

# Using the *MyPyramid Equivalents Database* to Estimate MyPyramid Equivalents for the Third School Nutrition Dietary Assessment Study

Elizabeth Condon, MS, RD

Mary Kay Fox, M.Ed

33<sup>rd</sup> National Nutrient Databank  
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## **Third School Nutrition Dietary Assessment Study (SNDA-III)**

- **Nationally representative sample of 2,314 students in grades 1 to 12 in 2005**
- **In-person 24-hour dietary recalls (on school days)**
- **Data collected and processed using USDA's Dietary Intake Data System**
  - **Food and Nutrient Database for Dietary Studies (FNDDS)**

## Gap in SNDA-III Data

- Answered questions about diet *adequacy*
  - Usual nutrient intake
  - Prevalence of inadequate and excessive intake
  
- Did not assess overall diet *quality*
  - Data on intakes of MyPyramid food groups not available
  - MyPyramid data needed to assess diet quality using the Healthy Eating Index-2005

# Obtaining MyPyramid Equivalents for SNDA-III



**Foods  
in SNDA-III  
Data**



***MyPyramid  
Equivalents  
Database***



**Number of  
MyPyramid  
equivalents  
in each food**

## *MyPyramid Equivalents Database, Version 1.0*

- Includes data for FNDDS food codes reported in:
  - **NHANES 2001-2002**
  - NHANES 1999-2000
  - CSFII 1994-1996, 1998

# 32 MyPyramid Food Groups and Subgroups

## **Fruit Group** *cup equivalents*

### **Total fruits**

Citrus fruits, melons, berries  
Other fruits

## **Milk Group** *cup equivalents*

### **Total Milk**

Milk  
Yogurt  
Cheese

## **Meat and Beans Group** *oz. equivalents*

### **Meat, poultry and fish**

6 subgroups\*

### **Eggs**

**Cooked dry beans and peas**  
**Soybean products**  
**Nuts and seeds**

## **Vegetable Group** *cup equivalents*

### **Total vegetables**

Dark-green vegetables  
Orange vegetables  
White potatoes  
Other starchy vegetables  
Tomatoes  
Other vegetables

## **Grain Group** *oz. equivalents*

### **Total grain**

Whole grain  
Non-whole grain

## **Oils** *grams*

### **Discretionary oil**

## **Discretionary Calories**

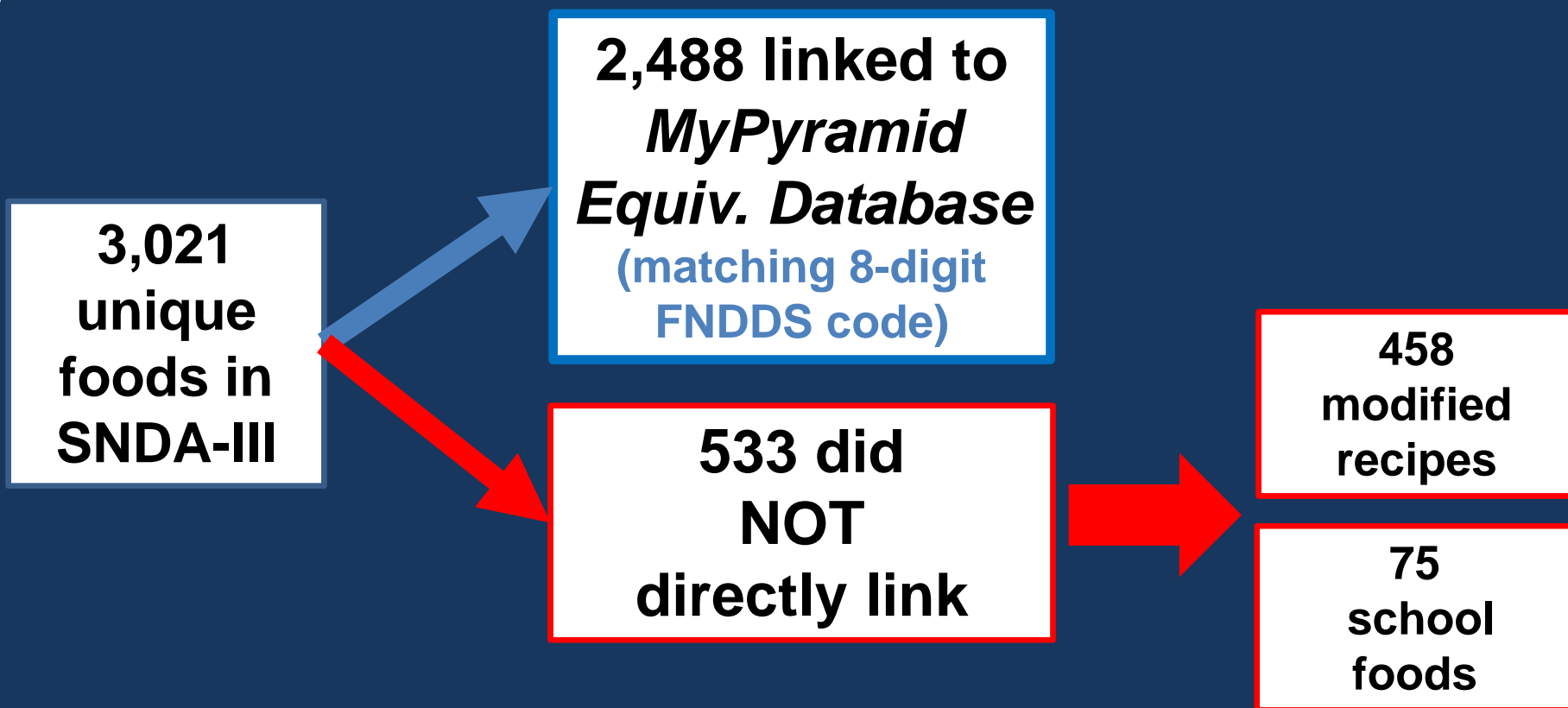
**Discretionary solid fat** (*grams*)

**Added sugars** (*tsp*)

**Alcoholic beverages** (*drinks*)

\*Subgroups include: meat; organ meats, frankfurters, sausage, luncheon meats; poultry; fish high in omega-3 fatty acids and fish low in omega-3 fatty acids.

# Using the *MyPyramid Equivalents Database* for SNDA-III



# SNDA-III Foods That Didn't Link Did NOT Have 8-Digit FNDDS Food Codes

- **Modified recipes**
  - 6-digit food codes specific to SNDA-III
  - *MyPyramid Equiv. Database, version 1.0* does not include modified recipes for NHANES 2001-2002
  
- **Commercially prepared school foods**
  - 6-digit food codes created for SNDA-III

# Why Not Link Modified Recipes to Their “Closest Match?”

Broccoli, cooked from fresh, fat added

FNDDS Recipe Ingredients	
1	BROCCOLI, BOILED, DRND
2	MARGARINE, REG, STICK



SNDA-III Modified Recipe Ingredients	
1	BROCCOLI, BOILED, DRND
2	OIL, OLIVE

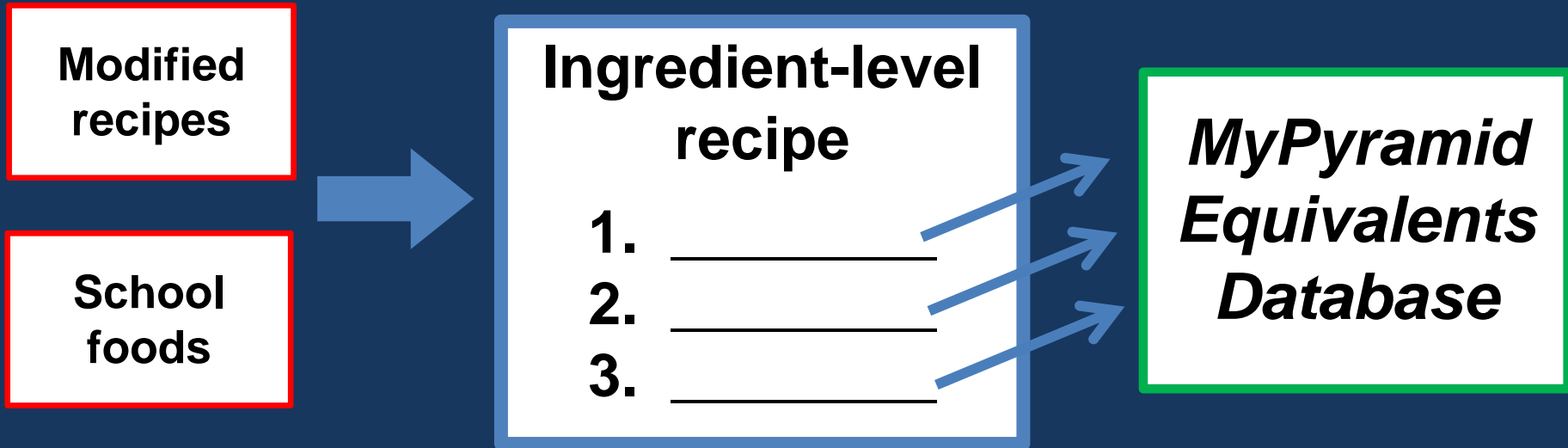
	MyPyramid Equivalents per 100 grams	
	Discretionary Oil	Discretionary Solid Fat
Broccoli with MARGARINE added	0 g	2.29 g
Broccoli with OLIVE OIL added	2.81 g	0 g

# Why Not Link Commercially Prepared School Foods to Their “Closest Match?”



(per 100 grams)	<b>Tony's® Smart Pepperoni Pizza</b>	<b>FNDDS Pizza with meat</b>
<b>Calories</b>	238 kcal	293 kcal
<b>Total Fat</b>	9.3 g	14.7 g
<b>Saturated Fat</b>	3.8 g	6.0 g
<b>Ingredients:</b>	<ul style="list-style-type: none"> <li>• Park skim mozzarella</li> <li>• <b>Mozzarella substitute</b></li> <li>• Pepperoni, beef &amp; pork</li> <li>• <b>Soy burger</b></li> <li>• Wheat flour, white</li> <li>• <b>Barley flour</b></li> <li>• <b>Soy flour</b></li> <li>• <b>Cornmeal</b></li> </ul>	<ul style="list-style-type: none"> <li>• Park skim mozzarella</li> <li>• Parmesan cheese</li> <li>• Pepperoni, beef &amp; pork</li> <li>• Sausage, beef &amp; pork</li> <li>• Ground beef, 75% lean</li> <li>• Wheat flour, white</li> <li>• Shortening</li> </ul>

# Our Solution: Link at the Ingredient Level



# Challenges with Linking Ingredients

- Ingredient codes differed

Sausage roll		
	Ingredients	SR Code
1	BISCUITS, PLAIN/BUTTERMILK, REFRIGERATED DOUGH, LOW-FAT	18012
2	PORK & BF SAUSAGE, FRESH, CKD	7065
3	TURKEY SAUSAGE, REDUCED FAT, BROWN & SERVE, CKD	7066



<i>MyPyramid Equiv. Database</i>	
FNDDS	Food Code
	52101020
	25221460
	25221860

# Challenges with Linking Ingredients (cont.)

- Complex recipes with raw or dry ingredients

Fish fillet, breaded, fried		Moisture %: -5 Fat %: 9
	Ingredients	SR Code
1	POLLOCK, RAW	5011
2	WHEAT FLOUR, WHITE, ALL PURPOSE, ENRICHED	20081
3	WATER, MUNICIPAL	14429
4	CORNSTARCH	20027

<i>MyPyramid Equiv. Database</i>
<b>FNDDS Food Code</b>
50010000
94000000
56201750



# Alternative Solution When Ingredient Linking Wasn't Possible

**Complex  
recipes**



**Link to similar  
modified recipe  
(CSFII 1994-96, 98)**

**OR**

**Link to “closest match”  
and ratio adjust data**

## Ratio Adjusting: Selected MyPyramid Equivalents

- Based on comparison of nutrients in SNDA-III food and "closest match" food in *MyPyramid Equiv. Database*

(per 100 grams)	Total Fat	Discretionary Solid Fat
<i>SNDA-III:</i> Fish fillet, breaded, fried	7.7 g	???
<i>MyPyramid Equiv. Database:</i> Fish stick, patty or fillet, breaded, fried	11.1 g	9.8 g

# Ratio Adjusting: Selected MyPyramid Equivalents (cont.)

Adjusted discretionary solid fat =

$$\left( \frac{\text{SNDA-III total fat}}{\text{Closest match total fat}} \right) \times \text{Closest match solid fat}$$

(per 100 grams)	Total Fat	Discretionary Solid Fat
<i>SNDA-III:</i> Fish fillet, breaded, fried	7.7 g	6.8 g
<i>MyPyramid Database:</i> Fish stick, patty or fillet, breaded, fried	11.1 g	9.8 g

## Conclusions

- **Linking modified recipes and specially-formulated foods at the ingredient level can improve the accuracy of MyPyramid equivalents data.**
- **The latest version of the *MyPyramid Equivalents Database* (v. 2.0) has data for modified recipes.**
- **An ingredient-level MyPyramid equivalents database would be ideal.**

## Additional Information

- **SNDA-III was funded by USDA's Food and Nutrition Service**
  - SNDA-III Final Reports available online:  
<http://www.fns.usda.gov/ora/MENU/Published/CNP/cnp.htm>
- **Work to link SNDA-III data to *MyPyramid Equivalents Database* was funded by USDA's Economic Research Service**
  - Final report forthcoming (summer/fall 2009)