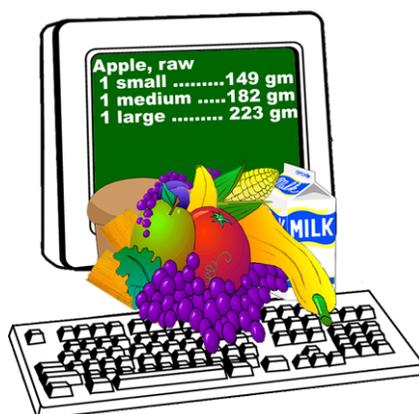


# 2015-2016 Food and Nutrient Database for Dietary Studies Documentation



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**SUGGESTED CITATION:** U.S. Department of Agriculture, Agricultural Research Service. 2018. *USDA Food and Nutrient Database for Dietary Studies 2015-2016*. Food Surveys Research Group Home Page, [www.ars.usda.gov/nea/bhnrc/fsrg](http://www.ars.usda.gov/nea/bhnrc/fsrg)

You may also consider including the following sentence in your manuscript: USDA's Food and Nutrient Database for Dietary Studies 2015-2016 was used to code dietary intake data and calculate nutrient intakes.

## **ACKNOWLEDGEMENTS**

The authors gratefully acknowledge the constructive contributions of the peer reviewers who included: Catherine Champagne, Pennington Biomedical Research Center; WenYen Juan, Food and Drug Administration; Mary Murphy, Exponent; and Birdem Amoutzopoulos and Toni Steer, Elsie Widdowson Laboratory, Cambridge UK.

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## INTRODUCTION

### What is FNDDS?

The USDA Food and Nutrient Database for Dietary Studies (FNDDS) converts foods and beverages consumed in What We Eat in America (WWEIA), National Health and Nutrition Examination Survey (NHANES) into gram amounts and determines nutrient value.

**Appendix A** lists abbreviations used in this documentation. The FNDDS 2015-2016 is the eighth version released.

### How can FNDDS be used?

Because the FNDDS generates the nutrient intake data files for WWEIA, NHANES, researchers do not need to use the FNDDS to estimate the nutrient intake for the survey respondents. FNDDS is made available for researchers to review the nutrient profiles for specific foods and beverages that were consumed in the WWEIA, NHANES in the corresponding survey years as well as their associated portions and recipe calculations. Such detailed information makes it possible to conduct enhanced analysis of dietary intakes. Additionally, FNDDS can be applied in other dietary research studies to determine the amounts of nutrients/food components in food and beverages.

### What We Eat in America, NHANES

The NHANES is a nationally representative, cross-sectional survey designed to monitor the health and nutritional status of the civilian, noninstitutionalized U.S. population and is conducted by the Centers for Disease Control and Prevention's National Center for Health Statistics. NHANES is a continuous survey with data releases every two years. Each 2-year cycle includes about 10,000 participants from sampled counties across the country.

The Food Surveys Research Group of the Beltsville Human Nutrition Research Center of USDA's Agricultural Service has lead responsibility for the survey's dietary data collection methodology and maintenance of the databases used to code and process data. Trained interviewers using the 5-step USDA Automated Multiple-Pass Method collect dietary intakes. The AMPM includes an extensive compilation of standardized food-specific questions and possible response options. Routing of questions is based on previous responses. An initial 24-hour recall (day 1) is collected in-person at a NHANES Mobile Examination Center; a second recall (day 2) is collected by telephone 3-10 days later. The AMPM was validated in a large study and shown to be an effective method for accurately assessing group energy (Moshfegh et al, 2008) and sodium intake of adults (Rhodes et al, 2013).

The AMPM is revised for each 2-year collection of WWEIA to reflect the changing food supply and to address research needs from the data user community. The FNDDS is also modified to reflect AMPM revisions as well as changes in consumption patterns and availability of nutrient values. A new version is released to accompany each 2-year release of WWEIA, NHANES (Bodner-Montville et al). This version (FNDDS 2015-2016) was used to process WWEIA, NHANES 2015-2016 and reflects the food supply during this period. It is not recommended to use a version of FNDDS other than the database associated with the given survey cycle.

See [Appendix B](#) for each version of FNDDS and its corresponding survey 2-year cycle of WWEIA, NHANES. Also, provided is the number of food codes added and discontinued for each FNDDS version as well as the total number of additional descriptions and nutrients/components in each.

## Database Structure and Download

A brief overview of FNDDS 2015-2016 is provided in [Appendix C](#); the nutrients and food components are listed in [Appendix D](#).

FNDDS 2015-2016 is organized into 12 Access® tables or datasets linked by primary and secondary data items forming a relational database. As illustrated in [Appendix E. 2015-2016 FNDDS File Relationships](#), the primary link is the food code; secondary links are subcode, portion code, nutrient code, ingredient code and derivation code.

The complete FNDDS 2015-2016 consists of the 12 data tables or datasets plus an additional table/dataset - *FNDDSRecCount* - that identifies the number of records in each table. Listed below are the full name and abbreviated name for each of the tables/datasets, separated into three components - Food Descriptions, Food Portions and Weights, and Nutrients.

<b>Full Name</b>	<b>Abbreviated Name</b>
<b>Food Descriptions Component</b>	
Main Food Descriptions	<i>MainFoodDesc</i>
Additional Food Descriptions	<i>AddFoodDesc</i>
<b>Food Portions and Weights Component</b>	
Food Weights	<i>FoodWeights</i>
Food Portion Descriptions	<i>FoodPortionDesc</i>
Subcode Descriptions	<i>SubcodeDesc</i>
Food Code-Subcode Links	<i>FoodSubcodeLinks</i>
<b>Nutrients Component</b>	
FNDDS Nutrient Values	<i>FNDDSNutVal</i>
Nutrient Descriptions	<i>NutDesc</i>
Moisture Adjustment	<i>MoistAdjust</i>
FNDDS Ingredients	<i>FNDDSIngred</i>
Ingredient Nutrient Values	<i>IngredNutVal</i>
Derivation Descriptions	<i>DerivDesc</i>

Field name and description for every variable in FNDDS 2015-2016 are provided in [Appendix F. Contents of Datasets](#).

The complete FNDDS 2015-2016 is available for download at [www.ars.usda.gov/nea/bhnrc/fsrg](http://www.ars.usda.gov/nea/bhnrc/fsrg) in both Access® and SAS®.



New for FNDDS 2015-2016 - selected variables provided for quick viewing and searching as five Excel® files:

- Foods and Beverages
- Portions and Weights
- FNDDS Ingredients
- Ingredient Nutrient Values
- FNDDS Nutrient Values

**Appendix G. FNDDS At a Glance** provides a list of variables plus descriptions contained in each of the five Excel® spreadsheets. Each file contains an additional tab listing variables and descriptions. Although the Excel® files contain only selected variables, data, by variable, are the same in all database formats.

The next sections describe some of the aspects of the three components: Food Descriptions, Food Portions and Weights, and Nutrients.

## FOOD DESCRIPTIONS COMPONENT

The FNDDS 2015-2016 contains 8,690 food and beverage items (7,898 foods/792 beverages). **Appendix B** provides a summary of the number of food codes added and discontinued for each version of FNDDS.

### Food Code

An 8-digit number – food code – uniquely identifies each food or beverage item in FNDDS. Food code numbers are generally assigned according to a classification scheme that associates the first digit with one of nine major food commodity groups: Milk and Milk Products; Meat, Poultry, Fish, and Mixtures; Eggs; Dry Beans, Peas, Other Legumes, Nuts, and Seeds; Grain Products; Fruits; Vegetables; Fat, Oils, and Salad Dressings; Sugars, Sweets, Beverages. The first two digits of the 8-digit code, as illustrated in **Appendix H**, identify subgroups that are more specific.

### Main Description

The main food description is the primary complete description identified by a unique 8-digit food code and may include form, preparation method, and source of item. Main food descriptions may be modified over time; however, if the food or beverage is determined to have changed dramatically or no longer available, the food code may be discontinued.

Discontinued food codes are removed from the current FNDDS and the codes are not recycled. It is important to note that although a code number was discontinued, the food or beverage associated with that food code may still be available; however, it is now associated with one or more different food codes. Beginning with the FNDDS 2011-2012, a resource file details every discontinued food, rationale for discontinuation, and if appropriate, a link to a new FNDDS code (Adler et al, 2016). *Discontinued Food Codes between FNDDS 2013-2014 and FNDDS 2015-2016* are available on the FSRG website [www.ars.usda.gov/nea/bhnrc/fsrg](http://www.ars.usda.gov/nea/bhnrc/fsrg).

The main descriptions are usually generic in nature; however, some codes include a brand name, often in parentheses. This designates that a respondent reported the brand name product; however, the nutrient profile may match a generic food/beverage or a composite of several similar products because the full nutrient profile of the individual brand name product was not available. Main descriptions that contain a brand name include most ready-to-eat cereals and infant formulas; as well as popular candies, chips, crackers, energy drinks, nutrition bars and powders, and fast food burgers.

### Additional Food Description

The FNDDS 2015-2016 contains 14,449 additional food descriptions located in *AddFoodDesc*. Additional food descriptions, associated with a specific main food description, share the same nutrient values and portion weights as the main food description. More than one additional description may be associated with a food code; not all food codes have additional descriptions.

Many additional food descriptions are brand names; others represent similar forms of the main food description. The additional food descriptions provide information that is particularly useful when coding dietary intakes from respondents in WWEIA, NHANES based on responses elicited from questions asked during the 24-hour recall.

 *New for FNDDS 2015-2016 – updated food codes*

Specific categories of foods/beverages updated in AMPM and FNDDS 2015-2016 include the following: yogurt; chicken; oatmeal and cooked cereals; pancakes, waffles and French toast; chips, pretzels and popcorn; crackers; dips; nuts and seeds; baked and mashed potatoes; fried potatoes; and creams and cream substitutes. In addition, updates to the AMPM collection process resulted in new codes for select foods previously collected by its components and coded as a combination. This includes the following: cheese sandwiches, peanut butter and jelly sandwiches, burgers, and pasta with sauce dishes.

## **NFS, NS**

When a survey respondent in NHANES is unable to answer all questions about a food/beverage or if detailed questions are not asked, a food code is selected that contains the term NS (not specified) or NFS (not further specified) in its main or additional description. Nutrient values and portion weight data for the NFS or NS food codes are based on food consumption data from WWEIA, internal data on the frequency of reports, food production and supply statistics, and food industry publications.

Sources used to determine proportions and subsequent nutrient profiles for *11100000 Milk, NFS*, *82101000 Vegetable oil, NFS*, as well as other top reported NFS codes were reviewed and revised as necessary to reflect data current during the corresponding 2-year survey cycle. For example, data on food availability and products from the USDA, Economic Research Service helped determine the proportions of different fat-content milks (USDA, ERS, Food Availability) and various types of vegetable oils (USDA, ERS, Oil Crops Yearbook).

## **What We Eat in America Food Category Code and Description**

 *New for FNDDS 2015-2016 – WWEIA Food Category number and description included for each FNDDS food code.*

The WWEIA Food Categories provide an application to analyze foods and beverages as consumed in the American diet (Rhodes et al, 2017). The focus of this classification system is grouping similar foods and beverages together based on how items are typically consumed and on their nutrient content. Each FNDDS food code is assigned to only one of the WWEIA Food Categories.

***Appendix I. WWEIA Food Categories: Code and Description*** lists the 155 individual food categories combined into 15 main groups: Milk and Dairy; Protein Foods; Mixed Dishes; Grains; Snacks and Sweets; Fruit; Vegetables; Beverages, Nonalcoholic; Alcoholic Beverages; Water; Fats and Oils; Condiments and Sauces; Sugars; Infant Formula and Baby Foods; and Other. Within the main groups are subgroups (Milk, Flavored Milk, Dairy Drinks and Substitutes, Cheese, and Yogurt) characterized by similar food-related properties. Designed to

be flexible, the WWEIA Food Categories can easily be combined into a variety of larger groupings.

A new version of the WWEIA Food Categories is produced for each 2-year cycle of WWEIA, NHANES and FNDDS, and released on the FSRG website. More detailed information about the WWEIA Food Categories is located at [www.ars.usda.gov/nea/bhnrc/fsrg](http://www.ars.usda.gov/nea/bhnrc/fsrg). Included is a table of Changes in WWEIA Food Categories between Survey Cycles.

A WWEIA Food Category file will be available after the NHANES data are released, called – *FNDDS codes linked to WWEIA Food Categories* – that provides the number of times each FNDDS code was reported on day 1 and day 2 of the 2015-2016 survey. This resource provides a quick access to examine unweighted frequency counts for each FNDDS food code and by food category.

## FOOD PORTIONS AND WEIGHTS COMPONENT

During the 24-hour recall, respondents in WWEIA, NHANES estimate the amount of food and beverages consumed using 3-dimensional models on day 1 and a Food Model Booklet on day 2. Respondents can also report food specific amounts such as a medium apple, 2 slices of bread, can of soda. Either way, the amounts of foods and beverages reported need to be converted into a gram weight amount. FNDDS 2015-2016 contains approximately 40,000 weights for portions of foods and beverages. The wide variety of portion weights in the FNDDS makes it easier to code the extensive assortment of amounts that are reported in WWEIA, NHANES and other dietary studies.

### Portion Code and Portion Description

For each food code in FNDDS, there is a set of portion codes (*FoodWeights*) and portion descriptions (*FoodPortionDesc*). A portion code is a unique 5-digit number that identifies a portion description or unit of measure, e.g. slice, piece, snack size, medium, teaspoon, cup. The same portion description and code are used for many different foods/beverages. Each food and beverage item in FNDDS contains multiple portion codes and portion descriptions.

### Portion Weight

The weight of a food/beverage item for the portion indicated by a portion code is available in *FoodWeights*. All weights are in grams of edible portion as consumed. Weights are estimations to represent a group of foods and beverages and may not account for all sizes available for a specific product. A single FNDDS food code often includes a number of products; therefore, portion gram weights reflect a generic food/beverage or a composite of several similar products. Among comparable types of foods and beverages, portion weights were streamlined for consistency. Portion weights in FNDDS, developed for estimating food and nutrient intakes of respondents in WWEIA, NHANES, may not be applicable for calculating density or weight per volume for any specific liquid.

### Subcode and Subcode Description

Two categories of foods – candy and snack cakes – may have a unique 7-digit subcode (*FoodWeights* and *FoodSubcodeLinks*) and subcode description (*SubcodeDesc*) that has unique portion weights. A subcode is associated with a specific food code and main description and shares the same nutrient profile. Food code-subcode links document the association between food codes and subcodes. A food code for a candy or snack cake may be linked to multiple subcodes, and a subcode may be linked to multiple food codes. *FoodSubcodeLinks* contains only the FNDDS food codes that have subcodes associated with them.

## **Unknown Amounts**

The FNDDS contains a portion code 90000 - Quantity Not Specified (QNS) for every food/beverage item in FNDDS. When a respondent is unable to estimate the amount they consumed, this portion code is selected.

QNS values may reflect the most frequently consumed or most likely portion measure or they may reflect consumption patterns estimated from WWEIA data for a particular category of foods or beverages. Therefore, for any individual food code, the QNS measure may not represent the amount reported by most respondents. Database users should not assume that QNS values accurately represent the average amount of a food or beverage consumed.

## NUTRIENTS COMPONENT

Every FNDDS food code contains a complete nutrient data set for energy and 64 nutrient/food components. The nutrient values may reflect an average value for a generic representation of the food or beverage item.

There are six tables or datasets in the Nutrients Component:

*FNDDSNutVal*  
*NutrDesc*  
*MoistAdjust*  
*FNDDSIngred*  
*IngredNutVal*  
*DerivDesc*

### Nutrient Code and Nutrient Description

Nutrient values per 100 grams of edible portion for energy and 64 nutrients/food components for each FNDDS food/beverage item by nutrient code are in *FNDDSNutVal*. The nutrient code is the same unique 3-digit identifier code for a nutrient (Nutr\_No) used in the USDA National Nutrient Database for Standard Reference (SR). The nutrient description for each nutrient code is part of *NutrDesc*. This file also contains the measurement unit (g, mg, or µg) and number of decimal places to which values are rounded for a nutrient code. The number of decimal places follows conventions in SR and does not reflect the accuracy of the value. Also included in *NutrDesc* is Tagname, the INFOODS unique abbreviation for a food component (Food and Agriculture Organization).

### Ingredients to Generate FNDDS Nutrient Values

Data provided in *MoistAdjust* and *FNDDSIngred* generate the FNDDS nutrient values provided in *FNDDSNutVal*. The FNDDS nutrient values are derived using food composition data from SR, maintained by the Nutrient Data Laboratory (NDL). Previously, FNDDS nutrient values were updated with the latest yearly release of SR. FNDDS 2015-2016 contains nutrient data from SR, Release 28 and May 2016 Revision (USDA, ARS, NDL, 2015). This **SR 28 dataset, downloaded on October 2, 2017** for use in developing the FNDDS 2015-2016, does not contain any revisions or corrections made to SR 28 after this date.

*Note:* Both FNDDS 2015-2016 and the previous version, FNDDS 2013-2014 are based on nutrient values from SR 28. In April 2018, NDL released SR-Legacy, which contains data reported in SR 28 (2015), with selected corrections and updates (USDA, ARS, NDL, 2018). Due to the release date, it was not possible to incorporate data from SR-Legacy into the FNDDS 2015-2016.

Data for about 2,700 items in SR were used to determine the values for the 8,690 food and beverage items in FNDDS 2015-2016. Approximately one-third of codes in FNDDS are a direct match to a single SR code. A recipe calculation approach generated nutrient profiles for the remaining codes which included home-prepared dishes, as well as cooked meats, eggs, grains, and vegetables that take into account salt and/or fat used in preparation. When no appropriate

composition data from SR for processed or restaurant foods were available, recipe calculations generated nutrient profiles for those foods as well.

Recipe calculations do not usually reflect a specific recipe for an item; but rather select ingredients and amounts to estimate a nutrient profile that may represent a number of variants of a particular food or beverage. A variety of sources was utilized to determine ingredients and their amounts: food label data from USDA’s Branded Food Products Database (USDA, ARS et al, 2016) and company websites, product preparation instructions, label ingredients, and cookbooks and recipe websites.

*IngedNutVal* provides the ingredient code(s) used to generate the nutrient profile of every FNDDS food code. A FNDDS food code may be linked to a single ingredient code or it may utilize a recipe calculation and be linked to multiple ingredient codes. The ingredient code can be one of the following:

- SR code (4-5 digit)
- FNDDS code (8 digit)
- FSRG generated code based on another SR code (6 digits).

The Ingredient description may be a SR description, a FNDDS main description, or a generated description based on another SR code. *IngedNutVal* also provides the amount, measure and portion code used to calculate ingredient weights(s).

 *New for FNDDS 2015-2016* - eight codes, generated to reflect reduced sodium products

These codes are 6-digits with ‘9’ as the initial digit. With the exception of sodium, the nutrient profiles are identical to the SR code (identified by digits 2-6) and SR description (following REDUCED SODIUM). The amount of sodium in each SR code was decreased by 25% for each REDUCED SODIUM product to reflect the nutrient content claim for products labeled as reduced sodium.

*For example, the amount of sodium in SR 07971 Bologna, meat and poultry was reduced by 25% to generate the new code 907971 REDUCED SODIUM: Bologna, meat and poultry; all other nutrient values remained the same.*

907971	REDUCED SODIUM: Bologna, meat and poultry
907057	REDUCED SODIUM: Pepperoni, beef and pork, sliced
907072	REDUCED SODIUM: Salami, dry or hard, pork, beef
907028	REDUCED SODIUM: Ham, sliced, pre-packaged, deli meat (96%fat free, water added)
907961	REDUCED SODIUM: Chicken breast, deli, rotisserie seasoned, sliced, prepackaged
907081	REDUCED SODIUM: Turkey breast, sliced, prepackaged
907043	REDUCED SODIUM: Roast beef, deli style, prepackaged, sliced
912695	REDUCED SODIUM: Nuts, almond butter, plain

 *New for FNDDS 2015-2016 - a single-nutrient code*

An ingredient code, containing only vitamin D, was created to allow assumed fortification of vitamin D to regular yogurt FNDDS codes as well as a baby food yogurt code. For FNDDS 2015-2016, the recipe calculations assumed all regular (not Greek) yogurt contained 1.2- $\mu$ g vit D/100g.

999328	Vitamin D as ingredient
--------	-------------------------

Single-nutrient ingredient codes are 6-digits; 999 followed by the nutrient code. Vitamin D is currently the only single-nutrient code in FNDDS.

### **Retention Code and Moisture Change**

In addition to selecting the appropriate ingredients and proportions for each recipe calculation, retention factors and moisture changes are applied in order to calculate FNDDS nutrient values (Powers and Hoover, 1989).

Nutrient losses that occur because of cooking are accounted for in many recipe calculations using a table of retention factors developed by USDA and maintained by NDL (USDA, ARS, NDL 2007). Because nutrient losses vary by food and cooking method, categories were created that are specific to a food type and cooking method. Each category is identified by a 4-digit retention code; for each retention code, there is a list of nutrient-specific retention factors. Each retention factor is the percent of the specific nutrient that remains in the food after preparation. Retention codes are applied at the ingredient-level where appropriate.

The moisture change accounts for how much water a food or beverage will lose or gain during cooking. The loss or gain of water during cooking can have a substantial effect on the nutrient content when expressed on a per 100 gram basis. Provided in *MoistAdjust*, moisture change is expressed as a percentage of the total weight of the food/beverage item and is applied at the recipe-level during nutrient value calculations.

 *New for FNDDS 2015-2016 - NO fat adjustment*

Any increase or decrease in fat during cooking is now incorporated into the ingredients; therefore, recipe calculations do not include any fat change - gain or fat loss during cooking. Food codes that previously had a fat gain now include oil or other fat as an ingredient. Of the few food codes had a fat loss, most now include an ingredient item that contains less total fat.

### **Source of Ingredient Values**

The development of FNDDS 2015-2016 began with an evaluation of the integrity and currency of underlying values for the ingredient codes from SR 28 that form the basis of nutrient profiles for each FNDDS food/beverage. This evaluation resulted in the removal of SR codes used in earlier versions of FNDDS. Some nutrient values for SR 28 codes were modified or corrected for inclusion in FNDDS and therefore differ from the value in SR 28, as explained under Nutrient value source.

To enhance the transparency of the database, expanded characterization of the sources used for the nutrient values and the year of their determination were added to *IngedNutVal* in the FNDDS 2015-2016. For every ingredient code in *FNDDSIngred* that is a SR code, the following are provided for each nutrient (energy and 64 nutrients/food components) by their nutrient code:

- Nutrient value – amount per 100g edible portion
- Nutrient value source
- SR 28 derivation code
- SR 28 AddMod Year

 **New for FNDDS 2015-2016 – Nutrient value source**

This new variable provides the SR database or other source that is the basis for each individual nutrient value.

Most nutrient values for ingredient SR codes in FNDDS 2015-2016 utilized the value obtained directly from **SR 28 as downloaded on October 2, 2017**. Nutrient values for some ingredient SR codes were modified and therefore differ from the value in SR 28. At least one nutrient value was modified for 71 of the SR 28 codes downloaded.

Nutrient value source includes the following database or additional source:

- Assumed zero – *based on similar products, value is 0*
- Informed by additional sources – *including Branded Food Product Database (USDA, ARS et al, 2016), company websites or similar products*
- Nutrient as ingredient – *single-nutrient code 999328 for vitamin D*
- SR 26 – *reverted to nutrient value of the SR code as provided in SR 26 (USDA, ARS, NDL, 2013)*
- SR 28 - *no modification for nutrient value of SR 28 code, downloaded Oct 2, 2017*
- SR 28 code xxxxx – *imputed nutrient value from other SR code as listed*
- SR 28 code xxxxx footnote – *reflects seafood product not treated with sodium as provided in footnote for the SR code*
- SR 28 downloaded Oct 2015 – *reverted to nutrient value of SR code available for use in FNDDS 2013-2014*

If the nutrient value source is SR 28 (no modification), two additional variables are included in FNDDS that provide details important in assessing how current and relevant the data are for a specific nutrient or food/beverage item.

 *New for FNDDS 2015-2016* – **SR 28 derivation code**

If the nutrient value source is SR 28, a derivation code provides information about how a value was calculated or imputed as defined in SR. [Appendix J](#) is a list of SR 28 derivation codes and descriptions that provide specific information on how the value was determined. This information is also available in a new table/dataset in FNDDS 2015-2016.

Some SR derivation codes reference ‘source codes’ in the description. [Appendix J](#) includes a listing of the referenced source code and accompanying description. The source codes (indicating the type of data) and descriptions are as defined by SR.

 *New for FNDDS 2015-2016* – **SR AddMod year**

Indicates the year a nutrient value was added or last modified as defined by SR. Although SR provides a month and year, only the year is listed in FNDDS. This variable provides details important in assessing how current the data are for a specific nutrient or food/beverage item.

Both SR derivation code and the date last added/modified were obtained from SR 28 (USDA, ARS, NDL 2015). If ingredient source is SR 28 (no modification) and if the SR 28 derivation code or the SR 28 AddMod year is blank, the data were missing in SR 28. If the ingredient source is anything other than SR 28 (no modification), this cell is also blank.

## Fortification Identifier Code

The FNDDS 2015-2016 table *MainFoodDesc* contains a code that identifies foods and beverages with one or more fortified nutrients. “Fortified” nutrients are considered those nutrients, vitamins or minerals, added to the product, in amounts, which do not occur naturally. The specific fortified nutrients are not identified individually and may vary by product as well as within a product category.

The primary basis for designating fortification of an item is the underlying ingredients, foods, and beverages from SR 28 used in FNDDS 2015-2016. The SR items were first designated as “fortified” or “unfortified” based upon certain characteristics within SR database files (i.e., contained nutrients specified as added vitamin B12, added vitamin E, folic acid; had an “added nutrient marker”; or included “fortified” or “added” in the SR 28 description). Items were also designated based upon review of ingredient and nutrient content.

Using *IngredNutVal* and the file of SR 28 items, the FNDDS food codes were designated as:

- 1 = Fortified
- 2 = Contains fortified ingredients
- 2a = Contains fortified ingredients including margarine, milk or flour.  
*These ingredients are the most common ingredients contributing minor amounts of fortification.*

FNDDS codes for food/beverages designated as *Fortified* include one or more SR items designated as fortified or fortified plus water. Those designated as *Contains fortified ingredients* include more than one SR item where at least one was designated as fortified and at least one was not designated.

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## ***Appendix A. List of Abbreviations***

AMPM	USDA Automated Multiple-Pass Method
ARS	Agricultural Research Service
BHNRC	Beltsville Human Nutrition Research Center
FNDDS	Food and Nutrient Database for Dietary Studies
FPED	Food Patterns Equivalents Database
FSRG	Food Surveys Research Group
NDB No.	Nutrient Databank number
NDL	Nutrient Data Laboratory
NHANES	National Health and Nutrition Examination Survey
NS	not specified
NFS	not further specified
QNS	quantity not specified
SAS®	Statistical Analysis System
SR	USDA National Nutrient Database for Standard Reference
USDA	United States Department of Agriculture
WWEIA	What We Eat in America

**Appendix B. Number of Foods/Beverages by  
Food and Nutrient Database for Dietary Studies Version**

FNDDS version by NHANES survey years	FNDDS 1 (2001-02)	FNDDS 2 (2003-04)	FNDDS 3 (2005-06)	FNDDS 4.1 (2007-08)	FNDDS 5 (2009-10)	FNDDS 2011-12	FNDDS 2013-14	<b>FNDDS 2015-16</b>
Food codes	6,974	6,940	6,921	7,174	7,253	7,618	8,536	<b>8,690</b>
<i>added</i>	<i>n/a</i>	70	115	283	99	1,156	1,197	<b>978</b>
<i>discontinued</i>	<i>n/a</i>	104	134	30	20	791	279	<b>824</b>
Additional descriptions	6,585	6,600	6,801	7,255	7,437	9,791	12,128	<b>14,449</b>
Nutrients/components	61	63*	64*	65*	65	65	65	<b>65</b>

\*Nutrients added by year:

2007-2008: Vitamin D (D2+D3) (µg)

2005-2006: Total Choline (mg)

2003-2004: Added Vitamin E (mg) and Added Vitamin B-12 (µg)



# Food and Nutrient Database for Dietary Studies 2015-2016

The USDA Food and Nutrient Database for Dietary Studies 2015-2016 (FNDDS) is used to convert food and beverages consumed in What We Eat In America, National Health and Nutrition Examination Survey into gram amounts and to determine their nutrient values.

The complete FNDDS 2015-2016 consists of 12 datasets (Access® and SAS®). New for this release – selected variables in quick view and search format (Excel®). All available for download at [www.ars.usda.gov/nea/bhnrc/fsrg](http://www.ars.usda.gov/nea/bhnrc/fsrg).

## Food Descriptions Component

### Main Food Descriptions

Primary descriptions for 8,690 foods/beverages (7,898 foods/792 beverages)  
Unique 8-digit code assigned to each main food description

### Additional Food Descriptions

Descriptions for 14,449 additional foods/beverages associated with a specific main food/beverage

## Food Portions and Weights Component

### Food Weights

Weights (g) for 39,718 portions

### Food Portion Descriptions

Descriptions for unit measure of foods/beverages

### Subcode Descriptions

Candy and snack cakes with unique portion weights

### Food Code-Subcode Links

Associations between main food codes and subcodes

## Nutrients Component

### FNDDS Nutrient Values

Nutrient values for food energy and 64 nutrients/food components (**other side of page**) for each food/beverage

### Nutrient Descriptions

Descriptions and measurement units for nutrients

### Moisture Adjustment

Factors used during calculation of nutrient values for foods/beverages

### FNDDS Ingredients

Information used in calculating FNDDS nutrient values per 100 g

### Ingredient Nutrient Values

Sources of nutrient values - USDA SR 28 (accessed 2017 October 2) or other source

### Derivation Descriptions

Descriptions for derivation codes used by SR 28 (accessed 2017 October 2)

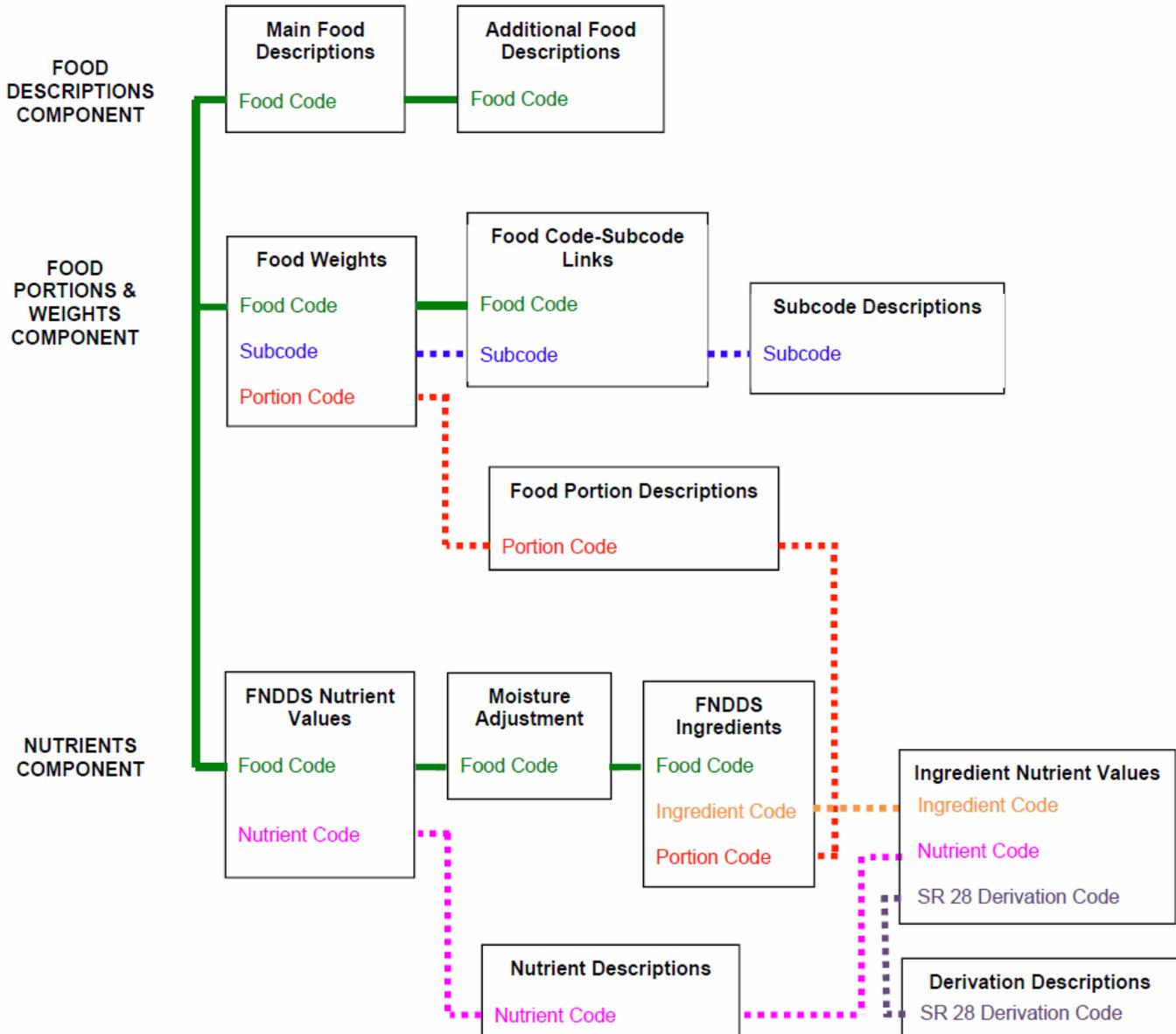
## Appendix D. FNDDS 2015-2016 Nutrients and Food Components (unit)

Food energy (kcal)	<i>Carotenoids:</i>
Protein (g)	Carotene, alpha (µg)
Carbohydrate (g)	Carotene, beta (µg)
Fat, total (g)	Cryptoxanthin, beta (µg)
Alcohol (g)	Lycopene (µg)
	Lutein + zeaxanthin (µg)
Sugars, total (g)	Vitamin E as alpha-tocopherol (mg)
Dietary fiber, total (g)	Added vitamin E (mg) <i>(added 2003-04)</i>
Water (g)	Vitamin D (D2 + D3) (µg) <i>(added 2007-08)</i>
	Vitamin K as phylloquinone (µg)
Saturated fatty acids, total (g)	Vitamin C (mg)
Monounsaturated fatty acids, total (g)	Thiamin (mg)
Polyunsaturated fatty acids, total (g)	Riboflavin (mg)
Cholesterol (mg)	Niacin (mg)
	Vitamin B-6 (mg)
<i>Individual fatty acids:</i>	
4:0 (g)	Folate, total (µg)
6:0 (g)	Folate (DFE) (µg)
8:0 (g)	Folic acid (µg)
10:0 (g)	Food folate (µg)
12:0 (g)	
14:0 (g)	Vitamin B-12 (µg)
16:0 (g)	Added vitamin B-12 (µg) <i>(added 2003-04)</i>
18:0 (g)	Choline, total (mg) <i>(added 2005-06)</i>
16:1 (g)	Calcium (mg)
18:1 (g)	Iron (mg)
20:1 (g)	Magnesium (mg)
22:1 (g)	Phosphorus (mg)
	Potassium (mg)
18:2 (g)	Sodium (mg)
18:3 (g)	Zinc (mg)
18:4 (g)	Copper (mg)
20:4 (g)	Selenium (µg)
20:5 n-3 (g)	
22:5 n-3 (g)	Caffeine (mg)
22:6 n-3 (g)	Theobromine (mg)
Vitamin A as retinol activity equivalents (µg)	
Retinol (µg)	

## Appendix E. FNDDS 2015-2016 File Relationships

The USDA Food and Nutrient Database for Dietary Studies (FNDDS) is used to convert food and beverages consumed in What We Eat In America (WWEIA), National Health and Nutrition Examination Survey into gram amounts and to determine their nutrient values.

The complete FNDDS 2015-2016 consists of 12 files linked by primary and secondary data items forming a relational database. The primary link is the food code, indicated with a solid line. Secondary links are subcode, portion code, nutrient code, ingredient code, and SR derivation code indicated with dotted lines.



## Appendix F. FNDDS 2015-2016 Content of Datasets



### 2015-2016 Food and Nutrient Database for Dietary Studies

#### Content of Datasets

The USDA Food and Nutrient Database for Dietary Studies (FNDDS) is used to convert food and beverages consumed in What We Eat In America (WWEIA), National Health and Nutrition Examination Survey into gram amounts and to determine their nutrient values.

The complete FNDDS 2015-2016 consists of 12 datasets (Access® and SAS®). New for this release – selected variables in quick view and search format (Excel®). All available for download at [www.ars.usda.gov/nea/bhnrc/fsrg](http://www.ars.usda.gov/nea/bhnrc/fsrg).

#### Food Descriptions Component

##### Main Food Descriptions (MainFoodDesc)

Field Name	Field Type	Description
<b>Food code</b> ‡	N 8	Unique 8-digit identification code
Main food description	A 200	Primary description for a food/beverage
Fortification identifier code	A 2	Identifier code designating 1 = fortified item, 2 = contains fortified ingredients, 2a = contains fortified ingredients including margarine, milk, and/or flour
WWEIA Category code	N 4	Unique 4-digit identification code
WWEIA Category description	A 80	Description for a WWEIA Category

##### Additional Food Descriptions (AddFoodDesc)

Field Name	Field Type	Description
<b>Food code</b> ‡	N 8	Unique 8-digit identification code
Seq num	N 2	Number for ordering additional food descriptions
Additional food description	A 80	Description(s) associated with a food code and its main description

#### Food Portions and Weights Component

##### Food Weights (FoodWeights)

Field Name	Field Type	Description
<b>Food code</b> ‡	N 8	Unique 8-digit identification code
<b>Subcode</b> ‡	N 7	Unique 7-digit identification code
Seq num	N 2	Number for ordering portion codes
<b>Portion Code</b> ‡	N 5	Unique 5-digit identification code for a portion description
Portion weight	N 8.3	Edible portion in grams (g)

##### Food Portion Descriptions (FoodPortionDesc)

Field Name	Field Type	Description
<b>Portion Code</b> ‡	N 5	Unique 5-digit identification code for a portion description
Portion description	A 120	Unit of measure

##### Subcode Descriptions (SubcodeDesc)

Field Name	Field Type	Description
<b>Subcode</b> ‡	N 7	Unique 7-digit identification code
Subcode description	A 80	Candy or snack cake that has unique portion weights

##### Food Code-Subcode Links (FoodSubcodeLinks)

Field Name	Field Type	Description
<b>Food code</b> ‡	N 8	Unique 8-digit identification code
<b>Subcode</b> ‡	N 7	Unique 7-digit identification code

## Appendix F. FNDDS 2015-2016 Content of Datasets (continued)

### Nutrients Component

#### FNDDS Nutrient Values (FNDDSNutVal)

Field Name	Field Type	Description
Food code‡	N 8	Unique 8-digit identification code
Nutrient code‡	N 5	Identifies a nutrient
Nutrient value	N 10.x	Amount per 100 g edible portion for energy and 64 nutrients

#### Nutrient Descriptions (NutDesc)

Field Name	Field Type	Description
Nutrient code‡	N 5	Identifies a nutrient
Nutrient description	A 45	Description of nutrient or food component
Tagname	A 15	INFOODS international food component identifier
Unit	A 10	Measurement unit for nutrient value
Decimals	N 1	Number of decimal places

#### Moisture Adjustment (MoistAdjust)

Field Name	Field Type	Description
Food code‡	N 8	Unique 8-digit identification code
Moisture change	N 5.1	Percentage moisture change of total weight

#### FNDDS Ingredients (FNDDSIngred)

Field Name	Field Type	Description
Food code‡	N 8	Unique 8-digit identification code
Seq num	N 2	Number for ordering ingredients
Ingredient code‡	N 8	Identifies SR (NDB_No) or FNDDS code
Ingredient description	A 240	Description of SR or FNDDS code
Amount	N 11.3	Number of measures of ingredient code
Measure	A 3	Unit of measure to quantify amount of ingredient code
Portion code‡	N 5	Unique 5-digit identification code for a portion description
Retention code	N 4	Retention factor identification code
Ingredient weight	N 11.3	Edible portion in grams (g)

#### Ingredient Nutrient Values (IngredNutVal)

Field Name	Field Type	Description
Ingredient code‡	N 8	Identifies SR code
SR description	A 200	Description of SR code
Nutrient code‡	N 5	Identifies a nutrient
Nutrient value	N 10.x	Amount per 100 g edible portion for energy and 64 nutrients
Nutrient value source	A 80	SR database or other source for nutrient value
SR 28 derivation code‡	A 4	Identifies derivation descriptor as defined by SR
SR 28 AddMod year	N 4	Indicates year a value added or last modified as defined by SR

#### Derivation Descriptions (DerivDesc)

Field Name	Field Type	Description
SR 28 derivation code‡	A 4	Identifies derivation descriptor as defined by SR
SR 28 derivation description	A 120	Description of SR derivation code

‡ linking field across files

Note: Start/end dates included on all datasets (except NutDesc and DerivDesc) indicate time period corresponding to WWEIA data.

## Appendix G. FNDDS 2015-2016 At A Glance



### 2015-2016 Food and Nutrient Database for Dietary Studies At A Glance

The USDA Food and Nutrient Database for Dietary Studies (FNDDS) is used to convert food and beverages consumed in What We Eat In America (WWEIA), National Health and Nutrition Examination Survey into gram amounts and to determine their nutrient values.

New for this release – selected variables in quick view and search format (Excel<sup>®</sup>). The complete FNDDS 2015-2016 consists of 12 datasets (Access<sup>®</sup> and SAS<sup>®</sup>). All available for download at [www.ars.usda.gov/nea/bhnrc/fsrg](http://www.ars.usda.gov/nea/bhnrc/fsrg).

	Variable	Description
<b>Foods and Beverages</b>	Food code	Unique 8-digit identification code
	Main food description	Primary description for a food/beverage
	Additional food description	Description(s) associated with a food code/main description
	Fortification identifier code	Identifier code designating: 1=fortified item, 2=contains fortified ingredients, 2a=contains fortified ingredients including margarine/milk/flour
	WWEIA Category code	Unique 4-digit identification code
	WWEIA Category description	Description for a WWEIA category
<b>Portions and Weights</b>	Food code	Unique 8-digit identification code
	Main food description	Primary description for a food/beverage
	Subcode	Unique 7-digit identification code
	Subcode description	Candy or snack cake with unique portion weights
	WWEIA Category code	Unique 4-digit identification code
	WWEIA Category description	Description for a WWEIA category
	Seq num	Number for ordering portion descriptions
	Portion description	Unit of measure
	Portion weight	Edible portion in grams (g)
<b>FNDDS Ingredients</b>	Food code	Unique 8-digit identification code
	Main food description	Primary description for a food/beverage
	WWEIA Category code	Unique 4-digit identification code
	WWEIA Category description	Description for a WWEIA category
	Seq num	Number for ordering ingredient codes
	Ingredient code	Identifies SR (NDB_No) or FNDDS food code
	Ingredient description	Description of SR or FNDDS code
	Ingredient weight	Edible portion in grams (g)
	Retention code	Retention factor identification code
Moisture change	Percentage moisture change of total weight	
<b>Ingredient Nutrient Values</b>	Ingredient code	Identifies SR code
	SR description	Description of SR code
	Nutrient code	Identifies a nutrient
	Nutrient description	Description of nutrient or food component
	Nutrient value	Amount per 100 g edible portion for energy and 64 nutrients
	Nutrient value source	SR database or other source for nutrient value
	SR 28 derivation code	Identifies derivation descriptor as defined by SR
	SR 28 AddMod year	Indicates year value added or last modified as defined by SR
<b>FNDDS Nutrient Values</b>	Food code	Unique 8-digit identification code
	Main food description	Primary description for a food/beverage
	WWEIA Category code	Unique 4-digit identification code
	WWEIA Category description	Description for a WWEIA category
	Value for each nutrient	Amount per 100 g edible portion for energy and 64 nutrients

## Appendix H. FNDDS Food Code: Grouping by First 2 Digits

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<b>1 Milk and Milk Products</b>	<i>11 Milks, milk drinks, yogurts, infant formulas</i> <i>12 Creams and cream substitutes</i> <i>13 Milk desserts and sauces</i> <i>14 Cheeses</i>
<b>2 Meat, Poultry, Fish, and Mixtures</b>	<i>20 Meat</i> <i>21 Beef</i> <i>22 Pork</i> <i>23 Lamb, veal, game</i> <i>24 Poultry</i> <i>25 Organ meats, frankfurters, sausages, lunchmeats</i> <i>26 Fish, shellfish</i> <i>27 Meat, poultry, fish mixtures</i> <i>28 Frozen meals, soups, gravies</i>
<b>3 Eggs</b>	<i>31 Eggs</i> <i>32 Egg mixtures</i> <i>33 Egg substitutes</i>
<b>4 Dry Beans, Peas, Other Legumes, Nuts, and Seeds</b>	<i>41 Legumes</i> <i>42 Nuts, nut butters, nut mixtures</i> <i>43 Seeds and seed mixtures</i> <i>44 Carob products</i>
<b>5 Grain Products</b>	<i>50 Flour and dry mixes</i> <i>51 Yeast breads, rolls</i> <i>52 Quick breads</i> <i>53 Cakes, cookies, pies, pastries, bars</i> <i>54 Crackers, snack products</i> <i>55 Pancakes, waffles, French toast, other grain products</i> <i>56 Pastas, rice, cooked cereals</i> <i>57 Cereals, not cooked</i> <i>58 Grain mixtures, frozen meals, soups</i> <i>59 Meat substitutes</i>
<b>6 Fruits</b>	<i>61 Citrus fruits, juices</i> <i>62 Dried fruits</i> <i>63 Other fruits</i> <i>64 Fruit juices and nectars excluding citrus</i> <i>67 Fruits and juices baby food</i>
<b>7 Vegetables</b>	<i>71 White potatoes, starchy vegetables</i> <i>72 Dark-green vegetables</i> <i>73 Orange vegetables</i> <i>74 Tomatoes, tomato mixtures</i> <i>75 Other vegetables</i> <i>76 Vegetables and mixtures mostly vegetables baby food</i> <i>77 Vegetables with meat, poultry, fish</i> <i>78 Mixtures mostly vegetables without meat, poultry, fish</i>
<b>8 Fats, Oils, and Salad Dressings</b>	<i>81 Fats</i> <i>82 Oils</i> <i>83 Salad dressings</i>
<b>9 Sugars, Sweets, and Beverages</b>	<i>91 Sugars, sweets</i> <i>92 Nonalcoholic beverages</i> <i>93 Alcoholic beverages</i> <i>94 Noncarbonated water</i> <i>95 Formulated nutrition beverages, energy drinks, sports drinks</i>

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**Appendix I. WWEIA Food Categories:** Code, Description, Number of FNDDS Codes/Category

<b>MILK AND DAIRY</b>	<b>Code</b>	<b>Description</b>	
<b>Milk</b>	1002	Milk, whole	9
	1004	Milk, reduced fat	6
	1006	Milk, lowfat	7
	1008	Milk, nonfat	7
<b>Flavored Milk</b>	1202	Flavored milk, whole	12
	1204	Flavored milk, reduced fat	22
	1206	Flavored milk, lowfat	14
	1208	Flavored milk, nonfat	17
<b>Dairy Drinks and Substitutes</b>	1402	Milk shakes and other dairy drinks	14
	1404	Milk substitutes	28
<b>Cheese</b>	1602	Cheese	61
	1604	Cottage/ricotta cheese	16
<b>Yogurt</b>	1820	Yogurt, regular	17
	1822	Yogurt, Greek	14

**PROTEIN FOODS**

<b>Meat</b>	2002	Beef, excludes ground	77
	2004	Ground beef	4
	2006	Pork	83
	2008	Lamb, goat, game	45
	2010	Liver and organ meats	15
<b>Poultry</b>	2202	Chicken, whole pieces	161
	2204	Chicken patties, nuggets and tenders	15
	2206	Turkey, duck, other poultry	49
<b>Seafood</b>	2402	Fish	340
	2404	Shellfish	94
<b>Eggs</b>	2502	Eggs and omelets	195
	2602	Cold cuts and cured meats	67
<b>Cured Meats/Poultry</b>	2604	Bacon	13
	2606	Frankfurters	12
	2608	Sausages	27
	2802	Beans, peas, legumes	161
<b>Plant-based Protein Foods</b>	2804	Nuts and seeds	79
	2806	Processed soy products	25

**MIXED DISHES**

<b>Mixed Dishes – Meat, Poultry, Seafood</b>	3002	Meat mixed dishes	307
	3004	Poultry mixed dishes	153
	3006	Seafood mixed dishes	120
<b>Mixed Dishes – Grain-based</b>	3202	Rice mixed dishes	147
	3204	Pasta mixed dishes, excludes macaroni and cheese	195
	3206	Macaroni and cheese	16
	3208	Turnovers and other grain-based items	52
<b>Mixed Dishes – Asian</b>	3402	Fried rice and lo/chow mein	45
	3404	Stir-fry and soy-based sauce mixtures	74
	3406	Egg rolls, dumplings, sushi	25
<b>Mixed Dishes – Mexican</b>	3502	Burritos and tacos	54
	3504	Nachos	7
	3506	Other Mexican mixed dishes	63
<b>Mixed Dishes – Pizza</b>	3602	Pizza	91
	3702	Burgers	99
<b>Mixed Dishes – Sandwiches</b> (FNDDS single code)	3703	Frankfurter sandwiches	96
	3704	Chicken/turkey sandwiches	36
	3706	Egg/breakfast sandwiches	50
	3708	Other sandwiches	78
	3720	Cheese sandwiches	50
	3722	Peanut butter and jelly sandwiches	28
<b>Mixed Dishes - Soups</b>	3802	Soups	232

## Appendix I. WWEIA Food Categories: Code, Description, Number of FNDDS Codes/Category

<b>GRAINS</b>	<b>Code</b>	<b>Description</b>	
Cooked Grains	4002	Rice	30
	4004	Pasta, noodles, cooked grains	26
Breads, Rolls, Tortillas	4202	Yeast breads	126
	4204	Rolls and buns	39
	4206	Bagels and English muffins	30
	4208	Tortillas	7
Quick Breads and Bread Products	4402	Biscuits, muffins, quick breads	55
	4404	Pancakes, waffles, French toast	75
Ready-to-Eat Cereals	4602	Ready-to-eat cereal, higher sugar (>21.2 g/100g)	114
	4604	Ready-to-eat cereal, lower sugar (≤21.2g/100g)	68
Cooked Cereals	4802	Oatmeal	44
	4804	Grits and other cooked cereals	69

## SNACKS AND SWEETS

Savory Snacks	5002	Potato chips	30
	5004	Tortilla, corn, other ships	33
	5006	Popcorn	33
	5008	Pretzels/snack mix	45
Crackers	5202	Crackers, excludes saltines	55
	5204	Saltine crackers	5
Snack/Meal Bars	5402	Cereal bars	31
	5404	Nutrition bars	13
Sweet Bakery Products	5502	Cakes and pies	202
	5504	Cookies and brownies	108
	5506	Doughnuts, sweet rolls, pastries	73
Candy	5702	Candy containing chocolate	69
	5704	Candy not containing chocolate	66
Other Desserts	5802	Ice cream and frozen dairy desserts	117
	5804	Pudding	56
	5806	Gelatins, ices, sorbets	38

## FRUIT

Fruits	6002	Apples	14
	6004	Bananas	11
	6006	Grapes	6
	6008	Peaches and nectarines	14
	6010	Berries	45
	6012	Citrus fruits	21
	6014	Melons	6
	6016	Dried fruits	42
	6018	Other fruits and fruit salads	105

## VEGETABLES

Vegetables, excluding Potatoes	6402	Tomatoes	22
	6404	Carrots	35
	6406	Other red and orange vegetables	90
	6408	Dark green vegetables, excludes lettuce	288
	6410	Lettuce and lettuce salads	17
	6412	String beans	85
	6414	Onions	35
	6416	Corn	118
	6418	Other starchy vegetables	155
	6420	Other vegetables and combinations	528
White Potatoes	6422	Vegetable mixed dishes	188
	6802	White potatoes, baked or boiled	48
	6804	French fries and other fried white potatoes	44
	6806	Mashed potatoes and white potato mixtures	58

**Appendix I. WWEIA Food Categories:** Code, Description, Number of FNDDS Codes/Category

<b>BEVERAGES, NONALCOHOLIC</b>	<b>Code</b>	<b>Description</b>	
<b>100% Juice</b>	7002	Citrus juice	13
	7004	Apple juice	3
	7006	Other fruit juice	20
	7008	Vegetable juice	8
<b>Diet Beverages</b>	7102	Diet soft drinks	13
	7104	Diet sport and energy drinks	11
	7106	Other diet drinks	6
<b>Sweetened Beverages</b>	7202	Soft drinks	14
	7204	Fruit drinks	55
	7206	Sport and energy drinks	19
	7208	Nutritional beverages	16
<b>Coffee and Tea</b>	7220	Smoothies and grain drinks	19
	7302	Coffee	113
	7304	Tea	43

**ALCOHOLIC BEVERAGES**

<b>Alcoholic Beverages</b>	7502	Beer	9
	7504	Wine	12
	7506	Liquor and cocktails	78

**WATER**

<b>Plain Water</b>	7702	Tap water	1
	7704	Bottled water	1
<b>Flavored or Enhanced Water</b>	7802	Flavored or carbonated water	5
	7804	Enhanced or fortified water	5

**FATS AND OILS**

<b>Fats and Oils</b>	8002	Butter and animal fats	16
	8004	Margarine	26
	8006	Cream cheese, sour cream, whipped cream	14
	8008	Cream and cream substitutes	19
	8010	Mayonnaise	11
	8012	Salad dressings and vegetable oils	54

**CONDIMENTS AND SAUCES**

<b>Condiments and Sauces</b>	8402	Tomato-based condiments	12
	8404	Soy-based condiments	8
	8406	Mustard and other condiments	38
	8408	Olives, pickles, pickled vegetables	42
	8410	Pasta sauces, tomato-based	11
	8412	Dips, gravies, other sauces	80

**SUGARS**

<b>Sugars</b>	8802	Sugars and honey	10
	8804	Sugar substitutes	10
	8806	Jams, syrups, toppings	52

**Appendix I. WWEIA Food Categories:** Code, Description, Number of FNDDS Codes/Category

<b>INFANT FORMULAS AND BABY FOODS</b>		
	<b>Code Description</b>	
<b>Baby Foods</b>	9002 Baby food: cereals	20
	9004 Baby food: fruit	52
	9006 Baby food: vegetables	31
	9008 Baby food: meat and dinners	61
	9010 Baby food: yogurt	12
	9012 Baby food: snacks and sweets	35
	<b>Baby Beverages</b>	9202 Baby juice
	9204 Baby water	1
<b>Infant Formulas</b>	9402 Formula, ready-to-feed	57
	9404 Formula, prepared from powder	82
	9406 Formula, prepared from concentrate	34
<b>Human Milk</b>	9602 Human milk	1
<b>OTHER</b>		
<b>Other</b>	9802 Protein and nutritional powders	18
	9999 Not included in a food category	46

## Appendix J. List of SR 28 Derivation Codes and Descriptions\*

Code	Description
A	Analytical data
AI	Analytical data; from the literature or government; incomplete documentation
AR	Analytical data; derived by linear regression
AS	Analytical data; derived by summation of components with source code <sup>†</sup> 1 or 7
BD	Based on same food; Drained solids from solids and liquids or vice versa (canned fruits and vegetables)
BFAN	Based on another form of the food or similar food; Concentration adjustment; Ash; Retention factors not used
BFCN	Based on another form of the food or similar food; Concentration adjustment; Carbohydrate; Retention factors not used
BFFN	Based on another form of the food or similar food; Concentration adjustment; Fat; Retention factors not used
BFFY	Based on another form of the food or similar food; Concentration adjustment; Fat; Retention factors used
BFNN	Based on another form of the food or similar food; Concentration adjustment; Non-fat solids; Retention factors not used
BFNY	Based on another form of the food or similar food; Concentration adjustment; Non-fat solids; Retentions factors used
BFPN	Based on another form of the food or similar food; Concentration adjustment; Protein; Retention factors not used
BFPY	Based on another form of the food or similar food; Concentration adjustment; Protein; Retention factors used
BFSN	Based on another form of the food or similar food; Concentration adjustment; Solids; Retention factors not used
BFSY	Based on another form of the food or similar food; Concentration adjustment; Solids; Retention factors used
BFYN	Based on another form of the food or similar food; Concentration adjustment; Yield; Retention factors not used
BFYY	Based on another form of the food or similar food; Concentration adjustment; Yield; Retention factors used
BFZN	Based on another form of the food or similar food; Concentration adjustment; No adjustment; Retention factors not used
BFZY	Based on another form of the food or similar food; Concentration adjustment; No adjustment; Retention factors used
BNA	Based on another form of the same food or similar food: constituents normalized to total; vitamin A
CAAN	Calculated from different food; From average values for food category; Ash; Retention factors not used
CAFN	Calculated from different food; From average values for food category; Fat; Retention factors not used
CASN	Calculated from different food; From average values for food category; Solids; Retention factors not used
CAZN	Calculated from different food; From average values for food category; No adjustment; Retention factors not used
DA	Concentration adjustment using factor; derived from analytical data
DI	Concentration adjustment using factor; derived from imputed data
FLA	Estimated formulation based on ingredient list; Linear program used to estimate ingredients; Analytical data
FLC	Estimated formulation based on ingredient list; Linear program used to estimate ingredients; Claim on label/serving
FLM	Estimated formulation based on ingredient list; Linear program used to estimate ingredients; Manuf. Calc. data/100
JA	Aggregated data involving combinations of data with only source codes <sup>†</sup> 1 and 12 and/or 13

## Appendix J. List of SR28 Derivation Codes and Descriptions\* (continued)

Code	Description
JO	Aggregated data involving combinations of data with different source codes <sup>‡</sup> when at least one code is not 1, 12, or 6.
LC	Label claim (back calculated from label by NDL staff; Calculated from label claim/serving (g or %RDI)
MA	Manufacturer supplied(industry or trade association); Analytical data, incomplete documentation
MC	Manufacturer supplied; Calculated by manufacturer or unknown if analytical or calculated
ML	Manufacturer supplied; Value upon which manufacturer based label claim for fortified/enriched nutrient
NC	Nutrient that is based on other nutrient/s; calculated rather than analyzed
NP	Nutrient that is based on other nutrient/s; calculated by difference or summed (with or without activity factors)
NR	Nutrient that is based on other nutrient/s; value used directly, ex. Nut.#204 from Nut.#298
O	Other procedure used from imputing
PAE	Based on physical composition; Derived from analytical data; Estimated physical composition
PAK	Based on physical composition; Derived from analytical data; Known physical composition
PIE	Based on physical composition; Derived from imputed data; Estimated physical composition
PIK	Based on physical composition; Derived from imputed data; Known physical composition
RA	Recipe; Approximate ingredient proportions (ex. combination of several recipes)
RC	Recipe; Cookbook
RF	Recipe; Formulary of standard products (formulary or standards of identity)
RK	Recipe; Known formulation (dissection data or proprietary formulation)
RKA	Recipe; Known formulation; No adjustments applied, combination of source codes <sup>‡</sup> 1, 12, and/or 6
RKI	Recipe; Known formulation; No adjustments applied, combination of source codes which includes codes other than 1,12,or 6
RP	Recipe; Per package directions (ex. refrigerated dough, toast, cake mix)
RPA	Recipe; Per package directions; No adjustments applied, combination of source codes <sup>‡</sup> 1, 12, and/or 6.
RPI	Recipe; Per package directions; No adjustments applied, combination of source codes which includes codes <sup>‡</sup> other than 1,12,or 6
S	Product standard, such as enrichment level specified in CFR or AMS commodity standard
T	Taken from another source--other tables of food composition
Z	Assumed zero (Insignificant amount or not naturally occurring in a food, such as fiber in meat)

\*Source: <https://www.ars.usda.gov/northeast-area/beltsville-md-bhnrc/beltsville-human-nutrition-research-center/nutrient-data-laboratory/docs/sr28-download-files/>

‡Source code descriptions:

- 1 - analytical or derived from analytical
- 6 - aggregated data involving combinations of source codes 1 & 12
- 7 - assumed zero
- 12 - manufacturer's analytical; partial documentation
- 13 - analytical data from the literature, partial documentation