

# Effects of Education and Income on Nutrient Intake

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# Background

State	County (Metro Area)	Number of Children Living in Food Insecure Households	Child Food Insecurity Rate
CA	Los Angeles	734,490	28.8%
NY	New York (five boroughs, collectively)	478,550	25.2%
TX	Harris (Houston)	307,570	27.2%
IL	Cook (Chicago)	304,610	23.5%
AZ	Maricopa (Phoenix)	286,560	27.1%
TX	Dallas	187,310	27.9%
<b>CA</b>	<b>Orange</b>	<b>177,650</b>	<b>23.4%</b>

Feedingamerica.org (2011)

# Nutrient intake related to income level

Nutrient	Beta	S.E.	p-value
Beta-carotene	0.031	2.697	0.034
Vitamin C	0.055	0.069	p<0.001
Potassium	0.027	0.667	0.007
Fiber	0.053	0.007	p<0.001

Separate multivariate regression analyses controlling for age, gender, energy consumed, and education

# Nutrient intake related to education

Nutrient	Beta	S.E.	P-value
Protein	0.02	0.236	0.021
Monounsaturated Fat	0.039	0.087	p<0.001
Polyunsaturated fat	0.083	0.071	p<0.001
Vitamin E	0.187	0.047	P<0.001
Vitamin A	0.095	0.026	p<0.001
Vitamin B6	0.062	0.012	p<0.001
Lycopene	0.039	85.560	0.008
Folic Acid	0.072	0.003	p<0.001
Vitamin D	0.049	0.50	0.001
Vitamin K	0.160	1.354	p<0.001
Iron	0.067	0.072	p<0.001
Calcium	0.69	4.881	p<0.001
Beta-carotene	0.159	35.175	p<0.001
Vitamin C	0.70	0.901	p<0.001
Potassium	0.750	0.015	p<0.001
Fiber	0.069	0.089	p<0.001

Separate multivariate regression analyses controlling for age, gender, energy consumed, and income

# Foods that have these nutrients

- Beta-carotene: sweet potato, kale, carrots, spinach, lettuce
- Fiber: Whole grain bread, oats, nuts (almonds, pistachios, pecans), soybeans
- Potassium: Yogurt, fish, avocados, white mushrooms, bananas
- Vitamin C: Red and green hot chili peppers, bell peppers, broccoli, oranges, strawberries

# Calorie density and pricing

- Drewnowski (2007)
- Compared prices with calorie-density
- “If you have \$3 to feed yourself, your choices gravitate toward foods which give you the most calories per dollar.”

# Directions for future research

- Continuity from last presentation
- 2009-2010 food insecurity data.

Full security



Very low security



# References

- Drewnowski, A. and Monsivais, P.. 2007. The Rising Cost of Low-Energy-Density Foods. *Journal of American Dietetic Association* 107:2071-2076.
- Feeding America  
A 2011 Report on County Level Child Food Insecurity in the United States in 2009, Illinois: Feeding America.