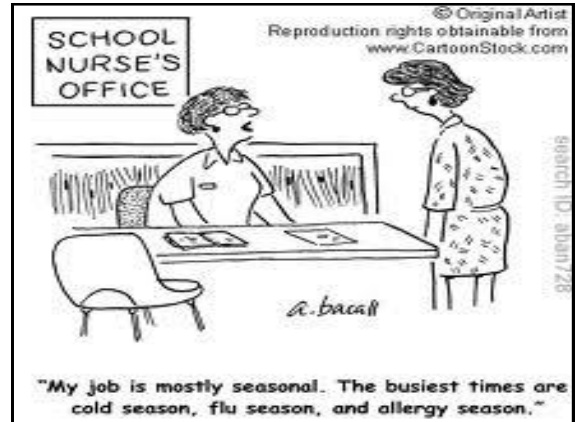


## Breakfast and Academic Performance

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"Schools have a wealth of potential for ensuring the future well-being of young people. You can't educate a child who isn't healthy, and you can't keep a child healthy who isn't educated"

Former Surgeon General  
of the United States,  
Jocelyn Elders, M.D.



## The Cycle of ....



## Research Question

- Do children who eat breakfast on a regular basis perform better academically than children who do not routinely eat breakfast?



## Research Methods

- Search Terms: academic performance, cognitive function, breakfast programs, breakfast, and school-age children
- Databases: CINAHL, MEDLINE, Cochrane Database of Systemic Reviews, ERIC, Google Scholar
- 10 articles:** 4 Systemic Reviews, 3 Cross-sectional studies, 1 Self-reported – Youth Risk Behavior Surveillance Survey, Cochrane Database of Systemic Reviews, 1 Questionnaire/record review – 1

## Research Findings

- ▶ Socioeconomic status and breakfast
- ▶ Nutritional status, well-nourished and malnourished children
- ▶ Breakfast habits and beliefs
- ▶ The influence of breakfast on academic performance



## Child Hunger Quiz

1. Child hunger in the United States is a reality in 2010.

- ▶ True
- ▶ False



ConAgra Foods  
Foundation

2. How do you define what child hunger means?

- a. Children who miss a meal or who don't eat on a regular basis are hungry.
- b. Children need to be starving or malnourished to be considered hungry.



3. How many children in the United States are affected by hunger?

- a. 16,700
- b. 1,670,000
- c. 16,700,000



4. Households with children experience food insecurity at almost double the rate of households without children.

- ▶ True
- ▶ False



5. Please complete this statement with the appropriate choice below. Often, those facing hunger have to make tough choices between food and other necessities.

- a. More than 46 percent had to decide between food and paying rent or the mortgage.
- b. More than 35 percent had to choose between food and medical care.
- c. Nearly 55 percent reported making trade-offs between food and utilities.
- d. All of the above.

6. Studies show that mild malnutrition experienced by young children during critical periods of growth:

- a. Has no effect on development or issues for the future.
- b. May cause higher levels of chronic illness, behavior problems and hinder cognitive development over a lifetime.



## Significance of Problem

- ▶ Poverty and hunger statistics
  - U.S. population – 40,707, 328 families  
74, 219, 201 children
  - Poor children – 15,325,974 (21%)
  - Hunger defined
  - Worldwide – 925 million hungry people (United Nation's Food and Agriculture Organization, 2010)
- ▶ School breakfast programs in the United States
  - 2009 11.1 million participants, 9.1 million received their meals free or at a reduced-price (Food and Nutrition Service, 2010).

## FASN Regions



## 2010 Florida Poverty Rates by Region

- ▶ Children ages 0 – 17

Region	Low %	High %	Average %
1	17.6	32.1	25.6
2	20.0	35.7	29.26
3	24.2	41.5	30.51
4	14.1	38.2	23.2
5	20.4	28.3	23.38
6	22.4	33.8	27.83
7	14.1	27.2	21.68
8	21.8	40.8	31.9
9	25.5	43.8	30.52
10	19.1	25.5	21.7

## Findings – Socioeconomic Status and breakfast – lower versus higher

- Skip breakfast more often (Cheng et al., 2008; & Defeyter et al., 2010)
- Arrive at school hungry (Defeyter et al., 2010)
- Inequalities in health (Defeyter et al., 2010)
- Lower math score – 11.1% variation in the mean measures of academic performance (MAP) and reading – 6.7% variation in the reading scores ( $p < 0.05$ ) (Edwards et al., 2011)
- Math gains – (SMD = 0.31, 95% C.I. = 0.09 to 0.53) (Kristjansson et al., 2007)
- No significant difference in cognition (Hoyland et al., 2009)

## Findings – Nutritional status, well-nourished and malnourished children

- Hunger affects attention (Kristjansson et al., 2007)
- Impaired functioning, lower math scores, repeat a grade (Taras, 2005)
- Macro and micronutrients (Defeyter et al., 2010; Edwards et al., 2011; Hoyland et al., 2009; & Taras, 2005)
- Poorer academic performance (Kristjansson et al., 2007)
- Hours between meals and glucose fluctuation (Gajre et al., 2008)

### Findings – Breakfast habits and beliefs

- Skipping breakfast at least one day during the school week (30.5%, 95% C.I., 26.1 – 34.9) (Cheng et al., 2008)
- 10 – 30% of students in the United States and Europe skip breakfast (Rampersaud et al., 2005)
- High school students reported skipping breakfast more than three times per week (Rampersaud et al., 2005)
- Parental influence – (OR = 3.67, 95% C.I., 1.75 – 7.68) (Cheng et al., 2008)
- Lack of time – 35.3% (Gejre et al., 2008)
- Not being hungry – (Cheng et al., 2008, Defeyter et al., 2010, & Rampersaud et al., 2005)

### Findings – Influence of breakfast on academic performance

- Breakfast alleviates hunger, impact on cognitive performance (Rampersaud et al., 2005; Taras, 2005; Hoyland et al., 2009; Edwards et al., 2011; Defeyter et al., 2010 & Kristjansson et al., 2009)
- Breakfast helps concentration in class (OR = 3.82, 95% C.I., 1.86 to 7.87) (Cheng et al., 2008)
- Recall improved with breakfast thirty minutes prior to testing (Rampersaud et al., 2005)

### Findings – Influence of breakfast on academic performance

- Short-term memory improvements undernourished students but not well-nourished students (Taras, 2005)
- Math scores consistently higher in countries with lower income populations. The standardized mean difference (SMD) was 0.66 (95% C.I. = 0.13 to 1.18). In short-term studies small improvements were seen in arithmetic, reading, and spelling (Kristjansson et al., 2007)

### Relevance to School Nursing

- ▶ Educating students
- ▶ Educating parents
- ▶ Educating school personnel and administration
- ▶ Community involvement



### Got Breakfast Video

- ▶ <http://vimeo.com/15429339>

### Recommendations for School Nursing

- ▶ Students
- ▶ Parents
- ▶ Government officials along with school administrators
- ▶ Further research
- ▶ Studies

