



What is the Difference Between FNDDS and SR?

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Objectives of Presentation

- Review FNDDS
- Compare FNDDS and SR
- Illustrate differences through some examples



Contents of FNDDS

- 7,000+ food codes
 - basic foods
 - mixed dishes
 - brand names
- 30,000 portion weights
 - wide variety, as people report portions
- 65 nutrient values for each food
 - no missing values



Purpose of FNDDS

- Process food intake records & calculate nutrient intakes for What We Eat In America, NHANES
 - 5,000 individuals per year
 - two 24-hour recalls

- Also used to create “value-added” databases
 - USDA Food Patterns Equivalents Database
 - Food Intakes Converted to Retail Commodities Database
- Can be used for other dietary studies/projects



Source of nutrient values

- Calculated from basic data in USDA National Nutrient Database for Standard Reference (SR)
- ~2,900 SR codes → ~7,000 FNDDS food codes
 - ~1/3 FNDDS codes are direct 1:1 links to SR items
 - ~2/3 are created by combining multiple SR codes
- List of SR codes, amounts, retentions and adjustment factors
 - provided as part of database
 - documents calculation of nutrients for FNDDS food codes

Updates to FNDDS

Version	Survey period	SR used	Date released
FNDDS 1.0	2001-2002	16-1	June 2004
FNDDS 2.0	2003-2004	18	June 2006
FNDDS 3.0	2005-2006	20	May 2008
Vitamin D Addendum	2005-2006	22, primarily	July 2009
FNDDS 4.1	2007-2008	22	July 2010
FNDDS 5.0	2009-2010	24	March 2012

Comparing FNDDS and SR

	<u>FNDDS</u>	<u>SR</u>
Produced by:	FSRG	NDL
Primary purpose:	Assess food & nutrient consumption (WWEIA, NHANES)	Disseminate composition data on US foods ("standard reference")
Number of foods:	~7,250	~7,900

Comparing FNDDS and SR (continued)

	<u>FNDDS</u>	<u>SR</u>
Type of foods:	"foods as consumed" many mixtures includes "default" foods	both raw and prepared foods
Portion weights available:	Most foods have one or more volume or density weights (cup, cubic inch, etc)	Some foods have only 100 gm portions, without any weights for household measures

Comparing FNDDS and SR (continued)

	<u>FNDDS</u>	<u>SR</u>
Number of nutrients/food components:	65, including vit D (no missing values)	Up to 146 (some values missing)
Source of nutrient values:	Calculated from nutrients of ~2,900 SR codes	Scientific literature, food industry, lab analyses

Comparing FNDDS and SR (continued)

	<u>FNDDS</u>	<u>SR</u>
Frequency of updates:	every 2 years corresponds with 2-year WWEIA, NHANES survey period	yearly
Code numbering scheme:	8 digit codes, ~280 specific food groups/subgroups	5 digit codes, 25 food groups

**Food Examples
that illustrate the differences
between FNDDS and SR**



FNDDS is available from:

<http://www.ars.usda.gov/ba/bhnrc/fsrg>

- **Download as**
 - SAS dataset
 - Microsoft Access database
 - ASCII files
- **Documentation and User Guide**
- **What's in the Foods You Eat Search Tool**

USDA Recipe Protocol Project: Go Behind the Scenes of What We Eat in America

Carrie Martin
Food Surveys Research Group
NNDC Workshop
March 25, 2012



Food and Nutrient Database for Dietary Studies (FNDDS)

- Used to code foods and amounts to determine nutrient content of foods
- Food descriptions, mainly generic
~ 7,000 food codes
- Food portions and weights
30,000+ portions in grams
- Food energy & 64 nutrients based on USDA National Nutrient Database for Standard Reference (SR)

SR and FNDDS

3000 SR ingredients → 7000 FNDDS foods

1/3 FNDDS foods have 1 SR ingredient



2% Milk in SR



2% Milk in FNDDS



Tortilla chips in SR



Tortilla chips in FNDDS

SR and FNDDS

2/3 FNDDS foods have > 1 SR ingredient



boiled beans



vegetable oil



salt



cooked beans in FNDDS

SR and FNDDS

- FNDDS SRLinks file provides the relationship between FNDDS codes and SR codes used to calculate FNDDS nutrient profiles
- How are FNDDS recipes developed and revised?

Recipe Protocol Project (RP²)

- Evidence-based approach for determining ingredient components and amounts
- Involves creating new recipes or revising existing recipes as part of continuous systematic review
- Launched in 2010

Methods

1. Identify and review current recipe sources
 - Ingredients
 - Amounts
 - Methods of preparation
 - Sources include cookbooks, commercial product labels, and internet research

Methods

2. Develop protocols for similar food groupings
3. Apply evidence-based protocols to recipe ingredients and amounts as appropriate

Protocol Example

Cooked Rice with Fat, Sauce, and/or Vegetables

<u>Basic Ingredient -</u>	<u>Amount</u>
Cooked plain rice (white, brown, wild)	1 cup
Salt ^{1,2,3}	1/6 tsp

<u>Additions –</u>	
Fat (vegetable oil, unless otherwise specified) ¹	1 tsp
Gravy or sauce (cheese, cream-, soy- or tomato-based) ³	1/3 cup
Vegetable ³	1/3 cup

Recipe Sources:

¹Joy of Cooking (2006)

²The New Best Recipes (2004)

³Commercial product labels and preparation instructions

Application of Rice Protocols in FNDDS

- Cooked rice with fat, sauce, and/or vegetables
- Rice and dried beans
- Spanish rice
- Cooked rice with salt

Protocols for Commercial Foods

- Protocols may use single SR code or single SR code plus an addition:
 - Cookies, cakes
 - Condensed soup
 - Added liquid
- Each food code within a category evaluated

Project Progress

- Evidence-based protocols developed and will be applied to approximately 1/3 of the FNDDS 6.0 food codes including:
 - Rice
 - Bread and sweet bread, muffins, rolls and pastries
 - Eggs
 - Cookies, brownies and cakes
 - Soups
 - Mexican dishes
 - Pizza
 - Fish
- Plan to publish documentation of the recipe protocols concurrent with FNDDS release

Questions?

<http://www.ars.usda.gov/ba/bhnrc/fsrg>



From the Fork to the Farm: Food Intakes Converted to Retail Commodities Database

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March 25, 2012



Objective



- Food Consumed → Retail Commodities
- Why?
 - No such databases are currently available
 - Fills the gap, links food consumption and food production
 - Has unique applications

Food Intakes Converted to Retail Commodities Database



Applications

Estimate the amounts of retail commodities consumed by age, gender, income, and ethnic groups

Look at specific commodities (e.g. cheese or beef)

Link to food price database – affordability

Food Intakes Converted to Retail Commodities Database



- 8 major commodity categories
 - Dairy products (10)
 - Fats and oils (5)
 - Fruits (14)
 - Grains (5)
 - Meat, poultry, fish and eggs (10)
 - Nuts (3)
 - Caloric sweeteners (1)
 - Vegetables, dry beans and legumes (17)
- 65 commodities in total

Major Food Categories and Commodities



Dairy Products	
Total dairy product	Butter
Total fluid milk	Cheese
- Whole, 2%, 1% and skim	Yogurt
	Other dairy
Fats and Oils	
Total fats and oils	Shortening
Margarine	Other oils
Salad and cooking oils	

Major Food Categories and Commodities



Fruit	
Total fruit	Melons
Total apples	Total oranges
- Apples from fruit	- Oranges from fruit
- Apples from juice	- Oranges from juice
Bananas	Other citrus fruits
Berries	Stone fruits
Grapes	Tropical fruits
Grains	Nuts
Total grains	Total nuts
Corn flour and meal	Peanuts
Oats	Tree nuts
Rice	
Wheat flour	

Major Food Categories and Commodities



Meat, poultry, fish and eggs	
Total meat, poultry & fish and eggs	Eggs, shell included
Total meat	Eggs, without shell
- Beef	
- Pork	
Total poultry	
- Chicken	
- Turkey	
Finfish and shellfish	
Caloric Sweeteners	
Total caloric sweeteners	

Major Food Categories and Commodities



Vegetables	
Total vegetables	Onions
Total Brassica	Peppers
- Broccoli and cauliflower	Tomatoes
Carrots	Sweet corn
Celery	Total roots and tubers
Cucumbers	- Potatoes
Green Peas	Snap beans
Total leafy vegetables	Dry beans and peas
- Lettuce	(legumes)

Foods Not Converted to Commodities or Not Included in FICRCD



- Infant formula
- Soy-protein isolate
- Broth
- Eggs other than chicken eggs
- Herbs other than fresh parsley, cilantro
- Spices
- Seeds (flax, sunflower, sesame)
- Sugar substitutes



Methodology

Two major steps:

1. Disaggregate survey foods to ingredients and assign food ingredients to commodities
2. Apply conversion factors and determine the amounts of 65 commodities per 100 grams of each survey food



Disaggregation of Foods

Egg omelet or scrambled egg, with cheese

1. Egg^a
2. Salt^b
3. Margarine^a
4. Milk^a
5. Cheese^a

^aA commodity

^bNot a commodity

Application of Conversion Factors



Foods converted to a single commodity form

- Canned, frozen, dried fruits and vegetables → fresh with refuse
- Fruit and vegetable juices → fresh with refuse
- Cooked grains → uncooked flour, meal, or grains without husk
- Meat, poultry, and fish → uncooked, boneless
- Nuts → raw nuts without shell

Findings: WWEIA, NHANES 2001-2002



- FICRCD can be used to determine the intake and major food sources of commodities
- Cheese commodity -
 - Cheese commodity was most frequently consumed as part of a mixed dish or in combination with another food item
 - Sandwiches represent the top source of cheese commodity in the diet regardless of age, gender or race/ethnicity

Conclusion



- FICRCD converts foods consumed in national food surveys to commodity equivalents
- Currently available for the following surveys:
 - CSFII 1994-1996 and 1998
 - NHANES 1999-2000
 - NHANES 2001-2002

Questions?

<http://www.ars.usda.gov/ba/bhnrc/fsrg>

Food Patterns Equivalents Database: A Tool To Measure Dietary Guidelines Compliance

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36th National Nutrient Databank Conference
Preconference Workshop
Food Surveys Research Group
ARS, USDA
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What We Eat In America, NHANES: Nutrition Monitoring

- Food intake – what is consumed?
- Nutrient intake
- What else?

What Else?

Dietary Guidelines compliance

- How well Americans eat with respect to the Dietary Guidelines recommendations?

What is Needed?

- A tool to convert the amounts of foods and beverages reported in WWEIA, NHANES to USDA Food Patterns Equivalents

What Is In Each Food Patterns Group?

Fruits

- Fruits
- Fruit juices

Vegetables

- Dark green
- Starchy
- Red and orange
- Other
- Beans & peas (legumes)

Grains

- Whole grains
- Non-whole grains



Protein

- Meat, Poultry, Fish
- Eggs
- Nuts and Seeds
- Soy products
- Dry beans & peas (legumes)

Dairy

- Milk
- Yogurt
- Cheese
- Milk-based desserts

Food Patterns Components

Oils

Alcoholic Beverages

Added Sugars

Solid Fats

USDA Food Patterns Equivalents Database (FPED)

- Converts foods and beverages in the FNDDS to equivalent amount of Food Patterns components
- FPED is computed per 100 grams of food/beverage

FPED Components	Units
Dairy, Fruits, Vegetables	Cup equivalents
Grains , Protein foods	Ounce equivalents
Added sugars	Teaspoon equivalents
Alcoholic beverages	No. of drinks
Oils, Solid fats	Grams

Computation of Food Patterns Equivalents

Food	Weight of One Cup Equivalent (g)	Number of Cup Eq. per 100g of Food
Skim milk	245	$100/245=0.40$
Oranges	185	$100/185=0.54$
Orange juice	245	$100/245=0.40$
Tomatoes	170	$100/170=0.59$
Broccoli	90	$100/90 =1.11$
Dry beans, peas cooked (legumes)	180	$100/180=0.56$

Computation of Food Patterns Equivalents

Food	Weight of One Ounce Equivalent (g)	Number of Ounce Eq. per 100g Food
Nuts and seeds	$28.35/2$	7.06
Peanut butter	16	6.25
Lean meat, poultry, fish	28.35	3.52

In addition:

Nuts, seeds, and fish have oils
Meat and poultry have solid fat

Computation of Food Patterns Equivalents

Food	Definition of One Equivalent	Unit
Alcoholic beverages	14 grams of alcohol	1 drink
Added sugars	4.2 grams of total sugar	1 teaspoon
Oils and Solid fats	1 gram	1 gram

Computation of Food Patterns Equivalents

FP Component	Food	Amount of Key Nutrient	No. of equivalents
Alcoholic beverages	Wine	11% alcohol	$11/14=0.79$ drink
Added sugars	Honey	82% total sugar	$82/4.2 =19.5$ tsp.
Oils	Soybean oil	100% total fat	$100/1=100$ grams
Solid fats	Butter	81% total fat	$81/1= 81$ grams

FNDDS 4 - SR Links File Milk, NFS					
Food code	Main food description	Seq. No.	SR code	SR description	Amount per 100g
11100000	Milk, NFS	1	1077	Milk, whole, 3.25% milkfat	34
11100000	Milk, NFS	2	1079	Milk, reduced fat, fluid, 2% milkfat	35
11100000	Milk, NFS	3	1082	Milk, lowfat, fluid, 1% milkfat,	14
11100000	Milk, NFS	4	1085	Milk, nonfat, fluid (fat free or skim)	17

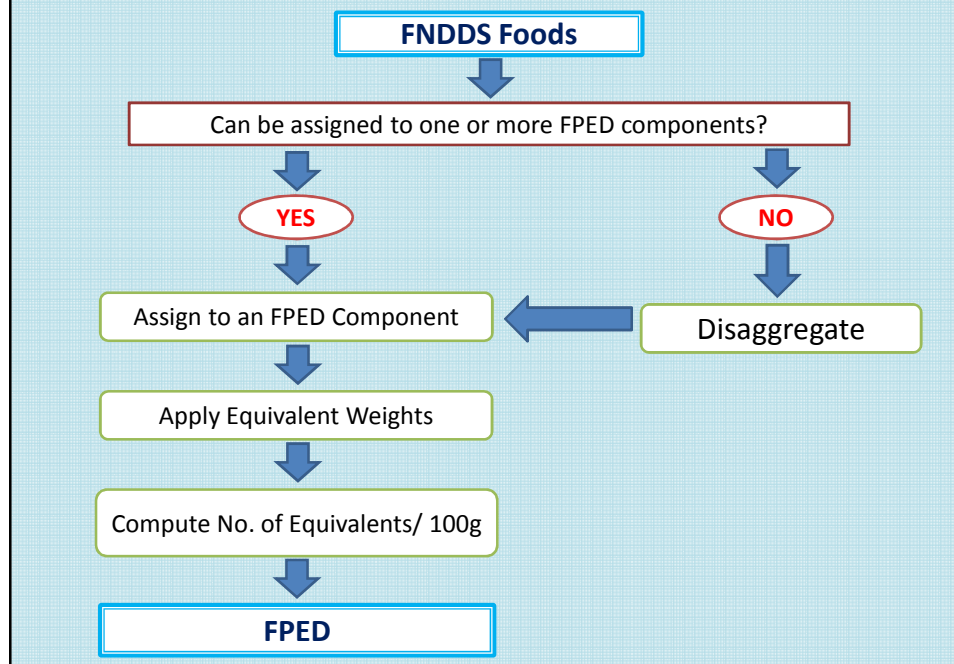
FNDDS 4 - SR Links File Cheese Pizza					
Food code	Main food description	Seq. No.	SR code	SR description	Amount per 100g
58106230	Pizza, cheese, thick crust	1	21300	Pizza with cheese topping, thick crust	100

↓

Major Ingredients

Wheat flour
Tomato sauce
Cheese
Partially hydrogenated vegetable oil

Overview of the FPED Process



FPED Team

Shanthy Bowman

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Brian Barrows [Mar. 2011-12]

Alanna Moshfegh

Discover Gems from FSRG



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U. S. Department of Agriculture



Where to start

www.ars.usda.gov/ba/bhnrc/fsrg



Data Tables

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WHAT WE EAT IN AMERICA
... source of data on food and nutrient intakes of Americans

Data Tables | Data Briefs | Research Articles | Overview | Publications | Dietary Data | Links

2007-2008 | 2005-2006 | 2003-2004 | 2001-2002

Tables 1-40 as a single file (235 pages)

Nutrient Intakes: From Food

- 1 by Gender and Age
- 2 by Race/Ethnicity
- 3 by Income (dollars)
- 4 by Income (% poverty threshold)

Nutrient Intakes: From Food and Dietary Supplements

- 5 by Gender and Age
- 6 by Race/Ethnicity
- 7 by Income (dollars)
- 8 by Income (% poverty threshold)

Energy Intakes: Percent from Protein, Carbohydrate, Fat and Alcohol

- 9 by Gender and Age
- 10 by Race/Ethnicity
- 11 by Income (dollars)
- 12 by Income (% poverty threshold)

Away from Home: Percent of Nutrients

- 13 by Gender and Age
- 14 by Race/Ethnicity
- 15 by Income (dollars)
- 16 by Income (% poverty threshold)

Breakfast: Percent of Nutrients

- 17 by Gender and Age
- 18 by Race/Ethnicity
- 19 by Income (dollars)
- 20 by Income (% poverty threshold)

Lunch: Percent of Nutrients

- 21 by Gender and Age
- 22 by Race/Ethnicity
- 23 by Income (dollars)
- 24 by Income (% poverty threshold)

Dinner: Percent of Nutrients

- 25 by Gender and Age
- 26 by Race/Ethnicity
- 27 by Income (dollars)
- 28 by Income (% poverty threshold)

Vitamin D

What We Eat in America, NHANES 2005-2008

Table 21. Total Vitamin D Intake: Report Reporting and Mean (Standard Error) Intake and Intake from Food and Dietary Supplements by Gender and Age, in the United States, 2005-2008 (Continued)

Gender and age (years)	Percent reporting supplement intake (% (SE))	All Intakes						Supplement Intake						Total Intake
		Food		Supplement		Food plus supplement		Food		Supplement		Food plus supplement		
		Mean (SE)	% (SE)	Mean (SE)	% (SE)	Mean (SE)	% (SE)	Mean (SE)	% (SE)	Mean (SE)	% (SE)	Mean (SE)	% (SE)	
Male and female:														
2-11	16 (3.8)	432 (43)	63 (0.22)	2.1 (0.76)	84 (0.22)	383 (43)	163 (4.6)	0.00	14 (0.40)	114 (0.22)	4.5 (0.22)			
12-17	11 (3.9)	1136 (114)	1.8 (0.27)	1.6 (0.27)	83 (0.22)	383 (43)	261 (7.1)	0.00	14 (0.40)	143 (0.22)	1.7 (0.22)			
Male:														
20-39	12 (3.6)	980 (99)	4.9 (0.36)	1.5 (0.46)	81 (0.20)	39	4.0 (0.88)	10.7 (0.40)	16.7 (0.23)	4.9 (0.28)				
40-59	23 (2.7)	343 (33)	2.2 (0.42)	1.2 (0.76)	158 (2.88)	283	2.9 (0.76)	2.0 (0.46)	2.9 (0.28)	2.1 (0.46)				
60 and over	42 (3.2)	1339 (140)	4.8 (0.34)	8.0 (0.22)	129 (0.18)	111	4.9 (0.22)	14.1 (0.12)	19.1 (0.24)	4.4 (0.14)				
20 and over:	25 (3.8)	3862 (392)	5.0 (0.22)	5.9 (0.86)	83 (0.15)	363	3.5 (0.22)	17.6 (0.30)	21.5 (0.28)	4.8 (0.28)				
Female:														
20-39	10 (3.8)	995 (101)	3.1 (0.36)	1.1 (0.46)	50 (0.40)	136	3.4 (0.88)	11.7 (0.40)	15.1 (0.28)	3.3 (0.28)				
40-59	18 (2.7)	273 (27)	2.0 (0.42)	0.8 (0.76)	120 (2.88)	221	2.0 (0.46)	1.1 (0.46)	3.1 (0.46)	2.3 (0.46)				
60 and over	15 (3.2)	1061 (107)	3.3 (0.34)	3.9 (0.22)	143 (1.88)	477	3.0 (0.14)	12.1 (0.12)	15.1 (0.14)	3.7 (0.14)				
20 and over:	11 (3.6)	2079 (210)	3.0 (0.20)	4.0 (0.46)	93 (0.12)	789	4.3 (0.20)	11.1 (0.12)	12.8 (0.18)	3.4 (0.18)				
All Individuals:														
Total Intake	28 (3.2)	3421 (342)	4.6 (0.22)	4.1 (0.40)	87 (0.14)	1788	3.6 (0.18)	14.1 (0.26)	13.2 (0.18)	4.4 (0.14)				

Source: USDA ARS. NHANES 2005-2008. Intake values are mean and standard error (SE) for the population. Percent reporting supplement intake is based on the survey. For details, see the NHANES 2005-2008 Data User Guide. <http://www.ars.usda.gov/food/>

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Table Footnotes



Data Briefs





Sodium Intake of the U.S. Population

What We Eat in America, NHANES 2007-2008

Mary K. Hoy, PhD, RD, Joseph D. Holman, MS, Stephanie Murray, PhD, Debra C. Stearns, MS, RD, and Gregory J. Millington, PhD, RD

Food Surveys Research Group
Dietary Data Anal. No. 8
October 2011

Highlights

- In 2007-2008, the average sodium intake of the U.S. population aged two years and older was 3,416 mg per day.
- Sodium intake has remained relatively unchanged and no comparable to sodium consumed in the 1994-1998 survey.
- Sodium intake is related to calorie intake. As a result of differences in calorie intake, the sodium intake of males is higher than that of females.
- The amount of sodium per 100 kcal is similar between males and females within age categories.
- On a given day, most individuals consume more sodium than the recommendation of less than 2,300 mg per day.
- Mixed dishes that contain grains, meats, beans, vegetables, etc. constitute the largest proportion to total sodium intake – 37%. Desserts, poultry, fish and eggs contribute 19%, about half of that coming from deli-served meats.

The scientific literature indicates a strong relationship between increasing levels of sodium intake to which risk for hypertension, as children from birth through 18 years, there is suggestive evidence that as sodium intake decreases, blood pressure decreases (5). Further, increasing evidence suggests that sodium may have independent, direct harmful effects on stroke risk, cardiovascular disease, renal disease, osteoporosis, and risk for gastric cancer (1, 2). The 2010 Dietary Guidelines for Americans recommend a sodium intake of less than 2,300 mg per day, with further reductions to 1,500 mg for certain high-risk groups (including individuals aged 51 years and older and individuals of any age who are African-American, or have hypertension, diabetes, or chronic kidney disease. Data on the intake of sodium in the United States as reported in What We Eat in America, NHANES 2007-2008 are presented in this report. The implications of these findings to total sodium intake to also discussed.


How much sodium is the U.S. population consuming?

In 2007-2008, the average sodium intake of the U.S. population aged two years and older was 3,416 mg per day. As Figure 1 illustrates, intake of sodium overall was higher than females (> 3,600). Males have higher sodium than younger children, and adults through 35 years have higher sodium than adults 60 and older (> 3,000). These intakes have remained stable since the continuous NHANES survey was begun in 1999 and are also comparable to intakes in the 1994-1998 Continuing Survey of Food Intakes by Individuals (data not shown).

Figure 1. Sodium intake by age and gender, 2007-2008




Source: What We Eat in America, NHANES 2007-2008. The 2000-2009 survey weights.



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- Nutritional Equivalency Database
- Food Created/Converted to NDS# 2.0/6.0/8.0/9.0
- USDA Automated Multiple-Pass Method
- FRAS Database
- USDA Food Surveys (2003 through 1999)
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— Source of Data on Food and Nutrient Intakes of Americans

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Food and Nutrient Database for Dietary Studies

- The Impact of Increasing Intake and Oils Intake in the US Food and Nutrient Database for Dietary Studies. *Am J Clin Nutr*. 2008;88(5):1195-1205.
- Quality Control Procedures for USDA's Food and Nutrient Database for Dietary Studies. *Am J Clin Nutr*. 2008;88(5):1195-1205.
- USDA Food and Nutrient Database for Dietary Studies: Released on the Web. *Am J Clin Nutr*. 2008;88(5):1195-1205.
- Food and Nutrient Database: Software Designed to Enhance Data Quality. *Am J Clin Nutr*. 2008;88(5):1195-1205.
- Database for Analyzing Dietary Data: The Link Between What We Eat in America and the Food and Nutrient Database. *Am J Clin Nutr*. 2008;88(5):1195-1205.
- Tracking Nutrient Changes for Franchise Analysis in the NHANES Database. *Am J Clin Nutr*. 2008;88(5):1195-1205.
- Development and Maintenance of National Database for National Dietary Surveys. *Am J Clin Nutr*. 2008;88(5):1195-1205.

Dietary Data Web Tutorial

The screenshot shows the homepage of the NHANES Dietary Data Web Tutorial. At the top, the CDC logo and name are displayed, along with the tagline "CDC 2017. Saving lives. Protecting people. Saving futures through prevention." Below this is a search bar and a navigation menu with letters A-Z. The main heading is "NHANES Dietary Web Tutorial". On the left, there is a sidebar menu with options like "Introduction", "Logistic", "Tutorial Roadmap", "Objective", "Continuing Professional Education", "Dietary Data Export Options", "Preparing a Dietary Results Dataset", "Basic Dietary Analyses", "Advanced Dietary Analyses", and "Additional Resources". The main content area has a "Home" section with a welcome message and a list of "Before you get started" steps. On the right, there are options for "Text size", "Email copy", "Print page", "Bookmark and share", and "Contact Us" information. At the bottom, there are logos for the National Cancer Institute, USDA, and CDC, along with a note about linking to collaborator websites.

Home

Welcome to the NHANES Dietary Data Web Tutorial! The National Cancer Institute (NCI), National Center for Health Statistics (NCHS), and U.S. Department of Agriculture (USDA) developed this tutorial to meet the growing needs of NHANES dietary data users.

This tutorial is one of several [NHANES Tutorials](#) that have been developed to promote broader and more proficient use of NHANES data.

Before you get started:

- Check out the [Dietary Data Tutorial Roadmap](#) to orient yourself to the tutorial's content.
- Read the [Introduction](#) to find answers to frequently asked questions about NHANES dietary data and the tutorial.
- Review through the [Logistics](#) section to learn about the web layouts and templates used in the tutorial and find out the basic knowledge and skills you'll need to use the tutorial.
- Go to [Technical & Software Requirements](#) for information about what's required to view the tutorial correctly and run the sample programs properly. This section also is the place to go if you need help with technical problems.
- Learn about the tutorial's [Objectives](#) and how you can earn Continuing Professional Education credits by completing the tutorial.

Related Sites

- [Continuing NHANES Web Tutorial](#)
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- [NHANES Environmental Chemical Tutorial](#)
- [National Health and Nutrition Examination Survey](#)

NHANES Dietary Data Tutorial Collaborators

Clicking these logos will take you to the collaborator's website and you will exit the NHANES Dietary Web Tutorial.