WILL KIDS EAT HEALTHIER SCHOOL LUNCHES?

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** These comments do not necessarily reflect the position of ERS or USDA*

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The Issue

USDA has set higher standards

- The Healthy, Hunger-Free Kids Act of 2010 calls on USDA to issue new nutrition standards.
- In 2012-2013, schools will need to offer
  - More fruits and vegetables,
  - More whole grains,
  - More legumes,
  - Only lowfat or fat-free milk, and
  - Lower total calories

Will kids eat new foods?

- Schools will receive a higher reimbursement per meal for healthier foods provided, but if kids reject the new food, total revenues may drop.
- School food consumption data from 2005 can tell us whether students were more likely to eat healthier foods when it was offered to them.

Analytical Approach

Approach in brief

- The analysis uses tobit regressions to estimate how student intakes of recommended foods are affected by school offerings of those foods.
  - Many of the new nutrition standards were met in 2005.
  - Did students eat more of the healthier food offered when at schools that met the standard for that food type (such as fruit or dark green vegetables)?
  - What other factors affected students consumption of healthier foods?

Data

- School Nutrition Dietary Assessment III (SNDA III)
  - 397 schools, Spring 2005, nationally representative
  - Lunch menu data provides detail on how much of detailed types of foods are offered and how much students take and put on their trays.
  - 24-hour dietary intake data for a sample of 2310 students at 284 of the schools

Analysis

1. Classify schools by whether they met each of the new food type standards.
2. Use tobit regression framework to estimate the effect of offering healthy foods on intake.

   Controlling for other factors that may affect consumption: many student and family characteristics (age, sex, income, "picky eaters", BMI, food insecurity, etc.,) location, size of school, food service practices, and other school characteristics.

New Standards

	Current requirement	New requirement
Fruit and Vegetables	2.5–5 cups of fruit and vegetables combined per week	2.5–5 cups of fruit plus 3.75–5 cups of vegetables per week
Vegetables	No specifications as to type of vegetable	Weekly requirement of half a cup for dark green and orange vegetables and legumes and limit on starchy vegetables to one cup
Meat/Meat Alternate	7.5–15 oz equivalents per week	8–12 oz equivalents per week
Grains	8–15 oz equivalents per week	9–13 oz equivalents per week
Whole Grains	Must be enriched or whole grain	At least half of the grains to be whole grain-rich
Milk	5 cups	5 cups, fat content of milk to be 1% or less

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Meeting the Standards

Used food type sub-categories in the SNDA III menu data and their portion amounts to assess whether schools had met the proposed weekly standards.

- Portions in grams were converted to cups and ounces using My Pyramid conversion rates.
- Schools were assigned to categories of meeting or not meeting the weekly requirements (+/- 10%).
- Menu food items were weighted by the "offer weight" which accounts for the relative amounts of different food items offered on a given day.

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Tobits

Dependent variables: Total consumption in a week by NSLP-participating student *i* of food type *y* as part of the school meal. Selected food types *y* shown here are:

- dark green vegetables,
- deep yellow vegetables,
- other vegetables,
- fruit, and
- whole grains.

Tobits, continued

Independent variables:

- Student characteristics: age, sex, ethnicity, income, eligibility for free/reduced-price lunch, SBP participation, food insecurity, level of physical activity, BMI, eating habits (degree of pickiness, hearty eating, allergies), average hours watch TV, live with two parents, and whether the family typically dines together.
- School characteristics: *whether the school met the new standard for food type y*, school size, census region, urbanicity, à la carte food is served, the method of menu planning (traditional food-based, enhanced food-based or nutrient-based), open-campus, and whether a fast-food restaurant is close to school.

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Results

Percent of Schools that Met Standards

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Many schools met new standards; except whole grains and legumes.

Single Standards	Schools Met Standard
Fruit	48%
Vegetables	
Dark green	27%
Orange	29%
Legumes	15%
Starchy	34%
Other	42%
Total vegetables	39%
Whole grains	4%
Fat-free milk (plain or flavored) or lowfat milk	77%
Mini-max calories (different by grade level)	34%
Saturated fat (<10% of total calories)	44%

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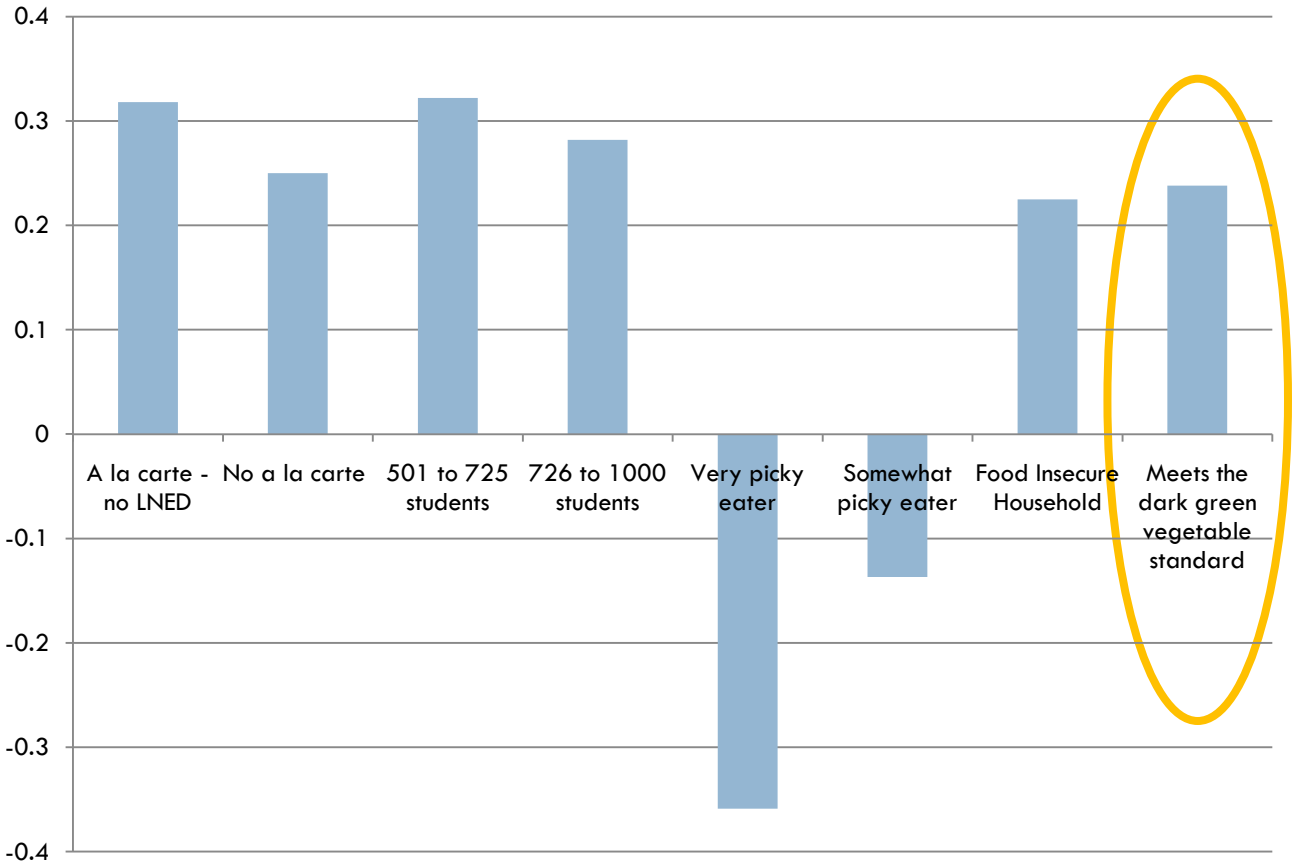
Results

Marginal Effects on Student Intake

Dark Green Vegetable Intake

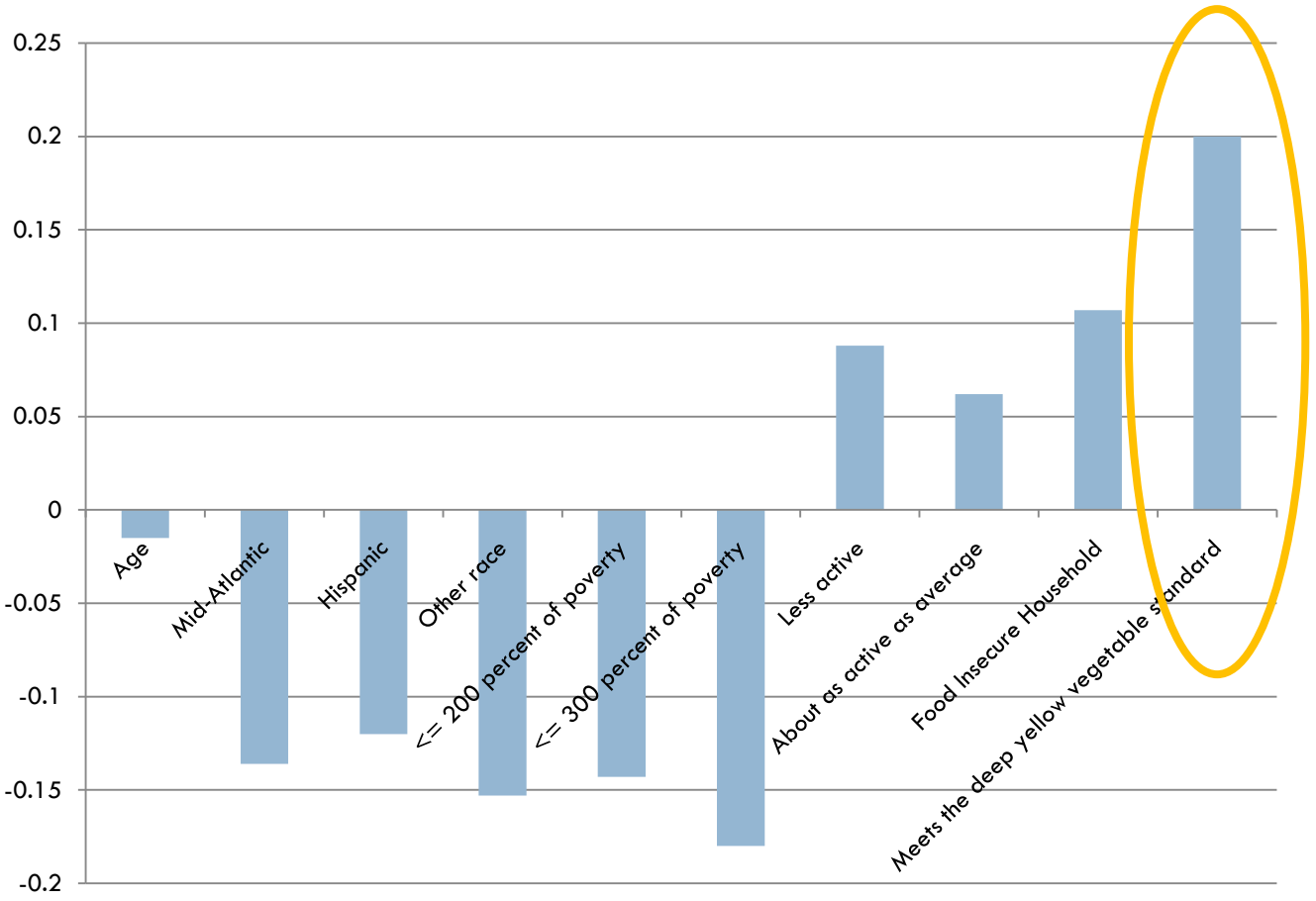
Providing more dark green vegetables is associated with greater student intake.



Note: Significant results only shown ($p<0.10$). Relevant excluded categories include: school sizes >1000 students, not a picky eater. "A la carte – no LNED" means the school has a la carte food, but not of low-nutrient, energy dense (LNED) quality.

Orange Vegetable Intake

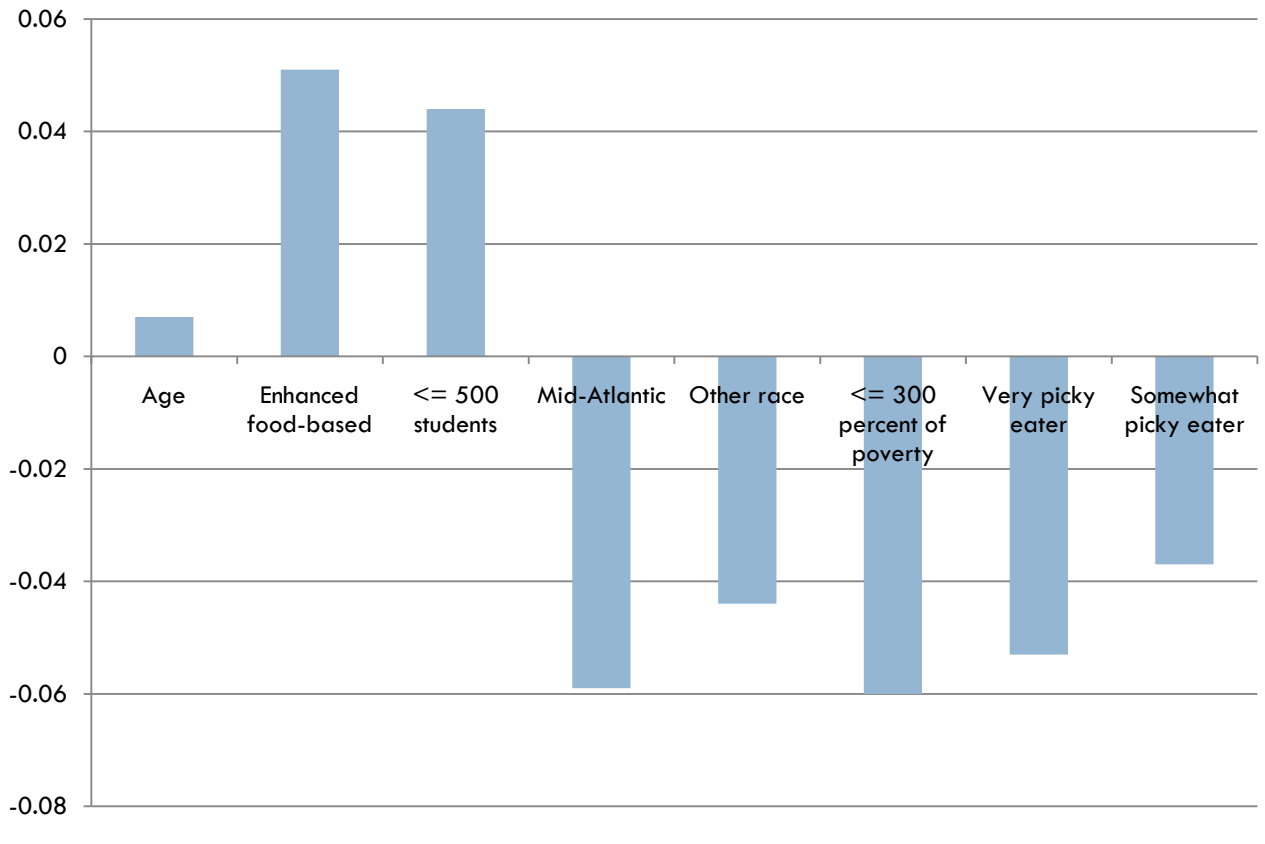
Providing more deep yellow vegetables is associated with greater student intake.



Note: Significant results only shown ($p<0.10$). Relevant excluded categories include: the Western region, Whites, <= 130 %of poverty, and very active.

Other Vegetable Intake

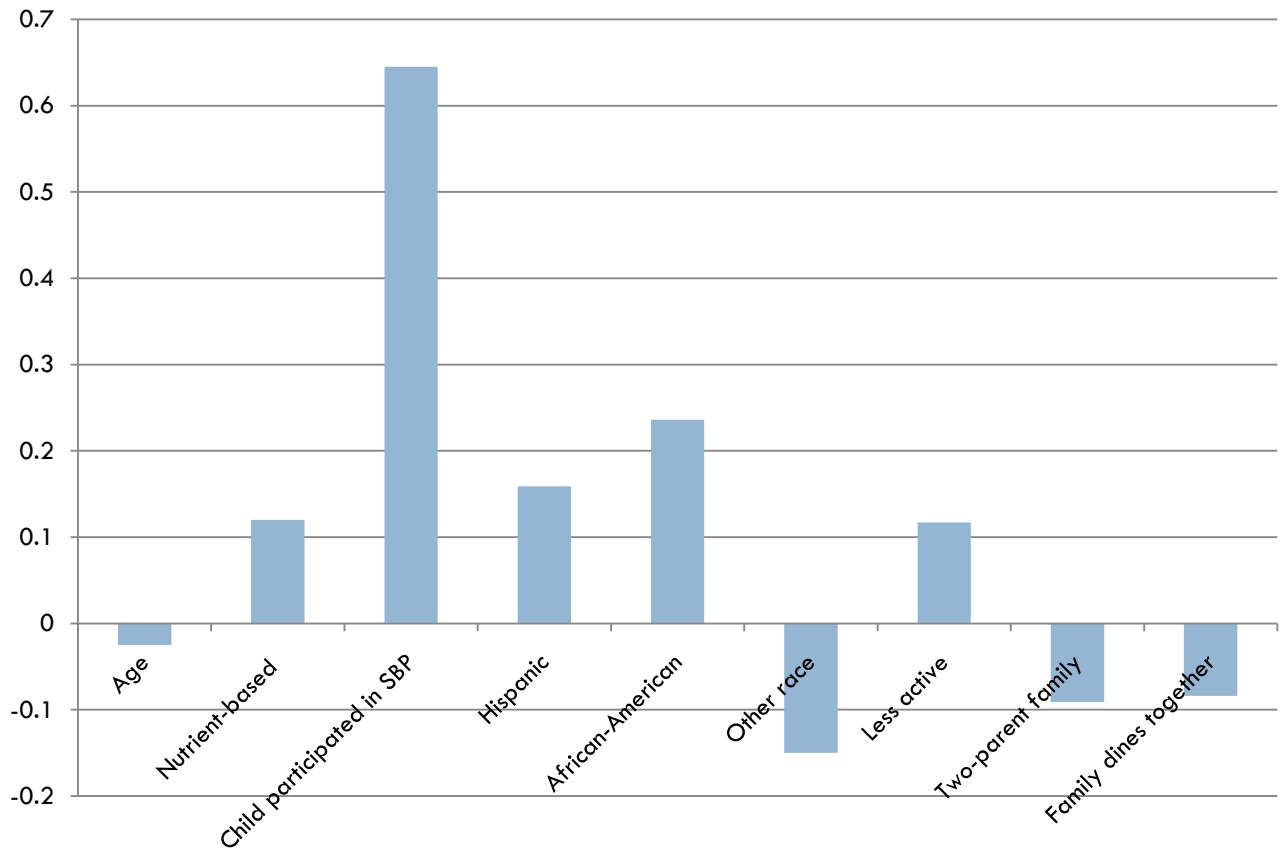
Providing more of other vegetables is not associated with greater student intake.



Note: Significant results only shown ($p<0.10$). Relevant excluded categories include: traditional food-based menu planning, school sizes >1000 students, the Western region, Whites, <= 130 %of poverty, and not a picky eater.

Fruit Intake

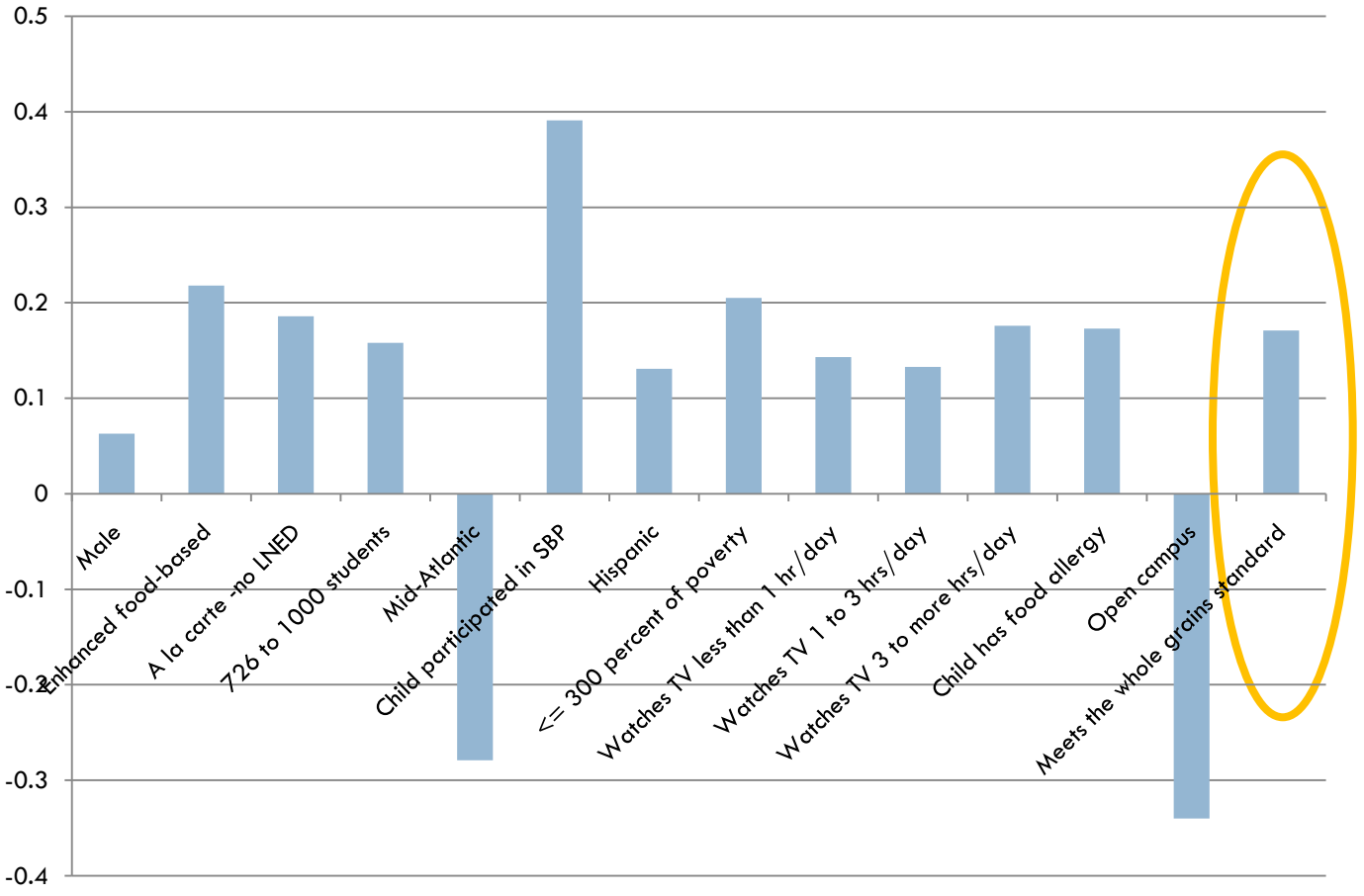
Providing more fruit is not associated with greater student intake.



Note: Significant results only shown ($p<0.10$). Relevant excluded categories include: traditional food-based menu planning, Whites, and very active.

Whole Grain Intake

Providing more whole grains is associated with greater student intake.



Note: Significant results only shown ($p<0.10$). Relevant excluded categories include: traditional food-based menu planning, school sizes >1000 students, the Western region, Whites, <= 130 %of poverty, and watches no TV.

Conclusions

- In some cases, the offering of healthier foods increases their consumption.
  - Offering more servings of dark green vegetables, orange vegetables, and whole grains lead to greater intakes of those foods.
  - But offering more servings of other vegetables and fruit did not lead to greater intakes of those foods.

Conclusions

- Other factors that affected intakes:
  - Having either no “a la carte” or “a la carte, no junk food” increases intake of dark green vegetables and whole grains.
  - Kids who are “picky eaters” according to their parents are less likely to eat dark green and other vegetables.
  - Kids from food insecure homes are more likely to eat dark green and orange vegetables.
  - Kids who ate a school breakfast were more likely to eat fruit at lunch.

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