White, Chocolate or Yogurt at Breakfast?

Beth Miller, PhD, RD, LD
Assistant Professor of Nutrition
Miami University

Annual National Conference
Salt Lake City, Utah
July 12-15, 2015
Providing Breakfast at School

► Eating breakfast contributes to improved:
  ► Academic performance
  ► Attendance
  ► Overall nutrient intake of children
  ► Opportunity to learn healthful eating habits & food selection

► Concern:
  ► Decrease breakfast consumption with increasing age

Murphy, Pagano, Nachmani, Sperling, Kane & Kleinman, 1998; Murphy 2007; Pollit 1995
Alexy, Wicher & Kresting, 2010
Nutrients of Concern in Children’s Diets?

According to Dietary Guidelines:
- Calcium
- Vitamin D
- Potassium
- Vitamin A
  - Non-Hispanic Blacks have lowest intake

- Recommend increase consumption of foods containing these nutrients

The Dietary Guidelines for Americans
WHERE CAN STUDENTS GET THESE NUTRIENTS THEY NEED?

- **Vitamin A** as 2 hard boiled eggs
- **Riboflavin** as 1/3 cup of whole almonds
- **Phosphorus** as 1 cup of kidney beans
- **Vitamin D** as 3/4 ounce of cooked salmon
- **Calcium** as 10 cups of raw spinach
- **Potassium** as one small banana

An 8-ounce serving of milk, flavored or not, gives kids as much...
NUTRITION: A GLASS OF MILK

- One 8-ounce serving of milk contains approximately:
  
  - 30% Daily Value (DV)- Calcium:
    - bone formation, nerve function & blood clotting
  
  - 25% DV - Vitamin D
    - calcium absorption & bone mineralization
  
  - 11% DV – Potassium
    - muscle contraction, fluid balance, normal blood pressure
  
  - 10% DV - Vitamin A
    - normal vision, regulates cell growth, immune function

If students don’t drink milk…
What other food source can provide these same benefits?
How Much Milk?

The US Dietary Guidelines for Americans Recommends:

• Children age 2-8:

• Children ≥ 9:
  • includes yogurt and cheese

• Dairy Association promotes the
  • “3-servings daily”

But….fluid milk intake has decreased.
AMERICANS CONSUMING LESS FLUID MILK

Per Capita Consumption* of Fluid Milk  Gallons

1972: 30.9 gal

2012: 19.6 gal
WHAT ARE KIDS DRINKING?

FIGURE 3. DISTRIBUTION OF INTAKE (GRAMS) ACROSS BEVERAGE TYPES, US CHILDREN & ADOLESCENTS (2-18 YEARS)

[Diagram showing distribution of intake across beverage types.]

Other beverages include fruit drink (low calorie), alcoholic beverages, coffee, milk substitute/evaporated milk, and vegetable juice, each contributing less than 2%. Percentages do not add to 100% due to rounding.

Data source: NHANES 2005-06

If students don’t drink milk…

What other food source can provide these same benefits?
Yogurt

- Provides sources of dairy-related nutrients
  - Calcium, potassium, Vitamin D

- Included in the SBP as a meat alternative

- Limited research on the selection of yogurt in the SBP

- Explore whether adding yogurt would impact the selection of milk

So, We Asked the Question…
What are students selecting in school breakfast?

Purpose of the study:

• Examine milk and yogurt selection
  • Elementary, secondary
  • Boys, girls
• Students in SBP
• A large urban school district
• Variety of breakfast approaches
ABOUT THE PUBLIC SCHOOL DISTRICT

- 3rd largest district in Ohio
- Approximately 33,000 students
- 73% eligible for Free/Reduced meals
- Universal Breakfast program
- Pre-school through 12th grade
- 39 elementary schools
- 14 secondary schools

64% African-American
26% Caucasian
6% Multiracial
3% Hispanic
What Types of Milk Are Offered?

The Healthy, Hunger-Free Kids Act of 2010

- Requires schools to offer a variety of fluid milk consistent with the Dietary Guidelines

- Fat free flavored milk and fat free or 1% unflavored milk in the SBP (USDA, 2012).
DISTRICT BREAKFAST APPROACHES

Increase access to breakfast and breakfast participation:

1) Reimbursable Vending Machines
   secondary schools, 7 am -10 am

2) “Grab 'n Go”
   Cafeteria line or from a kiosk outside of the cafeteria line
   option to eat it in the cafeteria or in an alternate location (e.g. Classroom)

3) Breakfast in the Classroom
   Students served breakfast in their classrooms after the start of the school day

4) Family Style Meal Service
   Preschool only
WHAT DID WE DO?

1. Selected Schools:
   • Used a stratified random process
     - Elementary High SES (3)  Secondary High SES (2)
     - Elementary Low SES (3)  Secondary Low SES (2)

2. Created Observation Checklist

3. Site visits to each of the 10 schools
   • Discussions with food service managers and staff
   • Best location to observe students breakfast selection
WHAT DID WE DO?

4. Conducted observer training (4 observers)
   - Practiced using the checklist
   - Collected information on 30 students
   - Compared results for agreement

5. Direct Observations at breakfast
   - Recorded selections in the 10 schools
   - Wednesday in January and February 2013

Observed: 2848 students
   - 1,876 elementary students
   - 972 secondary students
   - Cafeteria, classroom, preschool family-meal, reimbursable vending machines, grab and go kiosks.
ELEMENTARY MILK SELECTION

▶ 78% of Elementary students chose milk
  ▶ (either white or chocolate)

▶ More Elementary students selected white milk (60.18%) than chocolate milk (39.82%)

▶ Of those who selected milk, 50% were boys and 50% girls

Data Source: Observation Data, 2013
SECONDARY MILK SELECTION

- 52% of Secondary students chose milk
  - either white or chocolate

- More secondary students selected chocolate milk (67.79%) than white milk (32.21%)

- Of those selecting milk, 64.43% boys selected milk as compared to 35.57% girls.

Data Source: Observation Data, 2013
HOW MUCH YOGURT WAS SELECTED?

- 10% of both elementary and secondary students selected yogurt as a breakfast entree
Total Number of Students Who Selected Yogurt

197 elementary students selected yogurt
97 secondary students selected yogurt

Breakdown of yogurt selection by gender and type of school:

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th>Secondary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male students who selected Yogurt</td>
<td>101</td>
<td>41</td>
</tr>
<tr>
<td>Female students who selected Yogurt</td>
<td>96</td>
<td>56</td>
</tr>
<tr>
<td>Total # Students selecting Yogurt</td>
<td>197</td>
<td>97</td>
</tr>
</tbody>
</table>
WHO IS MORE LIKELY TO CHOOSE YOGURT: BOYS OR GIRLS?

- In Elementary school:
  - There was no difference between girls and boys in the selection of yogurt.

- In Secondary school:
  - Girls were more likely to choose yogurt than boys.

Data Source: Observation Data, 2013
WHO IS MORE LIKELY TO SELECT YOGURT?

• Elementary students who did not choose milk were more likely to choose yogurt than the students who chose white or chocolate milk.

• Likelihood of choosing yogurt 2-3 times higher.

Data Source: Observation Data, 2013
WHO IS MORE LIKELY TO SELECT YOGURT?

- Secondary students who did no choose milk were more likely to choose yogurt than the students who chose white milk.

  - Likelihood of choosing yogurt 3.5 times higher

Data Source: Observation Data, 2013
WHERE IS YOGURT MORE LIKELY TO BE SELECTED?

Yogurt Selection by Meal Service for Elementary School Breakfast Participants

<table>
<thead>
<tr>
<th>Meal Service</th>
<th>Yogurt Selection (Of Students Observed)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (n = 197)</td>
<td>No (n=1679)</td>
</tr>
<tr>
<td>Cafeteria Line Service</td>
<td>117</td>
<td>1499</td>
</tr>
<tr>
<td>Preschool Family Environment Meal Service</td>
<td>70</td>
<td>98</td>
</tr>
<tr>
<td>Classroom Service</td>
<td>10</td>
<td>82</td>
</tr>
<tr>
<td>Total</td>
<td>197</td>
<td>1679</td>
</tr>
</tbody>
</table>

- No difference between the classroom service approach and cafeteria line in the selection of yogurt.
- Students who were in Preschool Family Environment meal service were 12 times more likely to choose yogurt.
WHERE IS YOGURT MORE LIKELY TO BE SELECTED?

<table>
<thead>
<tr>
<th>Meal Service</th>
<th>Yogurt Selection (Of students observed)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (n=97)</td>
<td>No (n=875)</td>
</tr>
<tr>
<td>Cafeteria Line Service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n=749</td>
<td>81</td>
<td>668</td>
</tr>
<tr>
<td>Vending Inside the Cafeteria</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n=118</td>
<td>2</td>
<td>116</td>
</tr>
<tr>
<td>Vending Outside of Cafeteria</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n=105</td>
<td>14</td>
<td>91</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n=972</td>
<td>97</td>
<td>875</td>
</tr>
</tbody>
</table>

5 breakfast vending machines inside the cafeteria
2 breakfast vending machines outside
Summary

Yogurt on the breakfast menu:
- provided added access to dairy foods
- did not impact milk selection
  **Yogurt selectors:** Non-milk drinkers, secondary school females, preschoolers

Decreasing trend of milk selection:
- elementary to secondary school (78% to 52%)
- Need to enhance dairy selection in adolescence

Flavored milk and yogurt:
- Offer opportunity to provide essential nutrients to adolescents who may not choose dairy.
- Challenge perception- students will select chocolate if available (at elementary)
Summary

Yogurt selected:
- 10% of both elementary and secondary students.

Children’s Food choices:
- influenced by exposing them to new foods (e.g. yogurt) within the school meal program
- Influenced by meal service approaches such as the Family Meal Environment

Breakfast vending machines:
- outside the cafeteria offered access to breakfast & dairy
WHAT CAN YOU DO?

Seek to understand:
► What are the trends of milk and yogurt selection in your schools?

Offer variety of dairy choices
► Yogurt cups
► Yogurt parfaits
► Yogurt smoothies
► Recipes using yogurt
What Can You Do?

- Provide exposure to yogurt at a younger age
  - builds familiarity
  - additional opportunity for dairy/calcium.

- Provide messaging/promotions to secondary students
  - benefits of yogurt/dairy
  - Girls-
  - Athletes-
What Can You Do?

Make available a variety of low-fat flavored milk

- Milk (even flavored) provides important nutrients that promote growth & bone health
- Flavored milk has not shown negative effects on weight
- Not offering flavored milk has been related to a decline in milk selection (Hanks, Just & Wansink, 2013)
Final Thoughts

- Other observations:
  - Important role of those serving student meals
  - More than just food being served at breakfast
    - Meeting students needs on more than physical level
Questions? Thank You!