to any other report of the evaluation.

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