

The Power of Policy: A Case Study of Healthy Eating Among Children

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We used a case study approach to examine the nutritional effect of a policy to increase fruit and vegetable consumption in the Students Today Achieving Results for Tomorrow after-school program. The snack menu was changed in 44 after-school programs serving 8000 low-income and ethnically diverse elementary-school students. A comparison of previous and current snack menus identified a significant increase in fruit servings (83%) and no change in vegetable servings. We discuss the unintended consequences resulting from the menu changes. (*Am J Public Health*. 2006;96:1570–1571. doi:10.2105/AJPH.2005.072124)

Public health researchers have proposed policy changes to reduce the prevalence of obesity and diet-related chronic diseases.^{1,2} These policy proposals range from imposing a tax on high-fat foods to making fresh fruits and vegetables more available in schools and workplaces. However, few researchers have investigated the effect of actual policy changes on the diet of high-risk populations, such as low-income and ethnic minority children.^{3–6} We used a case study approach to examine a new organizational policy to increase fruit and vegetable servings during the snack period of the Students Today Achieving Results for Tomorrow (START) after-school program.

START serves approximately 8000 low-income and ethnically diverse children at 44 public elementary schools in the greater Sacramento, Calif, area. START is a free program offered only at public elementary schools where a high proportion of families qualify for free or reduced-price school meals. About 33% of START participants are African American, 26% are Hispanic, 25% are Asian

TABLE 1—Previous and Current Sample Snack Menus

	Monday	Tuesday	Wednesday	Thursday	Friday
Previous menu	Yogurt and snack bar	Chips and juice	Peach cup and graham crackers	Snack bar and juice	Brownie and milk
Current menu	Chex Mix and pineapple juice	Cheez-Its and celery with peanut butter	Peanut butter crackers and apple	Graham crackers and orange juice	Animal crackers and grape juice

American, 14% are White, and 2% are of other race/ethnicity.⁷ The city of Sacramento Parks and Recreation Department administers the program and trains and employs staff.

Since its inception in 1995, START has served reimbursable afternoon snacks for at-risk youths as part of the US Department of Agriculture's Child and Adult Care Food Program. The Afterschool Snacks Program provides funding to after-school centers to purchase afternoon snacks for children who are from low-income families and, in order for the center to qualify for the program, requires that the snack foods being served meet certain nutritional requirements. The snacks being served must contain at least 2 different components from the following: (1) a dairy product, (2) a serving of meat or meat alternative, (3) a serving of vegetable(s) or fruit(s) or full-strength vegetable or fruit juice, and (4) a serving of whole grain or enriched bread or cereal.

In 2001, START administrators adopted the *Children's 5 a Day—Power Play!* curriculum, which teaches children to eat at least 5 daily servings of fruits and vegetables.⁸ The following year, they changed their snack vendor and implemented a policy that increased the servings of fruits and vegetables on after-school program snack menus to be more consistent with the *5 a Day* guidelines (Table 1).

METHODS

Our analysis included 17 snacks on the menu cycle for the period before the policy change and 15 snack items on the menu cycle after the policy change. Each menu cycle was repeated throughout the year; thus, these 32 snacks represent all of the snacks served during the 2-year study period. We used the

Nutritionist V software program (First Data Bank, San Bruno, Calif) to estimate selected nutrient values; the values were then averaged for each week. We used SPSS Version 12.0 (SPSS Inc, Chicago, Ill) to conduct a *t* test to detect nutrient differences between the 2 menus.

RESULTS

The new snack menu included significantly more fruit compared with the previous menu (Table 2). The new menu provided more than half of the recommended 2 servings of fruit, whereas the previous menu had provided less than one third, on average. The increase in fruit consumption was in the form of both juice and fresh fruit. Juice was listed on the new menu on 9 of 15 days per snack cycle, and fresh fruit was listed 4 times. The previous

TABLE 2—Changes in Average Daily Nutritional Characteristics of Snack Menus

	Previous Menu	Current Menu	Change, %
Fruit servings	0.6	1.1	+83*
Vegetable servings	0.0	0.0	0
Total	0.6	1.1	+83*
Calories, kJ	1059.4	981.6	-7
Calories from fat, %	20	25	+5
Saturated fat, g	2.4	1.4	-42
Iron, mg	2.0	2.3	+15
Calcium, mg	123.8	40.3	-67*
Vitamin A, RE	86.3	18.0	-79*
Vitamin C, mg	40.8	36.1	-12

Note. RE = retinol equivalent.
**P* < .05.

menu had listed fruit juice 7 times and had never listed fresh fruit in a 17-day snack cycle.

Milk declined from 0.29 average daily servings to 0, resulting in changes in 3 nutrients (Table 2). The grams of saturated fat decreased by an average of 42%. Previous snacks contained up to 3.9 g of saturated fat, whereas the current snacks contained no more than 1.8 g on average. Milk and cheese had contributed most to the saturated fat from the previous menu. Also, because of the absence of dairy foods, the new snack menu items contained significantly less calcium and vitamin A. Food items from the previous menu had provided 10% of the recommended daily allowances for calcium and vitamin A. By contrast, food from the current menu provided between 2% and 3% of the recommended amounts. Changes in other nutrients, such as protein, riboflavin, or potassium, were not significant.

DISCUSSION

START's new snack menu better meets the *5 a Day* guidelines by increasing servings of fruit by 83%. Our case study suggests that organizational policy change can be an effective means to meet nutritional guidelines, particularly in school settings.

An unintended consequence of the menu change was a decrease in calcium and vitamin A intake because of the absence of dairy products. Deficiencies in calcium, but not vitamin A, are an area of concern for children,⁹ and milk is a major source of calcium. However, many children in START already receive 2 daily servings of milk through school lunch and breakfast programs. These 2 servings of milk meet the recommended daily servings of dairy foods for children 8 years and younger and two thirds of the recommended daily servings of dairy for children 9 years and older.⁹

Snacks are an ideal time of day to add a serving of fruits or vegetables.¹⁰ START administrators are currently developing a plan to source fresh fruits and vegetables from local growers. Incorporating more fresh vegetables into the menus will further improve the nutrient profiles by increasing the amount of calcium and other essential nutrients.^{11–13} ■

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Contributors

D. Cassady originated the main ideas for the brief and wrote the first draft. R. Vogt contributed to the first draft and conducted the statistical analysis. D. Oto-Kent, R. Mosley, and R. Lincoln were directly involved in the educational and policy change components of the project and made comments on the final draft.

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Human Participant Protection

No protocol approval was needed for this study because no human subjects were involved in this research.

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