

DOCUMENTATION

FOODLINK PYRAMID DATABASE SERIES

**MyPyramid Equivalents Database for USDA Survey Food Codes, 1994-2002
Version 1.0**

(MyPyrEquivDB_v1)

released online from
<http://www.ba.ars.usda.gov/cnrg>

by

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Provides data for the number of cup or ounce equivalents as defined by the U.S. Department of Agriculture's (USDA) MyPyramid Food Guidance System per 100 grams of food. It also includes data for the number of MyPyramid equivalents provided by each food reported eaten, and the total daily number of Pyramid equivalents per individual from What We Eat in America, National Health and Nutrition Examination Survey (NHANES) 2001-2002; NHANES 1999-2000; and Continuing Survey of Food Intakes by Individuals 1994-96, 1998.

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MyPyramid Equivalents Database for USDA Survey Food Codes 1994-2002, Version 1.0
(MyPyrEquivDB_v1)

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Abbreviations and names used in this document

Abbreviation	Full Name
ARS	Agricultural Research Service, USDA
BHNRC	Beltsville Human Nutrition Research Center, ARS, USDA
CDC	Centers for Disease Control and Prevention, DHHS
CNPP	Center for Nutrition Policy and Promotion, USDA
CNRG	Community Nutrition Research Group, BHNRC, ARS, USDA
CSFII	Continuing Survey of Food Intakes by Individuals
DGAC	Dietary Guidelines Advisory Committee
DHHS	U.S. Department of Health and Human Services
FASEB/LSRO	Federation of American Societies for Experimental Biology, Life Sciences Research Office
FNDDS	Food and Nutrient Database for Dietary Studies, 1.0
FoodLink	An ARS research tool that links USDA food survey food codes to information on ingredients and commodities.
FSRG	Food Surveys Research Group, BHNRC, ARS, USDA
HNIS	Human Nutrition Information Service
NCHS	National Center for Health Statistics
NDL	Nutrient Data Laboratory, BHNRC, ARS, USDA
NHANES	National Health and Nutrition Examination Survey
NHANES 1999-2002	combined Pyramid intake records created from the NHANES 1999-2000 and What We Eat in America, NHANES 2001-2002 dietary intakes

Abbreviations and names used in this document – *continued*

Abbreviation	Full Name
PyrServDB_v1	Pyramid Servings Database for USDA Survey Food Codes Version 1.0 (released in 2000); releases in 1997 and 1998 have different names and no version number
PyrServDB_v2	Pyramid Servings Database for USDA Survey Food Codes Version 2.0 (released in 2005)
MyPyrEquivDB_v1	MyPyramid Equivalents Database for USDA Survey Food Codes, 1994-2002 Version 1.0 (released in 2006)
rt	Record type; abbreviation used as part of CSFII data file names
SR13	USDA National Nutrient Database for Standard Reference Release 13
SR16.1	USDA National Nutrient Database for Standard Reference Release 16.1
TSF	Technical Support Files; these are the food coding, recipe, and nutrient databases for CSFII 1994-96, 1998; TSF were replaced by the FNDDS in 2004
USDA	U.S. Department of Agriculture

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Section 2. Essential Information

2.1. What's in this release?

The MyPyramid Equivalents Database for USDA Food Codes Version 1.0 (MyPyrEquivDB_v1) provides data for use in converting food intake data from national food consumption surveys conducted between 1994 and 2002 into guidance based amounts defined by the MyPyramid Food Guidance System (MyPyramid) (USDA/CNPP 2005). MyPyramid uses cups and ounces as the standard portion unit and identifies equivalent amounts of those measures for commonly consumed foods. The defined MyPyramid portion units are referred to as “cup equivalents” and “ounce equivalents”.

The MyPyrEquivDB_v1 was produced by the Community Nutrition Research Group (CNRG), Beltsville Human Nutrition Research Center, Agricultural Research Service, USDA, Beltsville, Maryland and is available from CNRG at <http://www.ba.ars.usda.gov/cnrg>. This database provides:

- cups, ounces or equivalent amounts that are consistent with the MyPyramid Food Guidance System recommendations (USDA/CNPP 2005)
- data files with the number of MyPyramid equivalents per 100 grams of food by 32 MyPyramid food groups and subgroups ([Table 1](#))
- MyPyramid equivalents intake data files for three national surveys:
 - What We Eat in America, the dietary interview component of the National Health and Nutrition Examination Survey (NHANES) 2001-2002
 - NHANES 1999-2000
 - USDA Continuing Survey of Food Intakes by Individuals (CSFII) 1994-96, 1998
- complete documentation on how the MyPyramid Equivalents Database was developed
- model programs to --
 - merge MyPyramid equivalents food data to intake data from the above surveys
 - summarize and compare MyPyramid equivalents intakes for each individual to MyPyramid recommendations
- descriptions for food codes

Due to their size (2MB to 23MB), each MyPyramid equivalents intake file must be downloaded separately from the MyPyramid equivalents food data (number of equivalents per 100 grams food) and model programs. Once downloaded and extracted, each intake file will be written to the “\data\intakes” directory (see [Figure 1](#) for a diagram of the directories and files in the database and Section 4 “Data File Characteristics and Formats” for details on the data files).

2.2. What's new about this release?

This database is based on the MyPyramid Food Guidance System which replaced the 1992 Food Guide Pyramid in January 2005. Therefore, this database contains completely new data for all USDA survey food codes available for use with any dietary survey conducted between 1994 and 2002. The major changes incorporated into this database since PyrServDB_v2 are:

- Data are now in terms of number of MyPyramid equivalents in a food; previous data releases were in terms of number of servings.
- MyPyramid equivalent amounts are now represented in terms of cups, ounces, or other equivalent amounts. This change has the greatest impact on the fruits and vegetables groups where equivalents are now based on 1 cup equivalents instead of the ½ cup serving amounts in previous releases.
- The fish group has been split into two new groups – fish containing high amounts of omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) and fish containing low amounts of these omega-3 fatty acids.
- Discretionary fat has been divided into two new groups – Oils and solid fats (see sections 3.2.2.6 “Oils” and Section 3.2.2.7 “Extras”).
- Bran and pearled barley are no longer considered a source of whole grain and are now included in the non-whole grains group.
- For mixtures, the amount of ingredient in the uncooked recipe that is needed to yield 100 grams of final cooked recipe is used to compute numbers of MyPyramid equivalents. In the previous releases, the amounts of ingredients in 100 grams of the final cooked recipe were used to compute the respective numbers of pyramid food group servings. The equivalent weight for the raw and cooked forms of an ingredient could be different. This change provides a better estimate of MyPyramid equivalents because the reference weight of an ingredient is based on the same form of the ingredient in the recipe before cooking yields are applied.
- Updated fat allowances are used to calculate ounces of cooked lean meat and amounts of discretionary fat (oil and solid).
- All foods have been separated into basic ingredients/commodities (e.g., flour, oil, butter, beef) in order to estimate grams of discretionary fat (solid or oil) per 100 grams of food.

2.3. Other important information about this release

This release of MyPyrEquivDB_v1 supersedes all previous releases of the Pyramid Servings Database (that is, those released in 1997, 1998, 2000, and 2005). The criteria for classifying foods and assigning equivalent amounts for MyPyrEquivDB_v1 were guided by information derived from consumer publications on the USDA MyPyramid Food Guidance System, technical information about its research base, and the MyPyramid Web Site (<http://www.mypyramid.gov>).

Cooked dry beans and peas can be counted as either toward the vegetables group or toward the meat and beans group (USDA/CNPP 2005), however, it is important that dry beans and peas are not double counted in both groups. The equivalents data for cooked dry beans and peas in this database have been calculated as vegetables (i.e., cup equivalents). When counting cooked dry beans and peas as a meat alternate, the conversion ratio is that ¼ cup is equivalent to 1 ounce of cooked lean meat. Therefore, multiply the number of cup equivalents by 4 to convert cooked dry beans and peas to ounce equivalents of cooked lean meat. For individuals who do not eat meat, poultry, or fish, any dry beans and peas consumed can be counted towards the meat and bean group until the recommended intake level for this group is reached. Any remaining dry beans and peas consumed can then be counted towards the vegetables group.

Previous Pyramid food guidance recommended that very young children, 2 to 3 years of age, consume smaller serving sizes (2/3 the standard serving sizes) from the grain, vegetable, fruit, and meat groups (USDA/CNPP 1999) based on their low caloric needs. However, the MyPyramid Food Guidance System provides recommendations for multiple calorie levels including those for children 2 to 3 years of age. Therefore, the MyPyramid Food Guidance System **does not** require an adjustment to the standard portion sizes for children 2-3 years of age.

Food codes with zero (0) MyPyramid equivalents values have been flagged for easy identification (variable EQUIVFLAG, see Section 4.2.2). These foods provide few or no calories in the quantities consumed. Examples of such foods include coffee and tea containing no sugar or creamer; broth, bouillon and consommé; flavorings including spices, herbs, vanilla, and other seasonings; sauces including mustard, soy, and Worcestershire; fluid replacements; plain gelatin; yeast; and water. Infant formulas do not reflect the traditional definition for dairy or soy milk and therefore were assigned zero MyPyramid equivalent values.

Section 3. Methodology: Development of the MyPyramid Equivalents Database

3.1. Overview

In 1993, researchers at the Agricultural Research Service (ARS) of the U.S. Department of Agriculture (USDA), in collaboration with researchers from the National Cancer Institute began development of a method to assess food intakes in terms of food-guidance-based servings. (Cleveland et al. 1997, Krebs-Smith et al. 1995, 1996). The goal was to convert food intake data for the U.S. population collected in the Continuing Survey of Food Intakes by Individuals (CSFII) 1989-91 (USDA/HNIS 1996) into a form that would yield estimates for the U.S. population that could be compared to recommendations in USDA's Food Guide Pyramid (USDA 1992). The conversion required development of a method with very specific operational definitions and processing procedures in order to provide serving estimates consistent with the general consumer-oriented type of guidance provided by the Food Guide Pyramid. Such a method was required to translate complex food mixtures and food combinations into Pyramid servings by food groups. Decisions about how to do this were guided by information derived from consumer publications on the Pyramid (USDA 1992, 1993) and technical publications about its research base (Cronin et al. 1985, 1987; Welsh et al. 1993), while taking into account the diversity of the U.S. food supply as it existed during the survey period.

Further development and documentation of the methodology for producing Pyramid servings databases continued (USDA/ARS 1997, 1998) and today the Pyramid servings methodology is maintained as part of FoodLink (see <http://www.ba.ars.usda.gov/cnrg/services/foodlink.html>), a computerized food data linkage system that translates data on USDA survey food codes to information on ingredients and commodities. In addition to this and other Pyramid servings databases (Cook and Friday 2000b, USDA/ARS 1997, 1998), FoodLink databases have been used to determine food and nutrient intakes by a variety of grouping protocols (Cook and Friday 2003, Cook et al. 2000, 2004, Cotton et al. 2004, Smiciklas et al. 2002).

The methodological differences between the 1994 and 1994-96 CSFII Pyramid servings databases (USDA/ARS 1997, 1998) and the first version of the Pyramid Servings Database for USDA Survey Food Codes released in 2000 (hereafter referred to as PyrServDB_v1) were minor and have been documented (Cook and Friday 2000b). The only methodological differences between PyrServDB_v1 and PyrServDB_v2 were in the algorithms used to calculate ounces of cooked lean meat, grams of discretionary fat, and teaspoon equivalents of added sugar. These changes were made to provide a better estimate of servings from these three groups of food.

In 2005, the USDA replaced the 1992 Food Guide Pyramid and Food Guide Pyramid for Young Children (USDA 1992, USDA/CNPP 1999, Davis 1999) with the MyPyramid Food Guidance System (USDA/CNPP 2005). With this new guidance information, FoodLink created The MyPyramid Equivalents Database for USDA Survey Food Codes, 1994-2002 Version 1.0 (MyPyrEquivDB_v1). This database required extensive updates since the last release to incorporate new guidance offered by the MyPyramid Food Guidance System, including a change

from servings to ounce and cup equivalent measures, inclusion of two new groups for fish high and low omega-3 fatty acid fish, and the separation of fats into oils and solid fats . Methodological changes were also made for this release to provide a more accurate estimate of equivalents and to allow for discretionary fat to be classified as solid fat or oil.

3.1.1. About the USDA MyPyramid Food Guidance System

In 2005, the MyPyramid Food Guidance System (USDA/CNPP 2005) replaced the 1992 Food Guide Pyramid and Food Guide Pyramid for Young Children (USDA 1992, USDA/CNPP 1999, Davis 1999). MyPyramid still characterizes the total diet and identifies the amounts of food an individual should eat from the five major food groups (Grains, Vegetables, Fruits, Milk, and Meat and Beans) and subgroups for health ([Table 1](#)). The subgroups have remained the same except for fish, which is now separated into 2 groups: fish high in omega-3 fatty acids and fish low in omega-3 fatty acids. There is a new group for oils and a new group for several components of the discretionary calories allowance, called “extras” in MyPyramid consumer materials. Extras include solid fats, added sugars, and alcohol. MyPyramid recommendations are defined in terms of cups or ounce equivalents.

Information from the MyPyramid Web Site (<http://www.mypyramid.gov>, USDA/CNPP 2005) and 2005 Dietary Guidelines for Americans (DGAC 2005) were used to classify foods and assign equivalent amounts used in the development of this new database. Data from the USDA/ARS survey databases for food codes, nutrients, recipes, food portions and weights (USDA/ARS 2000, 2004b) and the USDA National Nutrient Database for Standard Reference (SR 16.1) (USDA/ARS 1999, 2004c) were used to translate gram amounts of food into number of MyPyramid equivalents for 32 food groups. The methodology is in Section 3.2.

3.1.2. About the USDA food codes

USDA’s Food Surveys Research Group develops the databases to process food intake records from the most recent national dietary surveys. The Food and Nutrient Database for Dietary Studies, 1.0 (FNDDS) (USDA 2004b) identifies the food codes and descriptions, nutrient values, and weights for typical food portions used to process data from What We Eat in America, NHANES 2001-2002 (USDA/ARS 2004a, CDC/NCHS 2004). The Technical Support Files (TSF) released with the CSFII 1994-96, 1998 microdata (USDA 2000) contained the food codes and descriptions, nutrient values, and portion weights that were used with that survey as well as the dietary interview component of NHANES 1999-2000 (CDC/NCHS 2004).

3.1.3. About MyPyramid Equivalents and USDA food codes

The MyPyramid Equivalents Database for USDA Survey Food Codes, 1994-2002, Version 1.0 (MyPyrEquivDB_v1), is the fifth public database release under the FoodLink Pyramid Database Series. This database is based on the definitions in MyPyramid (USDA/CNPP 2005) that was

Table 1. MyPyramid food groups and food groups in the equivalents data files

<u>MyPyramid Food Groups</u>	<u>Food Groups in Equivalents Data Files</u>
Grains Group	1 Total grain 2 Whole grain 3 Nonwhole / Refined grain
Vegetables Group	4 Total vegetables 5 Dark-green vegetables 6 Orange vegetables 7 White potatoes 8 Other starchy vegetables 9 Tomatoes 10 Other vegetables
Fruits Group	11 Total fruits 12 Citrus fruits, melons, and berries 13 Other fruits
Milk Group ¹	14 Total Milk (milk, yogurt & cheese) ² 15 Milk 16 Yogurt 17 Cheese
Meat and Beans Group	18 Meat, poultry, fish 19 Meat (beef, pork, veal, lamb, game) 20 Organ meats (meat, poultry) 21 Frankfurters, sausage, luncheon meats (made from meat or poultry) 22 Poultry (chicken, turkey, other) 23 Fish and shellfish high in Omega-3 fatty acids 24 Fish and shellfish low in Omega-3 fatty acids 25 Eggs 26 Cooked dry beans and peas* 27 Soybean products (tofu, meat analogs) 28 Nuts and seeds
Oils	29 Discretionary oil
Extras	30 Discretionary solid fat 31 Added sugars 32 Alcohol

* Can be counted toward either the vegetable or meat and beans group. For further information, see [Section 5.1.2](#). The equivalent amounts in MyPyrEquivDB_v1 are cup equivalents of vegetable.

¹ Formerly called Dairy Group.

² Formerly called Total Dairy.

released in 2005; earlier versions were based on the 1992 Food Guide Pyramid (USDA 1992). MyPyrEquivDB_v1 includes data for USDA survey food codes used to process the national surveys between 1994 and 2002. **The release of MyPyrEquivDB_v1 supercedes all previous database releases and translation criteria are now specific for MyPyramid.**

**3.1.3.1. MyPyramid Equivalents Database for USDA Food Codes, 1994-2002
Version 1.0 (MyPyrEquivDB_v1)**

MyPyrEquivDB_v1 includes both MyPyramid equivalents food data and MyPyramid equivalents intake data files by 32 MyPyramid food groups and subgroups ([Table 1](#)) for food codes used to process intakes from the three recent national dietary surveys: What We Eat in America, NHANES 2001-2002, NHANES 1999-2000, and CSFII 1994-96, 1998 (USDA/ARS 2000, 2004a, CDC/NCHS 2004).

The MyPyramid equivalents food data files contain MyPyramid equivalents data per 100 grams of each USDA survey food code and are specific for the years when the surveys were conducted. These data files are located in separate dated directories and files:

- The directory “\equiv0102\” contains equivalents data (“equiv0102.txt”) for 6,974 food codes in the FNDDS (USDA/ARS 2004b), which was used to process What We Eat in America, NHANES 2001-2002 (USDA/ARS 2004a).
- The directory “\equiv9400\” contains equivalents data (“equiv9400.txt”) for 7,360 food codes in the CSFII 1994-1996,1998 TSF (USDA/ARS 2000) which were used to process NHANES 1999-2000 and CSFII 1994-96, 1998 intake records (CDC/NCHS 2004, USDA/ARS 2000).

MyPyramid equivalents intake files are included in MyPyrEquivDB_v1 (see [Table 2](#)). These equivalents intake data files were created using the MyPyramid equivalents food data files and the Survey intake data. The intake files are documented in Section 4.4. Due to the size of these files, each one must be downloaded separately. The intake files and download instructions are available at <http://www.ba.ars.usda.gov/cnrg/services/deload.html>. Once downloaded and extracted, the intake records for a specific survey are located in the “\data\intakes\” directory (see [Figure 1](#) in Section 4.1).

The names of the MyPyramid equivalents intake files follow the naming conventions of the corresponding NHANES and CSFII files:

Type of file	File names	
<i>Dietary intake data per individual:</i>		
individual foods file (amounts from each food reported by each respondent)	drxiff*.xpt	rt30.txt
total nutrient intakes file (daily intake per respondent)	drxtot*.xpt	rt40.txt

MyPyramid equivalents intake data per individual:

individual MyPyramid equivalents foods file (equivalents from each food reported by each respondent)	pyr_iff.sas7bdat	rt32.sas7bdat
total MyPyramid equivalents file (daily intake per respondent)	pyr_tot.sas7bdat	rt42.sas7bdat

Model programs are included in MyPyrEquivDB_v1 and are described in Section 5.2. These programs document how:

- the MyPyramid equivalents intake data files (see Section 4.4) were created
- cooked dry beans and peas can be assigned to either the vegetables or meat and beans group (see Section 5.1.2)
- equivalent intake estimates can be compared to MyPyramid recommendations (see Section 5.1.1)

3.2. Method to develop the MyPyramid Equivalents food data files

The methods used by ARS to classify foods into groups and assign MyPyramid equivalent weights are documented in this section. The major methodological changes since the previously released PyrServDB_v2 are:

- MyPyramid equivalent amounts are now represented in terms of cups, ounces or other equivalent amounts.
- The fish group has been split into two new groups – fish containing high amounts of omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), and fish containing low amounts of these omega-3 fatty acids.
- Discretionary fat has been divided into two new groups – Oils and solid fats (see sections 3.2.2.6 “Oils” and Section 3.2.2.7 “Extras”).
- Bran and pearled barley are no longer considered a source of whole grain and are now included in the nonwhole grains group.
- For mixtures, the amount of ingredient in the uncooked recipe that is needed to produce 100 grams of final cooked recipe was used to compute numbers of MyPyramid equivalents. In the previous releases, the amounts of ingredients in 100 grams of the final cooked recipe were used to compute the respective numbers of pyramid food group servings. The equivalent weight for the raw and cooked forms of an ingredient could be

different. This change provides a better estimate of MyPyramid equivalents because the reference weight of an ingredient is based on the same form of the ingredient in the recipe before cooking yields are applied.

- Updated fat allowances were used to calculate ounces of cooked lean meat and amounts of discretionary fat (oil and solid).
- All foods were separated into basic ingredients/commodities (e.g., flour, oil, butter, beef) in order to estimate grams of discretionary fat (solid or oil) per 100 grams of food.

3.2.1. General method

3.2.1.1. Converting food consumption data into MyPyramid Equivalents

FoodLink categorized all foods and ingredients used in the FNDDS and CSFII recipe databases into defined MyPyramid food groups. Many foods cannot be categorized into MyPyramid food groups in the forms in which they are eaten and reported in food consumption surveys. To create the MyPyramid Equivalents Database, a method developed by ARS was used to separate foods into their ingredients before categorizing them by MyPyramid food group. Approximately 87 percent of food codes had to be separated into ingredients in order to report equivalents for at least one of MyPyramid food groups.

FoodLink's method for separating foods into ingredients can be conceptualized as multiple-level recipe files (see [Table 2](#)). To categorize foods into MyPyramid food groups and calculate the equivalents for each food group, some foods do not need to be separated into ingredients. However, many must be disaggregated to a commodity or intermediate level of disaggregation, and multiple-level recipe files are necessary for this process. Recipe information from the FNDDS, 1.0 and the CSFII recipe database were used for this process. Ingredient level recipe information was provided by ARS' Nutrient Data Laboratory.

The level of disaggregation required depends on several factors, including:

- The types of foods included in each MyPyramid food group,
- The specificity with which MyPyramid documentation identified alternate measures that counted as cup or ounce equivalents,
- The methods ARS developed to assign weights consistent with MyPyramid definitions for an equivalent (see Section 3.2.1.2, "Sources of equivalent weights for foods or ingredients").

Table 2. Conceptualization of multiple-level recipe files*

Food reported	Ingredients		
	Level 1	Level 2	Level 3
BEEF BARBECUE ON BUN (survey food code 27510110)	→ ground beef, cooked**		
	→ hamburger roll**	→ white bread flour water yeast salt nonfat milk solids sugar** shortening	
	→ barbecue sauce	→ catsup	→ tomato sauce** vinegar sugar** brown sugar** onions** mustard worcestershire sauce
		water	

* Recipes are generic estimates of what people consume.

** Level at which ingredient was categorized in a MyPyramid food group and counted toward MyPyramid equivalents.

With ARS' method, equivalent weights are assigned to foods or to their ingredients, starting with the food as reported in the survey and then, if required, working down through the “recipe” data to the commodity level. The sources for the recipe data are the “FNDDSSRLinks” file (USDA/ARS 2004b) or the CSFII recipe database (USDA/ARS 2000). Methods established for this process are described in Section 3.2.2, “Classifying foods and assigning MyPyramid equivalent sizes” for each food group. For MyPyrEquivDB_v1, every attempt has been made to adhere strictly to the concepts and definitions described in the information provided on the MyPyramid web site (USDA/CNPP 2005) and 2005 Dietary Guidelines for Americans (DGAC 2005).

3.2.1.2 Sources of equivalent weights for foods or ingredients

Food portion sizes and respective weights for the chosen portion sizes were used to derive food- or ingredient-specific weights for equivalents that are consistent with MyPyramid definitions (USDA/CNPP 2005). During coding of intakes of the What We Eat in America, NHANES 2001-2002, NHANES 1999-2000, and CSFII 1994-96, 1998 (CDC/NCHS 2004, USDA/ARS 2000, 2004a), volume-weight measures and established coding guidelines were used to convert the units in which individuals reported their food intakes into gram amounts. These same volume-weight

measures were used to convert the gram amounts into units corresponding to equivalents as recommended by the MyPyramid Food Guidance System (USDA/CNPP 2005).

[Table 3](#) includes several examples of the types of information available in the survey food code databases. A single food code may have several portion sizes and weights associated with the respective portion sizes. Examples include, small-, medium-, or large- sized apple; one cup of sliced or mashed cooked carrots; and pizza with different diameters in size. Where data on more than one portion size for a food code was available in the food code database, a weight consistent with the MyPyramid definition for an equivalent of that food (or ingredient) was selected. When a direct portion size-weight match was not available in the food code database, the MyPyramid equivalent weight was interpolated from the available data.

In some cases, such as one cup of cooked carrots, there are notable differences in the weight per one MyPyramid equivalent depending on the form of the food selected. In such events, the rationale for choosing the appropriate weights are discussed in Section 3.2.2, "Classifying foods and assigning equivalent sizes." Some equivalent weights were derived from yield information in the food coding databases. For some foods cooking yield information was used to determine the equivalent weights for dry ingredients in recipes, which when hydrated would equal an equivalent as described in MyPyramid (e.g., gram amount of dry beans (68 g) that makes 1 cup of cooked beans).

Data from the FNDDS files ("FoodPortionDesc", and "FNDDSSRLinks") and SR 16.1 (USDA/ARS 2004b, 2004c) were used to assign amounts to foods in the data file "equiv0102.txt" for use with the What We Eat in America, NHANES 2001-2002 data (USDA/ARS 2004a). The complete FNDDS for processing What We Eat in America, NHANES 2001-2002 intakes is available from the FSRG web site: <http://www.barc.usda.gov/bhnrc/foodsurvey> (USDA/ARS 2004b).

Data from the CSFII food coding database and SR13 (USDA/ARS 1999, 2000) were used for foods in the data file "equiv9400.txt" which contain data for use with the NHANES 1999-2000 and CSFII 1994-96, 1998 data. The CSFII multi-version (dated) food coding database used for NHANES 1999-2000 and CSFII 1994-96, 1998 is available on the CSFII/DHKS 1994-96, 1998 CD-ROM (USDA/ARS 2000).

Table 3. Weights of selected household measures from the USDA survey food coding databases (USDA/ARS 2004b, 2000) and amount chosen to equal 1 MyPyramid equivalent

FOOD CODES AND SELECTED MEASURES	WEIGHTSCONDITIONS FOR USING AS WT OF 1 CUP OR OUNCE
63101000 APPLE, RAW	
1 small (2-1/2" dia)	106 grams ... used as weight of 1 cup equivalent (R/I) ^{1,2}
1 medium (2-3/4" dia)	138 grams
1 large (3-1/4" dia)	212 grams
1 cup, sliced	110 grams
1 cup, quartered or chopped	125 grams
1 slice	17 grams
73102221 CARROTS, COOKED, FROM FRESH, FAT ADDED IN COOKING	
1 cup, sliced	161 grams ...used as weight of 1 cup equivalent (R/I)
1 cup, mashed	233 grams
1 cup, baby carrots	154 grams
1 baby carrot	8.8 grams
1 slice	2.8 grams
41106020 RED KIDNEY BEANS, DRY, COOKED, FAT NOT ADDED IN COOKING	
1 cup	172 grams ...used as weight of 1 cup equivalent (R/I)
1 cup, mashed	224 grams
1 oz dry, yield after cooking	68 grams ...used for dry kidney beans as ingredient; equivalent is weight of dry to yield 1 cup ckd. (I)
51101000 BREAD, WHITE	
1 very thin slice	15 grams
1 thin slice	20 grams
1 regular slice	26 grams ...used as weight of 1 ounce equivalent(R/I)
1 large slice	30 grams
1 slice, crust not eaten	12 grams
1 thin slice, crust not eaten	9 grams
56203010 OATMEAL, COOKED, REGULAR, FAT NOT ADDED IN COOKING	
1 cup, cooked	234 grams ...used 1/2 as weight of 1 ounce equivalent (R/I)
1 oz, dry, yields	164 grams

¹ (R) indicates weight for a MyPyramid equivalent of a reported food item

² (I) indicates weight for a MyPyramid equivalent of an ingredient of a reported food item

3.2.2. Classifying foods and assigning MyPyramid equivalent weights

3.2.2.1. Grains Group

What foods count toward equivalents from the grains group?

Foods counted as grain in the grains group include yeast breads and rolls, quick breads such as muffins, biscuits, pancakes, and tortillas; rice; pasta; breakfast cereals; grain-based snacks such as crackers, pretzels, popcorn, and corn chips; and baked goods made from flour, such as cakes, cookies, croissants, doughnuts, pastries, and pie crust (USDA/CNPP 2005).

The MyPyramid Food Guidance System emphasizes whole grain choices and recommends that at least half the total grains eaten should be whole grains (USDA/CNPP 2005). Therefore, the data for the grains group includes whole grain equivalents and nonwhole grain or refined grain equivalents separately. Whole grains contain the entire grain kernel (the bran, germ, and endosperm). Examples of whole grain foods in this database include whole-wheat flour, bulgur (cracked wheat), oatmeal, whole cornmeal, and brown rice. Refined grains have been milled to remove the bran and germ, which gives the grain a finer texture and improves their shelf life, but also removes dietary fiber, iron, and many B vitamins. Some examples of refined grain products are white flour, degermed cornmeal, white bread, pearled barley, bran, and white rice.

How are grain equivalents defined in the MyPyramid Equivalents Database?

Definitions were derived from the “What counts as an ounce equivalent of grains” section of the MyPyramid web site (USDA/CNPP 2005). The amount of grain that is recommended for daily consumption is specified in terms of ounce equivalents. [Appendix Table B.1](#) identifies what MyPyramid counts as an ounce equivalent of grains. These are estimates that are rounded to consumer friendly units. See “Selecting grain equivalent weights from the food coding databases” below for more details and where what FoodLink counted as an ounce of grain may differ from MyPyramid guidelines.

Equivalent amounts are not specified for all foods in the grains group. In addition, reference amounts for those specified in the FNDDS and CSFII TSF may not perfectly match the defined amount. For example, MyPyramid specifies 1 slice of bread as counting as 1 ounce of grain. However, the FNDDS measure for 1 slice of a standard white bread is 26 grams, not 28.35. In some cases the defined equivalent amounts needed to be operationalized using standardized definitions and procedures to the extent possible. In doing this, two primary criteria were used:

- Consistency with the underlying rationale for the grain group as the primary source of complex carbohydrate in diets and a major contributor to fiber intake.
- Maintenance of the MyPyramid concept of defining equivalents in common household measures (cups, ounces) and easily recognizable units (1 slice of bread, 1 roll).

The defined MyPyramid equivalent amounts were used as a basis for selecting or imputing appropriate equivalent weights, and guidelines were established for selecting equivalent weights from the food coding databases (see "Selecting grain equivalent weights from the food coding databases" below).

- For snack-type grain products (crackers, pretzels, corn chips), grain-based desserts (cookies, cakes, sweet rolls, pastries, pie crust), certain quick breads (hush puppy, dumplings), and miscellaneous grains (thickeners, batter, breading), a method was developed for defining equivalents based on the grain content of the food (see "Calculating grain equivalents based on grain content" below).
- For some grain products, notably quick breads (pita bread, biscuits, pancakes, waffles, tortillas, taco shells), the grams needed per MyPyramid equivalent were calculated based on the grain content of the food, but then the reference equivalent amount was defined as a household measure for which a gram weight was available in the CSFII 1994-96, 1998 food coding database or FNDDS (for example, a pancake of a given diameter). The household measure with a gram weight closest to the weight calculated based on grain content was defined as a MyPyramid equivalent.

Selecting grain equivalent weights from the food coding databases

Bread, yeast: MyPyramid counts 1 slice of bread as an ounce equivalent. The weight of 1 regular slice of commercial white bread (26 grams) was used as a standard of comparison for decisions about equivalent amounts for yeast breads. Thus, for bakery or homemade bread, which is denser than commercial bread, the weight for 1 thin slice was selected. Of the available choices, this weight (33 grams) was the closest to the standard. When the food coding databases did not list weights for a slice of bread, 26 grams was used as the weight of an equivalent for those bread codes. Since a slice of standard white bread weighing 26 grams contained 16 grams of flour, 16 grams of flour became the standard applied to other grain products with multiple portion sizes. The portion selected as an ounce equivalent was that amount that contained 16 grams flour +/- 6.5 grams.

Rolls: One ounce equivalent was defined as 1 small (pan/dinner) roll. The 1 small roll used as a standard weighed 28 grams. When a weight for 1 small roll was not available for a given food code, the portion size with a weight closest to this standard roll was used. If the only weight available for 1 roll was greater than or equal to 35 grams (for example, hamburger roll, submarine roll), one ounce equivalent was defined as 1/2 roll. This was a natural cut point because, in the FNDDS and CSFII 1994-96 food coding databases, 1 French roll weighs 34 grams, and then the next heaviest roll is a hamburger roll weighing 43 grams. This cut point is also consistent with the MyPyramid definition for an ounce equivalent of English muffin (that is, 1/2 muffin); weights for 1/2 of an English muffin range from 25 to 29 grams.

English muffin: One ounce equivalent was defined as 1/2 a English muffin, as specified by MyPyramid. Since the dimensions of these foods vary considerably, the size from the food

coding databases used as an ounce equivalent for each code was the size specified by MyPyramid, or the size closest by weight to the weight calculated to contain one ounce equivalent of grains (see “Calculating grain equivalents based on grain content” below).

Muffin: One ounce equivalent was defined as 1 small muffin, as specified by MyPyramid. Small muffins in the FNDDS and CSFII 1994-96 food coding database are defined as 2-1/2 inches in diameter, and they weigh 45 grams whether or not they contain added ingredients such as fruits and nuts. If ARS had based the definition of an equivalent on the grain content of muffins rather than the MyPyramid definition, then weights would have ranged from 32 to 68 grams. Instead, for consistency with the MyPyramid concept of defining equivalents in common household measures and recognizable units, ARS used the equivalent amount specified by MyPyramid.

Quick breads (non-yeast breads, biscuit, pancake, waffle, tortilla, taco shell): The weight for an ounce equivalent of quick (non-yeast) bread, such as nut or zucchini bread, was imputed from muffins and defined as 45 grams (1 small muffin). Equivalent weights for other quick breads correspond to the specific size or dimension from the CSFII food coding database manual that was closest by weight to the weight calculated to contain one ounce equivalent of grains (see “Calculating grain equivalents based on grain content” below).

Rice, pasta, cooked breakfast cereals: One ounce equivalent was defined as 1/2 cup cooked, as specified by MyPyramid. For raw rice, dry pasta, and dry cereals (for example, oatmeal) that are used as ingredients in recipes, the equivalent weight of 1 ounce (28.35 grams) was used as defined by MyPyramid.

Ready-to-eat breakfast cereals: As specified in the MyPyramid, one ounce equivalent was defined as 1 ounce (28.35 grams), but weights of ingredients categorized in food groups other than the grains group were excluded. There is wide variation among cereals in the proportion of ingredients that count toward other food groups. Ingredients, including dried fruits, nuts, seeds, sugar, and fat, can contribute more than 60 percent to the weight of some ready-to-eat cereals. Only ingredients that were considered typical of grain products were counted toward the equivalent weight for ready-to-eat cereal. These included grain ingredients, dry milk, whey, spices, flavorings, vitamins, minerals, baking powder, yeast, and salt. This means that the equivalent weight of ready-to-eat cereal is essentially based on its grain content.

Calculating grain equivalents based on grain content

The method used by ARS to determine equivalent amounts when ounce equivalents were not identified by MyPyramid, was to calculate equivalents based on the grain content of the food. This method was used to derive equivalent amounts for many snack-type grain products, grain-based desserts, some quick breads, and miscellaneous grains.

The standard used for defining the amount of flour in 1 ounce equivalent of grains was 1 regular slice of commercial white bread (26 grams). This amount contained 16 grams of flour. Thus, 1 ounce equivalent of grains was defined as the grams of grain product containing 16 grams of

flour. For products containing grain ingredients other than flour and products containing more than one grain ingredient, equivalents were calculated by summing grain equivalents from each grain ingredient. For example, the grain equivalents from oatmeal cookies took into account grain from wheat flour and oatmeal.

For most quick breads (biscuit, pancake, waffle, tortilla, taco shell), the grams of flour in 1 ounce equivalent of grains provided the basis for selecting a equivalent amount and corresponding weight from the food coding databases, which corresponded to a recognizable unit. For example, 38 grams of pancake contains 16 grams of flour (that is, 1 ounce equivalent of grain). The CSFII 1994-96 food coding database included weights for pancakes ranging from 1 to 10 inches in diameter. Among these, the 5 inch diameter pancake, at 40 grams, has a weight closest to 38 grams, so it was defined as 1 ounce equivalent of grains.

How were ounce equivalents of whole grains and nonwhole grains determined?

CNRG FoodLink staff, in consultation with food specialists at ARS, Nutrient Data Laboratory, Beltsville, MD, classified all grain ingredients used in the FNDDS database and the CSFII recipe databases (USDA/ARS 2000, 2004b) as whole grain or nonwhole grain. For each food reported in the survey, the total number of ounce equivalent of grains per 100 grams was determined. Then, this total number of ounce equivalents was divided into whole grain equivalents and nonwhole grain equivalents based on the proportion of the grain ingredients in the food that were whole grain and nonwhole grain.

For example, cracked wheat bread contains three grain ingredients, white wheat flour and bran, which are classified as nonwhole grain, and whole wheat flour, which is classified as whole grain. The white wheat flour and bran contribute 68 percent to the total weight of the grain ingredients and the whole wheat flour contributes 32 percent. Thus, of the 4 ounce equivalent per 100 grams of cracked wheat bread, 2.7 are nonwhole grain and 1.3 are whole grain.

3.2.2.2. Vegetables Group

What foods are classified as vegetables?

The MyPyramid Food Guidance System separates vegetables into five subgroups: dark-green vegetables, orange vegetables, starchy vegetables, dry beans and peas, and other vegetables (USDA/CNPP 2005). MyPyramid states that dry beans and peas (legumes) can be counted toward the recommendations for either vegetables or meat and beans (see Section 5.1.2).

A list of vegetables classified according to these subgroups is shown below. It includes all those reported in the FNDDS and CSFII coding databases. The classifications marked with an asterisk are from the MyPyramid Food Guidance System consumer information (USDA/CNPP 2005). The remainder were assigned by ARS nutritionists and food specialists.

Dark-green vegetables: arugula, balsam-pear tips, beet greens, bitter melon leaves, broccoli*, chard, chicory, cilantro, collard greens*, cress, dandelion greens, endive, escarole, grape leaves, kale*, lambsquarters, mustard greens*, mustard cabbage, parsley, poke greens, pumpkin leaves, romaine lettuce*, spinach*, sweet potato leaves, taro leaves, turnip greens*, watercress*.

Orange vegetables: calabaza, carrots*, carrot juice, pumpkin*, sweetpotato*, winter squash, yams.

Starchy vegetables: black-eyed peas (not dried), breadfruit, burdock, casabe, cassava, corn*, cowpeas (not dried), dasheen, green peas*, hominy, jicama, lima beans* (immature), parsnips, pigeon peas, poi, salsify, white potato*, rutabaga, tannier, taro, yambean.

Other vegetables: algae, aloe vera juice, artichoke*, asparagus*, balsam-pear pods, bamboo shoots, bean and alfalfa sprouts*, broccoflower, beets*, Brussels sprouts*, buckwheat sprouts, cabbage* (green and red), cactus, capers, cauliflower*, celeriac, celery*, celery juice, chayote, Chinese cabbage, chives, christophine, chrysanthemum, coriander, cucumber*, eggplant*, fern shoots, garlic, ginger root, green beans*, horseradish, jute (potherb), kohlrabi, leek, lettuce*, lotus root, luffa (Chinese okra), mushrooms*, nopales, okra*, olives, onions* (mature and green), oriental radishes, palm hearts, peppers* (green, red, hot, banana), pimiento, pumpkin flowers, radicchio, radishes, sauerkraut, seaweed, sequin (Portugese cabbage), snow peas, summer squash, string beans (yellow), swamp cabbage, tomatillo, tomato*, tomato juice*, tree fern, turnips*, water chestnuts, wax beans*, waxgourd, winter melon, zucchini*.

Dry beans and peas: bayo beans, black beans*, blackeyed peas*, broadbeans, calico beans, chickpeas* (garbanzos), cowpeas, fava beans, kidney beans*, lentils*, lima beans* (mature), mongo beans, mung beans, navy beans*, pinto beans*, pink beans, red Mexican beans, split peas, soybeans* (mature), white beans*.

MyPyramid equivalents files further subdivide these groups (see [Table 1](#)). White potatoes are listed separately from other starchy vegetables because they comprise a large proportion of

starchy vegetable consumption. Similarly, tomatoes are listed as a separate group; MyPyramid includes them with "other vegetables".

How are vegetable equivalents defined in the MyPyramid Equivalents Database?

Definitions were derived from the "What counts as a cup of vegetables?" section of the MyPyramid web site (USDA/CNPP 2005). The amount of vegetables that is recommended for daily consumption is specified in terms of cup equivalents. (Note: previous Pyramid guidance recommendations were defined in terms of ½ cup amounts). [Appendix Table B.2](#) identifies what MyPyramid counts as a cup of vegetables. These are estimates that are rounded to consumer friendly units. These equivalents were used as the basis for selecting or imputing appropriate equivalent weights from the FNDDS and CSFII food coding databases (USDA/ARS 2000, 2004b). The following broad guidelines were used for making selections from the available choices:

Raw, canned or cooked vegetable: One cup equivalent was defined as 1 cup for cooked or canned vegetable. Often, the food coding databases provided several forms (e.g., chopped, sliced, pieces, whole) with different weights which represent the various forms in which a vegetable might be available for consumption. When the form is known from the description of a reported food item, the weight of that form was used. For example, when mashed vegetables were reported, the weight for the mashed form was used. When the form was not known, the priority for selecting an equivalent weight was: chopped, sliced, cubes, diced, pieces, whole. For broccoli, the order of priority was: chopped, cut, pieces, florets, spears. In general, this had the effect of counting as a cup equivalent the most dense form of the vegetable for which a weight was available.

For vegetables or vegetable ingredients not specifically covered by the basic MyPyramid definitions, the following equivalent amounts were used:

Dehydrated vegetables: Although MyPyramid does not specify equivalent amounts for dehydrated vegetables, some were reported in the recent surveys. They include carrot chips, sun-dried tomatoes, dried seaweed, dehydrated chives, dehydrated onion, and freeze-dried sweet green peppers. Dehydrated vegetables were also used as ingredients in recipes. MyPyramid identifies the cup equivalent for dried fruit as ½ cup. For dehydrated vegetables the same rationale was used and ½ cup was deemed the cup equivalent for dehydrated vegetables other than dried beans and peas and dehydrated potatoes (discussed below).

Tomato puree or paste: The cup equivalent for these tomato products is 1/2 cup. This amount reconstitutes to about 1 cup, and the amount of total solids it contains is similar to that in 1 cup of tomatoes.

Dry beans and peas: Equivalent amounts for dried beans and peas (used as ingredients in recipes) were defined as the amount needed to yield 1 cup cooked. Yield information is included in the FNDDS and CSFII food coding databases.

Potatoes: Cup equivalents for potato chips and dehydrated potatoes were defined as:

- Potato chips: One cup equivalent was defined as 2 ounces (56.7 grams). This quantity has about the same amount of carbohydrate as 1 cup of baked or boiled potato, and therefore reflects the potato (but not the fat) from the potato chip.
- Dehydrated potatoes: One cup equivalent was defined as the amount of dried potato flakes that yields 1 cup of prepared mashed potato.

Equivalent weight assignments for vegetables

All vegetables that were ingredients in multi-ingredient foods were disaggregated and any fraction of a cup equivalent they contributed, no matter how small, is accounted for in equivalents from the vegetables group in the MyPyramid equivalents files. The basic philosophy used in developing these files was to separate foods into ingredients only to the extent necessary to categorize them into MyPyramid food groups. Thus, equivalent weights were assigned to plain vegetables and to vegetables with added ingredients if those ingredients did not increase the volume measure appreciably. The justification for this approach was that MyPyramid defines vegetable equivalents by volume (that is, 1 cup) so an equivalent weight that included the weight of added ingredients was acceptable as long as the volume measure was consistent with the MyPyramid-defined equivalent amount. Examples of cooked vegetables with added ingredients to which 1 cup equivalent was assigned are: spinach, fat added in cooking; corn relish; glazed carrots; sweet potato canned in syrup with fat added in cooking; and mashed potatoes.

Although equivalent weights were assigned to vegetables in their "as consumed" form, the non-vegetable ingredients were counted toward appropriate food groups as well. In the examples above, the fat added in cooking and the added sugars were counted toward the discretionary solid fat and added sugars respectively (see Sections 3.2.2.6, "Oils" and 3.2.2.7, "Extras"), and the milk in mashed potatoes was counted toward the milk group. Vinegar does not count toward a MyPyramid food group because it has no calories.

For vegetable combinations containing vegetables from more than one subgroup (for example, peas and carrots), first the equivalent weight was selected from the food coding databases. Then the number of cup equivalents from each subgroup per 100 grams was determined based on the proportion by weight that each vegetable in the recipe contributed to the total.

3.2.2.3. Fruits Group

What foods are classified as fruits?

The database separates fruits into two subgroups --"citrus, melons, berries" and "other fruits". A list of fruits classified according to these subgroups is shown below. The MyPyramid Food Guidance System does not classify fruits into subgroups.

Citrus fruits, melons, berries: Acerola, blackberries, blueberries, boysenberries, calamondin, cantaloupe, casaba melon, cranberries, dewberries, elderberries, gooseberries, grapefruit, huckleberries, honeydew melon, June berries, kiwifruit, kumquat, lemon, lime, loganberries, mandarin oranges, mulberries, orange, raspberries, strawberries, tangelo, tangerine, ugli fruit, watermelon, youngberries, and juices made from these fruits.

Other fruits: Apple, apricot, Asian pear, avocado, banana, cherries, currants, dates, figs, genip, guava, quince, grapes, jackfruit, japanese pear, jobo, loquats, lychee, mamey (mamea apple), mango, nectarine, papaya, passion fruit, peach, pear, persimmon, plantain, pineapple, plum, pomegranate, prickly pear, prunes, raisins, red banana, rhubarb, sapodilla, soursop (guanabana), star fruit (carambola), sweetsop, tamarind, watermelon rind, wi-apple, and juices made from these fruits.

How are fruit equivalents defined in the MyPyramid Equivalents Database?

Definitions were derived from the "What counts as a cup of fruit?" section of the MyPyramid web site (USDA/CNPP 2005). The amount of fruit that is recommended for daily consumption is specified in terms of cup equivalents. (Note: previous Pyramid guidance recommendations were defined in terms of ½ cup amounts). [Appendix Table B.3](#) identifies what MyPyramid counts as a cup of fruit. These are estimates that are rounded to consumer friendly units. These equivalent amounts were used as the basis for selecting or imputing appropriate equivalent weights from the FNDDS and CSFII food coding databases (USDA/ARS 2000, 2004b). The following broad guidelines were used for making selections from the available choices and identify where FoodLink may differ from MyPyramid definitions:

Raw fruits: One cup equivalent was defined as a whole fruit of the size specified by MyPyramid. If the food coding database did not include the specified size, then one cup equivalent was defined as a whole fruit if the weight of one fruit was equal to or greater than the weight of 1 cup raw and the fruit was not consumed as a recipe ingredient. When the food coding databases provided weights for several sizes of fruits (for example, small, medium, large), the size with a weight closest to that of 1 cup was selected.

One cup equivalent was defined as 1 cup raw when the weight of one whole fruit was less than the weight of the 1 cup measure. Examples are apricots, blueberries, cherries, grapes, plums, strawberries, and tangelos. For fruits with pits, the equivalent weight was for 1 cup of pitted fruit.

One cup equivalent was also defined as 1 cup raw when the weight of one whole fruit markedly exceeded the weight of 1 cup raw. Examples are cantaloupe, pineapple, and watermelon.

Canned or cooked fruit: One cup equivalent was defined as 1 cup for cooked or canned fruit, fruit sauces, and baby fruits. The following order of precedence was used in choosing an equivalent weight from among different forms of the fruit: chopped, diced, sliced, halves, whole. The equivalent weight for the 1 cup portion size included the weight of both the fruit and its liquid, if any, because the liquid would have been included in the weight when the individual's intake was originally converted into gram data.

Dried fruits: One cup equivalent was defined as 1/2 cup as specified by MyPyramid.

Fruit juices: For single-strength juices and juices containing less than 10 percent sugar by weight, one cup equivalent was defined as 1 cup. Two ounces of fruit juice concentrate is needed to prepare one cup of reconstituted fruit juice. Therefore, one cup equivalent of juice concentrate was defined as 2 ounces. Other sweetened fruit juices, juice drinks, and fruit ades were handled as mixtures, and cup equivalents were determined based on the amount of fruit ingredients present in the mixture.

How were equivalent weights assigned to fruits?

Equivalents from all fruits, whether eaten alone or consumed as an ingredient, were counted toward fruit group equivalents. As with foods in the grains and vegetables groups, foods were separated into ingredients before equivalent weights were assigned only if an equivalent weight consistent with MyPyramid could not be determined for the food as consumed. Therefore, equivalent weights were assigned to fruits prepared with added sugar if the sugar did not increase the volume appreciably. For example, weights from the food coding databases appropriate for a 1 cup amount were selected for fruits that were unsweetened and sweetened and for those canned in juice pack, light syrup, and heavy syrup. A few fruits, such as fruit nectars and cranberry sauces, were defined as mixtures and separated into ingredients before equivalent weights were assigned, because they contained large proportions of added sugar, which could change the volume measurement.

For fruit combinations containing fruits from more than one subgroup (for example, fruit cocktail with citrus fruits), first the equivalent weight was selected from the food coding databases. Then the number of cup equivalents from each subgroup per 100 grams was determined based on the proportion by weight that each fruit in the recipe contributed to the total.

3.2.2.4. Milk Group

What foods are classified in the milk group?

According to MyPyramid, most dairy foods are classified in this group (also called the milk, yogurt, and cheese group). Dairy foods that are excluded are those that are primarily fat, namely butter, cream, sour cream, and cream cheese.

How are milk equivalents defined in the MyPyramid Equivalents Database?

Definitions were derived from the “What counts as 1 cup in the milk group?” section of the MyPyramid web site (USDA/CNPP 2005). The amount of milk or yogurt that is recommended for daily consumption is specified in terms of cup equivalents. [Appendix Table B.4](#) identifies what MyPyramid counts as a cup in the milk group. These are estimates that are rounded to consumer friendly units. The equivalent amounts and criterion used to define them for dairy products or dairy ingredients are as follows:

Fluid milk: A cup equivalent was defined as 1 cup for the following types of milk: cow's, goat's; skim, low-fat, whole; calcium fortified; filled with vegetable oil; lactose-reduced; dry reconstituted; chocolate; and evaporated diluted. Flavored milks other than chocolate (e.g., strawberry milk) were handled as mixtures, and equivalents were assigned based on their dairy ingredients, since there is wide variation in the amount of dairy product different types of flavored milks contain.

Dry milk: A cup equivalent was defined as 1/3 cup, which is the amount needed to make 1 cup of reconstituted milk. This equivalent amount was also used for dry whey.

Evaporated milk, undiluted: A cup equivalent was defined as 1/2 cup, which is the amount needed to yield 1 cup diluted.

Yogurt: A cup equivalent was defined as 1 cup (8 fluid ounces) for plain nonfat, low-fat, whole yogurt (not frozen), flavored yogurt and yogurt with fruit. Frozen yogurt was separated into its basic ingredients (for example, milk, sugar, fruit), and then equivalent were defined at the ingredient level.

Cheese: According to MyPyramid, a cup equivalent of natural cheese is 1-1/2 ounces and a cup equivalent of processed cheese is 2 ounces (USDA/CNPP 2005). While these broad definitions are useful for educational purposes, they are not specific enough for monitoring purposes where the equivalent amount must cover the complete spectrum of cheeses on the market. A number of cheeses do not provide the amount of calcium expected of a cup equivalent if these equivalent amounts are used. Therefore, in developing these data files, we used the calcium criterion to define the equivalent amounts for cheese. A cup equivalent of natural or processed cheese was defined in terms of the number of ounces needed to provide 302 milligrams of calcium, the same amount of calcium in 1 cup of skim milk. Equivalent amounts were rounded to 1/2 ounce increments, and ranged from 1 ounce (28.35 grams) to 8 ounces (226.80 grams). The most frequently used equivalent amounts were 1 ounce, 1-1/2 ounces, and 2 ounces, and equivalent

amounts for the most frequently consumed cheeses, such as natural cheddar cheese and processed American cheese, fell in this range. Generally, the 1 ounce equivalent amount applied to dry cheeses, such as Parmesan, and reduced fat or nonfat cheeses.

For cottage cheese and ricotta cheese, equivalent amounts were defined in terms of the number of cups needed to provide 302 milligrams of calcium (rounded to 1/2 cup increments) as follows: 2 cups creamed cottage cheese, 3 cups cottage cheese with vegetable or fruit added, 6-1/2 cups dry curd cottage cheese, 1/2 cup ricotta cheese.

All types of cream cheese, including fat free, were counted toward the “extras”, not the milk group (see Section 3.2.2.7, "Extras").

Ice cream and other frozen dairy desserts: These were handled as mixtures, and equivalent amounts were assigned based on their milk ingredients. Although the MyPyramid Food Guidance System includes these foods in the milk group (USDA/CNPP 2005), the amount needed to provide 302 milligrams of calcium can vary widely depending on the ingredients. Thus, ARS felt that the most accurate method for determining equivalent amounts was to separate them into ingredients first.

How were equivalent weights assigned to dairy products?

Most foods containing dairy products were separated into ingredients, and the number of cup equivalents from the milk group was determined based on the amount of milk or cheese they contained using the equivalent amounts specified above. This was true for foods having dairy products as primary ingredients, such as ice cream, ice milk, frozen yogurt, puddings, and custards (including those used as fillings). It also applied to mixed dishes, such as casseroles, omelets, soups, and vegetables with cream or cheese sauces, and to mixtures, such as salad dressings, milk gravies, meal replacements, and candies, that contained milk or cheese as an ingredient.

For a few foods, milk (but not cheese) that was an ingredient was not counted toward milk group equivalents. These foods included grain products that counted toward grains group equivalents and processed meats and meat analogs that counted toward meat and beans group equivalents. Milk was considered an integral part of these foods; it would have been double counted if it had also been counted toward equivalents from the milk group.

With one exception, milk equivalents were not assigned to infant formulas. MyPyramid applies to individuals 2 years of age and older, and infant formulas are generally not consumed by this population. In addition, infant formulas are highly formulated products, which in general do not reflect the traditional definitions of foods in the milk group. In the CSFII 1994-96, 1998 there was one report of oatmeal made with a milk-based infant formula that was consumed by an individual 2 years or older. For this food, the amount of formula counted toward equivalents of milk.

3.2.2.5. Meat and Beans Group

What foods are classified in the meat and beans group?

The meat and beans group includes beef, pork, lamb, veal, game, poultry, fish, shellfish, frankfurters, sausages, bacon (see discussion below), luncheon meats, organ meats, and meat alternates. Meat alternates include eggs, soy-based products such as tofu/soybean curd, soy milk and soy flour, and meat analogs, nuts, and seeds. Dry beans and peas can also count as a meat alternate, or they can count as a vegetable (see discussion below and Section 5.1.2).

MyPyramid states that most meat and poultry choices should be lean or low-fat. Fish, nuts, and seeds contain healthy oils so these foods should be consumed more frequently than currently consumed.

How are meat and bean equivalents defined in the MyPyramid Equivalents Database?

The MyPyramid Food Guidance System recommends eating 3 to 6 ounce equivalents each day of foods from the meat and beans group depending on age and gender (USDA/CNPP 2005). [Appendix Table B.5](#) identifies what counts as an ounce equivalent from the meat and beans group. These are estimates that are rounded to consumer friendly units.

Dry beans and peas ... vegetable or meat alternate?

According to MyPyramid, (USDA/CNPP 2005) dry beans and peas (LEGUMES variable in MyPyrEquivDB_v1) can be counted in either the vegetable or meat and beans group (but not double counted in both); see [Section 5.1.2](#). The data for cooked dry beans and peas in this database have been calculated as cup equivalents of vegetable. MyPyramid identifies 1/4 cup of cooked dry beans and peas as equivalent to 1 ounce of cooked lean meat. The unit used in MyPyrEquivDB_v1 for cooked dry beans and peas is one cup. Therefore, to include dry beans and peas in the meat and beans group, multiply the number of cup equivalents by 4 to convert cooked dry beans and peas to ounce equivalents of cooked lean meat.

Calculating lean meat equivalents and grams discretionary fat (solid or oil) for COOKED meat, poultry, and fish.

The nutrient profile for the meat and beans group shows that one ounce of the cooked lean meat, poultry, fish, eggs and nuts and seeds composite (level of specificity based on unpublished CNPP data) provides 2.63 grams of fat. This translates to 9.28 grams of fat per 100 grams of cooked lean meat.

Therefore, the definition of cooked lean meat is meat, poultry, or fish that contains 9.28 grams or less of fat per 100 grams and at least 90.72 grams that is not fat per 100 grams (referred to as "nonfat meat" in this documentation). Thus, by definition, every 100 grams of meat, poultry, or

fish with 9.28 grams or less of fat per 100 grams is 3.53 ounces of cooked lean meat (that is, $100/28.35 = 3.53$), and it has no discretionary fat (solid or oil) (see Sections 3.2.2.6 and 3.2.2.7).

To determine the ounce equivalents of cooked lean meat and grams of discretionary fat (solid or oil) from cooked meat, poultry, or fish with more than 9.28 grams of fat per 100 grams, an algorithm was developed based on the following procedure. ***Grams of discretionary fat from meat and poultry was classified as solid fat, and grams of discretionary fat from fish was classified as oil.***

STEP 1 Determine the grams of nonfat meat per 100 grams by subtracting the grams of nutrient fat (USDA/ARS 1999, 2000, 2004b,c) per 100 grams from 100:

$$\text{NONFAT MEAT} = 100 - \text{FAT}$$

Example: If there are 31.16 grams of fat in 100 grams of cooked sausage, then, the sausage has 68.84 grams of nonfat meat per 100 grams (that is, $100 - 31.16 = 68.84$).

STEP 2 Determine the grams of allowed fat associated with the nonfat meat, replicating the ratio of fat to nonfat meat in the meat composite profile as follows:

$$\text{ALLOWED FAT} = (9.28/90.72) * (\text{NONFAT MEAT})$$

Example: For sausage, $\frac{9.28 \text{ g}}{90.72 \text{ g}} = \frac{X}{68.84 \text{ g}}$

Therefore: $X = 9.28 / 90.72 * 68.84 = 7.04$ grams of allowed fat in 100 grams of cooked sausage.

STEP 3 Determine the grams of lean meat per 100 grams of meat, poultry, or fish by summing the nonfat meat and allowed fat per 100 grams:

$$\text{GRAMS LEAN MEAT} = \text{NONFAT MEAT} + \text{ALLOWED FAT}$$

Example: For sausage, $68.84 + 7.04 = 75.88$ grams of cooked lean meat in 100 grams of cooked sausage.

STEP 4 Convert the grams of lean meat to ounces of lean meat per 100 grams of meat, poultry, or fish by dividing by 28.35:

$$\text{OUNCES LEAN MEAT} = \text{GRAMS LEAN MEAT} / 28.35$$

Example: For sausage, $75.88 / 28.35 = 2.676$ ounces of cooked lean meat in 100 grams (3.53 ounces) of cooked sausage.

STEP 5 Determine the grams of discretionary fat (solid or oil) per 100 grams of cooked meat, poultry, or fish by subtracting the grams of lean meat (step 3) from 100:

$$\text{DISCRETIONARY FAT} = 100 - \text{GRAMS LEAN MEAT}$$

Example: For sausage, $100 - 75.88 = 24.12$ grams of discretionary solid fat per 100 grams of cooked sausage.

Collapsing terms, the algorithms for calculating ounces of cooked lean meat and grams of discretionary fat (solid or oil) per 100 grams of cooked meat, poultry, or fish for these data files are:

$$\text{OUNCES COOKED LEAN MEAT} = [(100 - \text{FAT}) + (9.28 / 90.72) * (100 - \text{FAT})] / 28.35$$

$$\text{GRAMS DISCRETIONARY FAT} = 100 - [(100 - \text{FAT}) + (9.28 / 90.72) * (100 - \text{FAT})]$$

Therefore:

$$\text{OUNCES COOKED LEAN MEAT (per 100 g)} = 0.03888 * (100 - \text{FAT per 100 g})$$

$$\text{GRAMS DISCRETIONARY FAT (per 100 g)} = 100 - (1.1023 * (100 - \text{FAT per 100g}))$$

These algorithms were used to calculate ounces of cooked lean meat, poultry, or fish (MPF) and grams of discretionary fat (solid or oil) from *cooked* meat, poultry, and fish (without added ingredients), bean (veggie or garden) burgers, and other meat substitutes that are mainly legume protein (such as vegetarian or meatless fish sticks, chicken, hotdogs and soy-based meal replacements) that were reported as single food items. The number of ounces of lean meat and grams of discretionary fat (solid or oil) in 100 grams MPF foods were written to an interim processing file.

The algorithms provide a standardized method for determining the amount of cooked lean meat and the amount of discretionary (or excess) fat in 100 grams of cooked meat, poultry, or fish. This means that meats generally considered high in fat, such as frankfurters and bacon, for which there are now low-fat alternatives, can be systematically categorized into MyPyramid food groups in a manner that is consistent with the concepts on which MyPyramid is based. As the variety of low-fat meat products on the market increases, this will be increasingly important.

Calculating lean meat equivalents and grams discretionary fat (solid or oil) for cooked meat ingredients from mixtures.

For this database, the same basic algorithms used to determine the number of ounce equivalents of lean meat and grams of discretionary fat (solid or oil) for single food items described above were used, but the amount of fat in the algorithms was determined using the recipe retention factor method (Perloff 1985, Powers and Hoover, 1989). This method adjusts the nutrient contribution of each ingredient in a cooked food for moisture and fat changes due to cooking:

total nutrient fat from the MPF ingredient in 100 grams of prepared mixture (g) =

$$\frac{\text{MPF ingredient weight in grams} * (\text{fat per 100 g ingredient} \div 100) * (\% \text{ retention})}{100\% + (\% \text{ moisture change}) + (\% \text{ fat change})}$$

The MPF ingredient weight and the total nutrient fat from the MPF ingredient in the prepared food are then used to determine the number of ounce equivalents of lean meat and grams of discretionary fat (solid or oil) from mixed foods.

$$\begin{aligned} \text{OUNCES COOKED LEAN MEAT (per 100 g)} &= \\ 0.03888 * (\text{MPF ingred g} - \text{total FAT from g MPF ingred per 100 g mixture}) \end{aligned}$$

$$\begin{aligned} \text{GRAMS DISCRETIONARY FAT (per 100 g)} &= \\ \text{MPF ingred gm} - (1.1023 * (\text{MPF ingred g} - \text{total FAT from g MPF ingred per 100 g mixture})) \end{aligned}$$

This revised approach provides an estimate that is consistent with the total fat content of the mixture and is an improvement over previous estimates for ounce equivalents of MPF.

Calculating lean meat equivalents and grams of discretionary fat (solid or oil) for RAW meat

Some recipes in the FNDDS and CSFII recipe databases contain raw meat, and consumption of raw meat and fish has been reported. Thus, ARS developed a standard for the grams of fat allowed in 100 grams of raw meat that is equivalent to having 9.28 grams of fat per 100 grams once cooked (that is, MyPyramid standard for cooked lean meat). The raw meat standard is 6.11 grams of fat (or less) per 100 grams. To convert from the raw to the cooked weight, ARS assumed an average cooking yield of 75 percent. Thus, 1-1/3 ounces of raw lean is equivalent to the 1 ounce cooked lean standard.

The algorithms for raw meat expressed as ounces of cooked lean meat are:

$$\text{OUNCES COOKED LEAN MEAT} = [(100-\text{FAT})+(6.11/93.89) * (100-\text{Fat})]/28.35 * 0.75$$

$$\text{GRAMS DISCRETIONARY FAT} = 100- [(100-\text{FAT})+(6.11 / 93.89) * (100-\text{FAT})] * 0.75$$

Therefore:

$$\text{OUNCES COOKED LEAN MEAT (per 100 g)} = 0.0376 * (100 - \text{FAT per 100 g}) * 0.75$$

$$\text{GRAMS DISCRETIONARY FAT (per 100 g)} = 100 - (1.0651 * (100 - \text{FAT per 100g})) * 0.75$$

In recipes where raw MPF appear as mixture ingredients, the recipe retention factor method is now being used. Since that method is specific for the nutrients from ingredients in the cooked mixture, the same revised algorithms for the cooked MPF ingredients given above were used.

3.2.2.6. Oils

The MyPyramid Food Guidance System separates fats into 2 categories: oil and discretionary solid fat. Oils are fats that are liquid at room temperature like vegetable oils used in cooking. Foods that are mainly oil include mayonnaise, some salad dressing and soft tub or squeeze margarine. A fat was assigned to the oil group if it was:

- from a plant source and not described as "hydrogenated" or "shortening"
- from a fish source
- from nuts and seeds
- a margarine described as a "tub" or "liquid"

If the form (stick/tub/liquid) of a margarine was not included in the description, it was classified as oil if the recipe ingredient was classified as oil or if the fat content was less than 80 percent.

Oils are the major source of monounsaturated fatty acids (MUFA) and polyunsaturated fatty acids (PUFA) fats in the diet. PUFAs contain some fatty acids that are necessary for health—called "essential fatty acids." Because oils contain these essential fatty acids, there is an allowance for oils in the MyPyramid Food Guidance System separate from the discretionary calorie allowance. The MUFAs and PUFAs found in fish, nuts, and vegetable oils do not raise LDL ("bad") cholesterol levels in the blood. In addition to the essential fatty acids they contain, oils are the major source of vitamin E in typical American diets.

The amount of oil provided in this MyPyramid Equivalents Database includes amounts of oil reported separately as well as amounts of oil used as ingredients in foods such as mayonnaise and baked products. It also includes amounts of oil from fish and nuts that exceed the amount of allowable fat (see Section 3.2.2.7 "Extras"). Because the oil variable includes amounts of discretionary fat from fish and nuts, it has been named discretionary oil (DISCFAT_OIL) in this database .

3.2.2.7. Extras

“Extras” refers to all of the calories from discretionary solid fat, added sugars, and alcohol (USDA/CNPP 2005). They are the calories in foods such as candies, sodas, alcoholic beverages, and solid fats which provide calories and little else nutritionally.

The MyPyramid Equivalents Database provides amounts for solid fats and sugars eaten separately as well as amounts added to foods such as cereal and coffee or tea, since these also count toward “extras”. This database also includes a separate group for alcohol since these beverages provide considerable calories with little or no other nutrients.

Because the MyPyramid was developed as an educational tool to describe food guidance recommendations to the general public, it describes what counts toward oils and “extras” in terms of foods rather than food ingredients. The foods it specifically lists have fats or sugars as primary ingredients, or have a high concentration of natural sugar, such as honey, maple syrup, or fruit spreads (preserves or butters) made without added sugar. Some foods, however, also contain primary ingredients that fit into the major nutrient-bearing food groups. Examples are some white (milk) gravies or sauces, candy with nuts, and jams and jellies (fruit). Equivalents based on the amount of milk, nuts, and fruit from these food examples were assigned to their respective food groups; only the amount of added sugar and fat ingredients were assigned to the fat and sugar groups. In addition, many foods that MyPyramid counts toward the major food groups, such as french-fried potatoes, croissants, sweetened yogurt, chocolate milk, fruits canned with heavy syrup, and sweetened bakery products like cakes and cookies, are high in fats and/or added sugars; fat and sugar ingredients from such foods count toward the oils and “extras”.

For the purposes of the MyPyramid Equivalents Database, we have conceptualized the MyPyramid “extras” as containing only the solid fat, added sugar, or alcohol components of foods:

Discretionary solid fat includes--

- all "excess" fat from the Milk and Meat and Beans groups beyond amounts that would be consumed if only the lowest fat forms were eaten (see [Table 4](#))
- solid fats added to foods in preparation or at the table, including cream, butter, stick margarine, regular or low-fat cream cheese, lard, meat drippings, cocoa, and chocolate

Added sugars includes--

- all sugars used as ingredients in processed and prepared foods, such as breads, cakes and other grain desserts, soft drinks, jams and jellies, candies, and ice-cream
- sugars eaten separately or added to foods at the table

Alcohol includes--

- beer
- wine
- distilled spirits

Discretionary Solid Fat

Solid fats are fats that are solid at room temperature such as butter, beef tallow, stick margarine, and shortening. They primarily come from animal sources or from vegetable oils that have been hydrogenated. Solid fats are reported in this database separately from oils because they are a major source of saturated fat and cholesterol, and should be limited to reduce the risk of heart disease (USDA/CNPP 2005, DGAC 2005). A fat was assigned to the solid fat group if it was:

- from an animal source other than fish
- a blend of animal and plant sources (e.g., butter and margarine blend)
- described as "hydrogenated"
- described as "shortening"
- cocoa/chocolate (not liquid)
- source was coconut or palm
- margarine described as "stick"

If the form (stick/tub/liquid) of a margarine was not included in the description, it was classified as solid if the recipe ingredient was classified as solid or if the fat content was 80 percent or greater.

More information about discretionary fat (solid or oil).

The MyPyramid Food Guidance System recommends selecting the lowest fat choices in each food group. Any additional fat can be viewed as discretionary fat in that people can add it to their diets by choosing higher fat foods from the major food groups (for example, whole milk instead of skim milk), by using fat as an ingredient in prepared foods (oil in fried chicken), or by adding it to foods at the table (for example, cream in coffee; butter or margarine on bread).

When the Food Guide Pyramid (USDA/CNPP 1992) was developed and then reintroduced as MyPyramid (USDA/CNPP 2005), nutrient profiles were established for each food group (Cronin et al. 1985, Davis et al 1999, Welsh et al. 1993). These profiles represented the nutrients expected, on average, in an equivalent of the food group if foods were in their lowest fat form. Thus, the nutrient profile for the milk group includes only skim milk. The profile for the meat and beans group includes lean cuts of meat trimmed of all fat and poultry without skin. Fruits and vegetables have no added fats. For the equivalents data in these files, these nutrient profiles were used to define "allowable" amounts of nutrient fat for the milk and meat and beans groups (see [Table 4](#)). The amount of nutrient fat from pure grains, fruits, and vegetables (e.g., intrinsic fat in wheat flour, banana, and peas) is not counted as discretionary oil (personal communication with CNPP staff). However, any fats and/or oils added to foods assigned to the grains, fruits and vegetables groups (e.g., oil from bread, oil from fried banana, and butter from buttered peas) has been included as discretionary solid fat or discretionary oil.

Table 4: Allowable fat values by MyPyramid food group

Milk Group	0.20 grams per cup equivalent
Meat and Beans Group	2.63 grams per ounce equivalent cooked lean meat

Discretionary oil and discretionary solid fat represent the fat from foods in excess of these allowable amounts. Discretionary solid fat includes excess fat from foods such as whole milk, cheese, and sausage, and discretionary oil includes excess fat from foods such as fish and nuts. Discretionary fat (solid or oil) also includes fat from foods such as cream, butter, olive oil, and salad dressing that are added to other foods. Discretionary fat (solid or oil) is expressed as grams of nutrient fat.

The allowable fat value for the meat and beans group has been applied in calculating discretionary fat (solid or oil) from meat, poultry, fish (see Section 3.2.2.5); organ meats; frankfurters, sausages, luncheon meats; and meat alternates (eggs, tofu, bean burgers and other meat substitutes, nuts, nut butters, and seeds). There is no discretionary oil assigned to pure dry beans and peas. These foods can be counted as either a vegetable or meat alternate. Any nutrient fat from basic (or pure) grains, fruits and vegetables (e.g., flour, bananas, and peas) is allowed so the inherent nutrient fat from dry beans and peas is likewise allowed. Further, the fat content is low and is within the allowance of 2.63 grams per ounce equivalent of meat when dry beans and peas are counted as meat alternates.

Calculating grams of discretionary fat (solid or oil)

The amount of discretionary fat per cup or ounce equivalent is determined using the amount of allowable fat per equivalent (see [Table 4](#)), and the total fat grams per 100 grams of food. Total fat values per 100 grams of food are from the FNDDS, SR16.1, and TSF databases (USDA/ARS 2004b, 2004c, 2000). The formula is:

$$\begin{aligned} \text{DISCRETIONARY FAT per MyPyramid equivalent (g)} &= \\ &[\text{Weight of a single MyPyramid equivalent (g)} \\ & * \text{Amount of total fat per 100 grams of food (g) / 100}] \\ &- \text{Amount of total fat allowed per single equivalent of food (g)} \end{aligned}$$

Example: 1 whole egg:
1 egg weighs 50 grams, 1 oz equivalent = 1 egg = 50 grams
Amount of total fat per 100 grams of egg = 9.94 grams
Amount of allowed fat per ounce equivalent of meat and bean = 2.63 grams

$$\begin{aligned} \text{DISCRETIONARY FAT per MyPyramid equivalent of egg (g)} &= \\ &[50 * (9.94 / 100)] - 2.63 = 2.34 \end{aligned}$$

New to this release of the MyPyramid Equivalents Database, the grams of discretionary fat (solid or oil) are now based on the amount of total fat from the basic ingredient of a prepared mixture. Earlier database releases calculated discretionary fat using the amount of total fat in the Pyramid food. Since many Pyramid foods are themselves mixtures (e.g., bread, croissant, buttered peas, etc.) that could potentially contain a combination of oil and solid fats, all foods were separated into their basic ingredients so that the grams of discretionary fat could be categorized appropriately into solid fats or oils. The total fat from the basic ingredient in the prepared mixture was determined using the recipe retention factor method (Perloff 1985, Powers and Hoover 1989), which adjusts the nutrients from ingredients of cooked foods for moisture and fat changes. The formula is:

$$\begin{aligned} &\text{TOTAL FAT in a BASIC INGREDIENT per 100 grams of prepared mixture (g) =} \\ &[\text{Amount of basic ingredient in 100 grams of food (g)} \\ & * (\text{Total fat in 100 grams of the ingredient (g) / 100}) * \% \text{ Retention}] \\ & / [100 + \% \text{ Moisture change} + \% \text{ Fat change}] \end{aligned}$$

Example: Total fat for egg ingredient in sausage, egg, and croissant sandwich
 Amount of egg ingredient in 100 grams of croissant sandwich = 27.47 grams.
 Retention factor for total fat = 100%
 Moisture and fat changes = 0 % since all ingredients in recipe are cooked
 Amount of fat per 100 grams of egg = 9.94 grams

$$\begin{aligned} &\text{TOTAL FAT in egg ingredient per 100 grams of croissant sandwich (g) =} \\ & [27.47 * (9.94/100) * 100] / (100 + 0 + 0) = 2.731 \text{ g} \end{aligned}$$

Next, the grams of discretionary fat (solid or oil) in the ingredient present in 100 grams of the prepared food mixture is determined using the total fat for the ingredient in 100 grams of the food mixture, the weight of the ingredient in 100 grams of the mixture (g), the weight of one equivalent of the ingredient (g), and the amount of fat allowed for one equivalent of the ingredient (g) (see [Table 4](#)).

$$\begin{aligned} &\text{DISCRETIONARY FAT from the amount of basic ingredient present in 100 grams of} \\ &\text{food mixture (g) =} \\ &\text{Amount of total fat from basic ingredient present in 100 grams of food mixture (g)} \\ &- [\text{Amount of fat allowed per equivalent of ingredient (g)} \\ &* (\text{Weight of ingredient in 100 grams of mixture (g) / Weight of one equivalent of} \\ &\text{ingredient (g)})] \end{aligned}$$

Example: Discretionary solid fat from egg ingredient in sausage, egg, and croissant sandwich
 Amount of egg ingredient in 100 grams of croissant sandwich = 27.47 grams.
 Amount of total fat in 27.47 grams ingredient = 2.731 grams (see above)
 Amount of fat allowed per ounce equivalent of meat and beans (g) = 2.63

$$\begin{aligned} &\text{DISCRETIONARY SOLID FAT in egg ingredient per 100 grams of croissant} \\ &\text{sandwich (g) = 2.731 - [2.63 * (27.47 / 50)] = 1.286 \text{ g} \end{aligned}$$

Note: This reflects only the discretionary solid fat from the egg ingredient in 100 grams of croissant sandwich. Additional discretionary solid fat comes from the sausage, and butter ingredients in the croissant.

This approach provides an estimate that is consistent with the total fat content of foods that contain fat.

More information about added sugars.

Added sugars are defined as white sugar, brown sugar, raw sugar, corn syrup, corn syrup solids, high fructose corn syrup, malt syrup, maple syrup, pancake syrup, fructose sweetener, liquid fructose, honey, molasses, anhydrous dextrose, crystal dextrose, and dextrin that are eaten separately or used as ingredients in processed or prepared foods. Total (nutrient) sugars were used to determine amounts of added sugars from caloric sweeteners.

Added sugars do not include naturally occurring sugars. For example, they do not include the lactose in milk or the fructose in fruit. For this release of the MyPyramid database, added sugars exclude sugar substitutes although previous releases counted these as added sugars based on their carbohydrate content.

What are the units for added sugars?

Quantities of added sugar in the MyPyramid Equivalent Database are expressed in terms of teaspoons of table (granulated white) sugar (food code 91101010). One teaspoon of added sugar is defined as the quantity of sweetener that contains the same amount of total (nutrient) sugars (4.196 grams) provided by 1 teaspoon (4.2 grams) table sugar. The weight for 1 teaspoon of sugar and the grams of total sugars per 100 grams sweetener (99.91 grams) are from the FNDDS which was used to process the dietary component of the What We Eat in America, NHANES 2001-2002 (USDA/ARS 2004b):

$$4.2 \text{ grams (1 teaspoon) table sugar} * \frac{99.91 \text{ grams total sugars per 100 grams table sugar}}{100}$$

$$= 4.196 \text{ grams total sugar per teaspoon (4.2 grams) table sugar}$$

There are 23.8 teaspoons of added sugar in 100 grams table sugar:

$$\frac{99.91 \text{ grams total sugars per 100 grams table sugar}}{4.196 \text{ grams total sugars in 1 teaspoon of sugar}}$$

Assigning added sugar amounts to other sweeteners

The general formula for determining the teaspoons of added sugar from caloric sweeteners was:

$$\text{TEASPOONS ADDED SUGAR in 100 grams sweetener} = \frac{\text{amount of total sugars in 100 grams sweetener (g)}}{4.196 \text{ grams total sugars}}$$

Example: There are 82.12 grams total sugars per 100 grams honey

$$\text{TEASPOONS ADDED SUGAR in 100 grams honey} = 19.571 =$$

$$\frac{82.12 \text{ grams total sugars per 100 grams honey}}{4.196 \text{ grams total sugars per teaspoon table sugar}}$$

$$\text{ONE TEASPOON ADDED SUGAR from honey} = 5.11 \text{ grams:}$$

$$\frac{100 \text{ gram s}}{19.571 \text{ teaspoons added sugar per 100 grams honey}}$$

The FNDDS is the first database that contained total sugar values for survey food codes (USDA/ARS 2004b). Total sugars values from the FNDDS had to be assigned to sweetener codes from the CSFII TSF (USDA/ARS 2000) in order to determine the quantities of added sugars for foods from the CSFII 1994-96, 1998 and NHANES 1999-2000 (USDA/ARS 2000, CSD/NCHS 2004).

The amount of total sugars in sugar substitutes is zero. Sugar substitutes contain carbohydrates, but the retail form of aspartame is the only sugar substitute in the FNDDS with calories from carbohydrates (these are from starch, an ingredient in the dry aspartame). Carbohydrates in dry aspartame (85.54 grams per 100 grams) were counted as grain equivalents: 11.60 grams carbohydrate is the amount in 1 ounce equivalent of grains based on the amount of flour in 1 ounce equivalent of bread (see Section 3.2.2.1). There are 8.5 ounce equivalents of grains from starch in 100 grams dry aspartame. However, there is only slightly more than 0.05 ounce equivalents of grains from 1 individual packet (1 gram) of dry aspartame (USDA/ARS 2004b).

Calculating added sugar amounts from sweetener ingredients in mixed foods

Teaspoons of added sugar in the MyPyramid equivalents food file “equiv0102.txt” (see Section 4.2) were based on the amount of total sugars from the sweetener ingredient determined using the recipe retention factor method (Perloff 1985, Powers and Hoover, 1989). The recipe retention factor method adjusts the nutrients from ingredients of cooked foods for moisture and fat changes.

The amount of total sugars from sweetener ingredients was determined using this formula:

$$\begin{aligned} \text{TOTAL SUGARS from SWEETENER INGREDIENT in 100 grams food mixture (g)} &= \\ &[\text{Sweetener ingredient weight in 100 grams of food (g)} \\ & * (\text{Amount of total sugars per 100 grams of sweetener ingredient (g) / 100}) * \% \text{ Retention}] \\ &/ [100 + \% \text{ Moisture change} + \% \text{ Fat change}] \end{aligned}$$

Example: Total sugars for honey ingredient in honey-roasted nuts
Weight of honey in 100 grams honey-roasted nuts = 15 grams
Amount of total sugars per 100 grams honey ingredient (g) = 82.12 grams

$$\begin{aligned} \text{TOTAL SUGARS from HONEY INGREDIENT in 100 grams honey-} \\ \text{roasted nuts} &= \frac{[15 \text{ grams} * (82.12 / 100) * 100]}{(100 + 0 + 0)} \\ &= 12.318 \text{ grams} \end{aligned}$$

The number of teaspoons of added sugar per 100 grams of food are determined using the amount of total sugars in the prepared food that is from the sweetener ingredient:

$$\begin{aligned} \text{TEASPOONS ADDED SUGAR from sweetener ingredient in 100 grams food mixture (g)} &= \\ \text{amount total sugars from sweetener ingredient present in 100 grams of mixture (g)} &/ 4.196 \end{aligned}$$

Example: Teaspoons of added sugar for honey ingredient in honey-roasted nuts
Total sugars for honey in 100 grams honey-roasted nuts = 12.318 grams

$$\begin{aligned} \text{TEASPOONS ADDED SUGAR from HONEY INGREDIENT in 100 grams} \\ \text{honey-roasted nuts (g)} &= 12.318 / 4.196 \\ &= 2.936 \end{aligned}$$

Teaspoons of added sugar in the MyPyramid equivalents food file “equiv9400.txt” (see Section 4.2) were based on:

- the amount of carbohydrate from the sweetener ingredient determined using the recipe retention factor method and carbohydrate values from the TSF (USDA/ARS 2000), and
- the ratio of total sugars to carbohydrate for sweeteners from the FNDDS (USDA/ARS 2004b).

This approach was necessary since total sugars data were not released for CSFII 1994-96, 1998 and NHANES 1999-2000 food codes and since carbohydrate values for sweeteners were different for some sweetener ingredients (USDA/ARS 1999, 2004c). Results were adjusted to the same amounts of added sugars if the same food codes were in the “equiv0102.txt” and the carbohydrate values and amounts of sugar ingredients were the same for codes from the TSF and FNDDS.

More information about alcohol.

The previous Food Guide Pyramid (USDA 1992) listed a drink as 12 fluid ounces of beer, 5 fluid ounces of wine, and 1-1/2 fluid ounces of 80-proof distilled spirits. Each of these provides about the same amount of alcohol – between 13 and 14 grams of alcohol (12.96 grams for beer; 13.72 grams for table wine; 13.93 grams for distilled spirits). These amounts were used as the basis for drink sizes of alcoholic beverages not covered by the list above. Drink sizes were rounded to half-ounce units. Thus, for the MyPyramid Equivalents Databases, one drink is:

regular beer	12.0 fluid ounces
light beer	12.0 fluid ounces
table wine (dry)	5.0 fluid ounces
dessert wine	3.0 fluid ounces
rice wine (saki)	3.0 fluid ounces
light wine	7.0 fluid ounces
cooking wine	14.0 fluid ounces

wine, baked or simmered:

table wine--

1 to 60 minutes.....	14.0 fluid ounces
1 to 1-1/2 hours.....	20.0 fluid ounces
2 to 2-1/2 hours.....	51.0 fluid ounces

dessert wine--

1 to 30 minutes.....	7.0 fluid ounces
46 to 60 minutes.....	10.0 fluid ounces
1-1/2 to 1-3/4 hours.....	14.5 fluid ounces

wine stirred into hot liquid :

table wine.....	6.0 fluid ounces
dessert wine.....	3.5 fluid ounces

distilled spirits.....	1.5 fluid ounces
cordial or liqueur.....	1.5 fluid ounces

liqueur stirred into hot liquid:

sweet.....	2.0 fluid ounces
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Section 4. Data File Characteristics and Formats

4.1. Files provided in the database

When the MyPyramid Equivalents Database is downloaded and extracted, files are placed within directories as shown in [Figure 1](#). The MyPyramid Equivalents Database contains three types of data files:

- MyPyramid equivalents food files
- food descriptions for each food code
- MyPyramid equivalents intake files

Other files in the database include:

- format files for each data file
- model programs (see Section 5.2 and Appendix D)
- database documentation

MyPyramid equivalents food data files list the number of equivalents per 100 grams food for [32 MyPyramid food groups](#). The numbers, that is “0102” or “9400”, in the file names, the food descriptions files, and the directory where each file is located represent the last two digits of the years during which a survey was conducted:

- “\equiv0102” contains food and description data files specific for What We Eat in America, NHANES 2001-2002 (USDA/ARS 2004a)
- “\equiv9400” contains food and description data for NHANES 1999-2000 and CSFII 1994-96, 1998 (CDC/NCHS 2004, USDA/ARS 2000)

There are two sets of intake files in the database, each with two types of MyPyramid equivalents intake data:

- number of equivalents provided by each food eaten per individual per day, and
- total daily MyPyramid equivalents intakes per individual; CSFII intake files also have 2-day average intakes for individuals with intakes for 2 days.

The sets are for:

- NHANES 1999-2002 (combined intakes from What We Eat in America, NHANES 2001-2002 and NHANES 1999-2000)
- CSFII 1994-96, 1998 intakes

Each MyPyramid equivalents intake file is downloaded separately and the extracted files are written to the “C:\MyPyrEquivDB_v1\data\intakes” directory.

Figure 1. Directories and files from the MyPyramid Equivalents Database for USDA Survey Food Codes, 1994-2002 Version 1.0

C:\MyPyrEquivDB_v1\	
	--data\
	-equiv0102\
	-equiv0102.txt
	-fddes0102.txt
	-equiv9400\
	-equiv9400.txt
	-fddes9400.txt
	--formats\
	-f_equiv.txt
	-f_fddes.txt
	--intakes\
	-pyr_iff.sas7bdat
	-pyr_tot.sas7bdat
	-rt32.sas7bdat
	-rt42.sas7bdat
	--doc\ - doc.pdf
	MyPyramid equivalents food data for USDA food codes used to process What We Eat in America, NHANES 2001-2002
	- Number of equivalents for each of the 32 Pyramid food groups per 100 grams food code (ASCII fixed format)
	- Food code descriptions (ASCII fixed format)
	MyPyramid equivalents food data for USDA food codes used to process CSFII 1994-96, 1998 and NHANES 1999-2000
	- Number of equivalents for each of the 32 Pyramid food groups per 100 grams food code (ASCII fixed format)
	- Food code descriptions (ASCII fixed format)
	File formats for MyPyramid equivalents food data files
	- Format for the equiv*.txt files (ASCII fixed format)
	- Format for the fddes*.txt files (ASCII fixed format)
	MyPyramid equivalents intake data files
	- Number of MyPyramid equivalents provided by each food eaten per individual for What We Eat in America, NHANES 2001-2002 and NHANES 1999-2000 (SAS format)
	- Daily MyPyramid equivalents intakes per individual for What We Eat in America, NHANES 2001-2002 and NHANES 1999-2000 (SAS format)
	- Number of MyPyramid equivalents provided by each food eaten per individual per day, CSFII 1994-96, 1998 (SAS format)
	- Daily MyPyramid equivalents intakes per individual per day for CSFII 1994-96, 1998; also, 2-day average daily number of MyPyramid equivalents per individual with intakes for 2 days (SAS format)
	Documentation of MyPyrEquivDB_v1
	Section 1 Table of Contents
	Section 2 Essential Information
	Section 3 Methodology: Development of the MyPyramid Equivalents Database
	Section 4 Data File Characteristic and Formats
	Section 5 Using the MyPyramid Food and Intake Files
	Appendix A Useful Web Sites
	Appendix B What Counts in each MyPyramid Food Group
	Appendix C Control Counts for MyPyramid Equivalents Food and Intake Files
	Appendix D Program Files

Figure 1. Directories and files from the MyPyramid Equivalents Database for USDA Survey Food Codes, 1994-2002 Version 1.0 -- continued

C:\MyPyrEquivDB_v1\	
--programs\	Model SAS® programs to document and use MyPyrEquivDB_v1 intake data (see Section 5.2)
-readequiv.sas	Reads "equiv0102.txt" and "equiv9400.txt"; stores data in SAS formats ("equiv0102.sas7bdat" and "equiv9400.sas7bdat")
-pyr_iff.sas	Joins the MyPyramid food data "equiv0102.sas7bdat" to What We Eat in America, NHANES 2001-2002 food intake and demographic records and "equiv9400" to NHANES 1999-2000 food intake and demographic records to create combined NHANES 1999-2002 MyPyramid equivalents intake data for each food eaten per individual ("pyr_iff.sas7bdat")
-pyr_tot.sas	Reads NHANES 1999-2002 MyPyramid equivalents food intake data from "pyr_iff.sas7bdat" and creates daily MyPyramid equivalents intake data ("pyr_tot.sas7bdat") per individuals two years of age and older
-rt32.sas	Joins "equiv9400.sas7bdat" food data file to CSFII 1994-96, 1998 intake and demographic data files to create MyPyramid equivalents intake data for each food eaten per individual ("rt32.sas7bdat")
-rt42.sas	Reads CSFII 1994-96, 1998 MyPyramid equivalents food intake data from "rt32.sas7bdat" and creates daily MyPyramid equivalents intake data ("rt42.sas7bdat") per individual for Day 1, Day 2, and a 2-day average for individuals completing intakes for 2 days
-pyrrecom.sas	Use to compare MyPyramid equivalents intakes to MyPyramid Food Guidance recommendations (USDA/CNPP 2005)
-pyrrpt.sas	Use to prepare MyPyramid equivalents intakes for analyses and reports
--ReadMe.txt	Introduction and directory structure for MyPyrEquivDB_v1

4.2. MyPyramid equivalents food data files

There are two MyPyramid equivalents food files with data for the number of equivalents for each of the [32 MyPyramid food groups](#) per 100 grams food:

- “equiv0102.txt” – contains codes from the Food and Nutrient Database for Dietary Studies (FNDDS) (USDA/ARS 2004b) used to process What We Eat in America, NHANES 2001-2002 (USDA/ARS 2004a) CDC/NCHS 2004);
- “equiv9400.txt” – contains codes from the CSFII survey technical support files (TSF) (USDA/ARS 2000) used to process NHANES 1999-2000 and CSFII 1994-96, 1998 (CDC/NCHS 2004, USDA/ARS 2000c).

The MyPyramid equivalents food data for the same code may differ between the two files because the data in each MyPyramid food file was created using food data (recipes, nutrients, portions) specific to that survey.

4.2.1. File characteristics

Each record contains the number of equivalents from all 32 MyPyramid food groups.

file name:	“equiv0102.txt”	“equiv9400.txt”
size:	1.8 megabytes	2.8 megabytes
format:	ASCII text fixed format	ASCII text fixed format
record:	35 fields, 271 characters	35 fields, 271 characters
number food codes:	6,974	7,360 where modcode = 0
codes with zero equivalents:	87	98

Control counts on the number of records and control statistics (number, mean, minimum, maximum, and sums) for the data in these two files are provided in Appendix C.

The criteria for classifying foods and assigning equivalent amounts for MyPyrEquivDB_v1 were guided by information derived from consumer publications on the USDA MyPyramid Food Guidance System, technical information about its research base, and the MyPyramid Web Site (<http://www.mypyramid.gov>).

Food codes with zero (0) equivalents have been flagged for easy identification (see the EQUIVFLAG variable in the data file format below). These include foods providing few or no calories in the quantities consumed, such as coffee and tea without sugar or creamer; broth, bouillon and consomme; flavoring (spices, herbs, vanilla, and other seasonings); sauces such as mustard, soy, and Worcestershire; fluid replacements; plain gelatin; yeast; and water. Infant formulas also show zero (0) equivalents for all groups since these highly formulated products do not reflect the traditional definition for dairy or soy milk.

Before using the data to report MyPyramid equivalents intakes, a decision is required to ensure that equivalents of cooked dry beans and peas (LEGUMES) contribute to either the vegetables or meat and beans MyPyramid group, but not double counted in both. See the data file format below and Section 5.1.2. The model programs (see Section 5.2.2) contain code to show users how to place equivalents of dry beans and peas in the vegetables or meat and beans group. It should be noted that MyPyramid suggests an alternative method for counting dry beans and peas for individuals who seldom eat meat, poultry or fish. For these individuals, dry beans and peas can be counted towards the meat and beans group until the suggested intake level for meat and beans is reached. Any remaining dry beans and peas consumed can then be counted towards the vegetables group.

4.2.2. File formats

Listed below are the variables (name and description), location (position), width (W), and data type (T) for each record in the dated MyPyramid equivalents data files (“equiv0102.txt” and “equiv9400.txt”). All data are numeric (N), and may include three decimal places (N3).

<u>Variable</u>	<u>Position</u>	<u>W</u>	<u>T</u>	<u>Description</u>
FOODCODE	1- 8	8	N	Food code. Applies to all records. 11000000 - 99999999 = Food code Food code descriptions are found in dated description files (e.g., fddes0102.txt).
EQUIVFLAG	9	1	N	Flag to indicate food codes with or without equivalents data. Applies to all records. 0 = Food code with few or no calories and zero (0) equivalents for all MyPyramid groups. 1 = Food code where the number of equivalents for at least one MyPyramid group is greater than zero (0). 2 = Food code for infant formula for which equivalents data have not been assigned and, thus, appear as zero (0) equivalents.

MODCODE	10-15	6	N	<p>Modification code. Indicates whether one or several characteristics of a food item was modified to capture some specific information provided by a CSFII respondent.</p> <p>Applies to all records.</p> <p>0 = No modification</p> <p>100000-999999 = unique number that links to a specific food modification description. (Note: records where MODCODE > 0 contain data for use only with CSFII data. Modification codes are not identified in the 1999-2002 NHANES.) (For more information see http://www.barc.usda.gov/bhnrc/foodsurvey.)</p>
G_TOTAL	16-23	8	N3	<p>Total number of ounce equivalents from the grains group.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Ounce equivalents</p>
G_WHL	24-31	8	N3	<p>Number of ounce equivalents of whole grains from the grains group.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Ounce equivalents</p>
G_NWHL	32-39	8	N3	<p>Number of ounce equivalents of nonwhole grains (refined grains) from the grains group.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Ounce equivalents</p>

V_TOTAL	40-47	8	N3	<p>Total number of cup equivalents from the vegetables group. Includes cup equivalents from: V_DRKGR, V_ORANGE, V_POTATO, V_STARCY, V_TOMATO, and V_OTHER.</p> <p>NOTE: V_TOTAL does not include cup equivalents from dry beans and peas (variable LEGUMES). Dry beans and peas can count toward equivalents from either the vegetables or meat and beans group (but not double counted in both) according to USDA's MyPyramid Food Guidance System (USDA/CNPP 2005) (see Section 5.1.2).</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Cup equivalents</p>
V_DRKGR	48-55	8	N3	<p>Number of cup equivalents of dark-green vegetables.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Cup equivalents</p>
V_ORANGE	56-63	8	N3	<p>Number of cup equivalents of orange vegetables.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Cup equivalents</p>
V_POTATO	64-71	8	N3	<p>Number of cup equivalents of white potatoes.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Cup equivalents</p>

V_STARCHY	72-79	8	N3	<p>Number of cup equivalents of other starchy vegetables, excluding dry beans and peas (LEGUMES) and white potatoes (V_POTATO).</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Cup equivalents</p>
V_TOMATO	80-87	8	N3	<p>Number of cup equivalents of tomatoes.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Cup equivalents</p>
V_OTHER	88-95	8	N3	<p>Number of cup equivalents of other vegetables, not dark-green (V_DRKGR), orange (V_ORANGE), white potatoes (V_POTATO), other starchy vegetables (V_STARCHY), tomatoes (V_TOMATO), or dry beans or peas (LEGUMES).</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Cup equivalents</p>
F_TOTAL	96-103	8	N3	<p>Total number of cup equivalents from the fruits group.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Cup equivalents</p>
F_CITMLB	104-111	8	N3	<p>Number of cup equivalents of citrus fruits, melons, berries and their juices.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Cup equivalents</p>

F_OTHER	112-119	8	N3	<p>Number of cup equivalents of fruits and juices, which are not citrus fruits, melons, berries or their juices.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Cup equivalents</p>
D_TOTAL	120-127	8	N3	<p>Total number of cup equivalents from the milk group.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Cup equivalents</p>
D_MILK	128-135	8	N3	<p>Number of cup equivalents of milk.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Cup equivalents</p>
D_YOGURT	136-143	8	N3	<p>Number of cup equivalents of yogurt.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Cup equivalents</p>
D_CHEESE	144-151	8	N3	<p>Number of cup equivalents of cheese. Includes natural and processed cheese.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Cup equivalents</p>

M_MPF	152-159	8	N3	<p>Ounces of cooked lean meat from beef, pork, veal, lamb, and game (M_MEAT); organ meats (M_ORGAN); frankfurters, sausages, and luncheon meat (M_FRANK); poultry (M_POULT); and fish and shellfish (M_FISH_HI and M_FISH_LO).</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Ounces</p>
M_MEAT	160-167	8	N3	<p>Ounces of cooked lean meat from beef, pork, veal, lamb, and game, excluding that from organ meats (M_ORGAN) and that from frankfurters, sausages, and luncheon meat (M_FRANK).</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Ounces</p>
M_ORGAN	168-175	8	N3	<p>Ounces of cooked lean meat from all types of organ meats, including those from beef, pork, veal, lamb, game, poultry, and fish.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Ounces</p>
M_FRANK	176-183	8	N3	<p>Ounces of cooked lean meat from frankfurters, sausages, and luncheon meats.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Ounces</p>

M_POULT	184-191	8	N3	<p>Ounces of cooked lean meat from chicken, turkey, and other poultry. Excludes organ meats from poultry and poultry in frankfurters, sausages, and luncheon meats.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Ounces</p>
M_FISH_HI	192-199	8	N3	<p>Ounces of cooked lean meat from fish, shellfish, and other seafood that are high in the omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA).</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Ounces</p> <p>Foods with ≥ 0.5 g of the omega-3 fatty acids EPA and DHA per 85 grams (3 oz) are classified as M_FISH_HI.</p>
M_FISH_LO	200-207	8	N3	<p>Ounces of cooked lean meat from fish, shellfish, and other seafood that are low in the omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA).</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Ounces</p> <p>Foods with < 0.5 g of the omega-3 fatty acids EPA and DHA per 85 grams (3 oz) are classified as M_FISH_LO.</p>
M_EGG	208-215	8	N3	<p>Number of ounce equivalents, where one egg is one ounce equivalent of cooked lean meat. Includes eggs and egg substitutes.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Ounce equivalents</p>

M_SOY	216-223	8	N3	<p>Number of ounce equivalents from soybean products where one cup soy milk, 1/4 cup cubed tofu, 1/4 cup soy nuts, and one ounce meat analog are each one ounce equivalent of cooked lean meat.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Ounce equivalents</p>
M_NUTSD	224-231	8	N3	<p>Number of ounce equivalents of cooked lean meat from nuts and seeds, where 1/2 ounce of nuts and seeds is one ounce equivalent of cooked lean meat.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Ounce equivalents</p>
LEGUMES	232-239	8	N3	<p>Number of cup equivalents of cooked dry beans and peas.</p> <p>[According to MyPyramid guidelines (USDA/CNPP 2005), dry beans and peas can be counted as either vegetable or lean meat (but not double counted in both); see Section 5.1.2. The guidelines identify 1/4 cup of cooked dry beans and peas as equivalent to one ounce of cooked lean meat. Multiply the number of cup equivalents by 4 to convert LEGUMES to ounce equivalents of cooked lean meat.]</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Cup equivalents</p>
DISCFAT_OIL	240-247	8	N3	<p>Grams of discretionary oil from the foods in each of the five major MyPyramid food groups and oils.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Grams</p>

DISCFAT_SOL	248-255	8	N3	<p>Grams of discretionary solid fat from the foods in each of the five major MyPyramid food groups.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Grams</p>
ADD_SUG	256-263	8	N3	<p>Teaspoon equivalents of added sugars, where one teaspoon is the quantity of sweetener that contains the same amount of total nutrient sugar as one teaspoon of table sugar. [Added sugars are defined as white sugar, brown sugar, raw sugar, corn syrup, corn syrup solids, high fructose corn syrup, malt syrup, maple syrup, pancake syrup, fructose sweetener, liquid fructose, honey, molasses, dextrose, and dextrin that are eaten separately or as ingredients from processed or prepared foods.]</p> <p>Applies to all records</p> <p>0.000 - 999.999 = Teaspoon equivalents</p>
A_BEV	264-271	8	N3	<p>Total drinks of alcohol, where one drink is defined as 12 fluid ounces of beer, five fluid ounces of wine, and 1-1/2 fluid ounces of 80-proof distilled spirits.</p> <p>Applies to all records.</p> <p>0.000 - 999.999 = Number of drinks</p>

4.3. Food description data file characteristics

Listed below are the variable names, type (N=numeric, A=alphanumeric), length (number of columns) and the start and end column numbers (Start Col; End Col.) for each record in the food description files. Each is an ASCII text file in fixed format.

The variable names in the two food descriptions files in MyPyrEquivDB_v1 are the same. However, the description for the same food code in each file may be different, as the descriptions are from source files specific for the survey years as indicated by the numbers in each file name:

- “fddes0102.txt” -- contains food descriptions from the USDA/ARS FNDDS (USDA/ARS 2004) used to process the What We Eat in America, NHANES 2001-2002 (CDC/NCHS 2004, USDA/ARS 2004).
- “fddes9400.txt” --contains food descriptions from the CSFII TSF (USDA/ARS 2000) used to process CSFII 1994-96, 1998 and NHANES 1999-2000 food intakes (CDC/NCHS 2004, USDA/ARS 2000).

File format for “fddes*.txt”: Food Descriptions

<u>Name</u>	<u>Type</u>	<u>Length</u>	<u>Start Col.</u>	<u>End Col.</u>
Survey Food Code	N	8	1	8
Food Modification Number	N	6	10	15
Food Description	A	240	17	256
Abbreviated Description	A	60	258	317

Comments:

Survey Food Code -- a unique 8-digit number assigned to a USDA survey food code

Food Modification number -- a number greater than zero (0) identifies a specific recipe modification. Each CSFII 1994-96, 1998 modification number is linked to a specific survey food code. Food modification codes are not identified in the NHANES 1999-2002 publically released dietary records.

Food (Recipe) Modifications occur when a responding sample person supplies specific information about certain food ingredients that differs from the recipe as maintained in the CSFII Recipe Database (USDA/ARS 2000). Most modifications involved the type of fat, type of milk, or the amount of water or milk to dilute concentrated or dry foods (USDA/ARS 2000; \Tsf9498\recdb directory on Disk 2).

Food Description – Each description is the primary (usually generic) complete description identified by a unique 8-digit food code. If the food modification number is greater than zero (0), the description also details how the modified food differs from the original survey food code recipe.

Abbreviated description – a shortened description of the food code (not applicable to food modifications).

Notes:

Almost 7,000 “Main Food Descriptions” from the FNDDS (USDA/ARS 2004b) appear in the “fddes0102.txt” file. The file includes complete descriptions for each food code and often includes preparation methods such as boiled, baked, and fried and the original form of the food such as prepared from frozen form. The descriptions are usually generic in nature.

More than 7,300 food code descriptions from the TSF Food Coding Database (USDA/ARS 2000) appear in “fddes9400.txt”. These descriptions are usually generic in nature except for some breakfast cereals, infant formulas, and candies. Some brand name cereals’ descriptions include a name enclosed in parentheses, which denotes the previous name.

4.4. MyPyramid equivalents intake data files

MyPyrEquivDB_v1 has four MyPyramid equivalents intake files; two files contain data with NHANES MyPyramid equivalents intakes and two contain data with CSFII MyPyramid equivalents intakes for individuals 2 years or older:

- NHANES 1999-2002 (combined What We Eat in America, NHANES 2001-2002 and NHANES 1999-2000) MyPyramid equivalents intake files:
 - “pyr_iff.sas7bdat” contains one record showing intake of MyPyramid equivalents from each food eaten per individual
 - “pyr_tot.sas7bdat” contains one record per individual with total daily intake of MyPyramid equivalents
- CSFII 1994-96, 1998 MyPyramid equivalents intake files:
 - “rt32.sas7bdat” contains one record showing intake of MyPyramid equivalents from each food eaten per individual per day
 - “rt42.sas7bdat” contains one record per individual for Day 1, Day 2, or 2-day daily average intake of MyPyramid equivalents

MyPyramid equivalents intake records for NHANES are only for responding sample persons with reliable intakes; see the NHANES website for analytic guidelines on selecting records from the NHANES dietary files. The CSFII documentation (USDA/ARS 2000) provides information about the individuals with one and two days of intake in the CSFII sample.

See [Section 5.1](#) and [Section 5.3](#) for issues before using survey intake data.

4.4.1. NHANES 1999-2002 MyPyramid equivalents intake data files

4.4.1.1. File characteristics

Each record contains the number of equivalents from each of the 32 MyPyramid food groups.

file name:	“pyr_iff.sas7bdat”	“pyr_tot.sas7bdat”
size:	48.9 megabytes	5.0 megabytes
format:	SAS version 8 data set	SAS version 8 data set
records:	250,507	17,107
variables:	64 variables	60 variables
sample: (individuals \geq 2 yrs)	17,107	17,107

Control counts on the number of records and control statistics (number, mean, minimum, maximum, and sums) for the data in these two files are provided in Appendix C.

These data files include records for all individuals two years of age and older with reliable intake records. There are zero (0) records for breast fed children and 5 records for fasters. The “pyr_iff.sas7bdat” data file contains one record for each food eaten per individual in a day. The “pyr_tot.sas7bdat” provides a daily total of MyPyramid equivalents intake per individual.

Some foods in the “pyr_iff.sas7bdat” data file have zero (0) equivalents for all 32 MyPyramid food groups. For more information concerning these foods, see section 4.2.1 above.

Information about specific NHANES variables:

Four variables with the same description have different variable names in the 1999-2000 and 2001-2002 releases of NHANES. Each variable name is included in MyPyramid intake records:

<u>Variable description</u>	<u>Variable name by NHANES Release</u>	
	<u>1999-2000</u>	<u>2001-2002</u>
Served in US Armed Forces	DMQ051	DMQMILIT
Place of Birth	DMD110	DMDBORN
Education	DMD140	DMDEDUC
Dietary Recall Status	DRDDRSTS	DRDDRSTZ

If four years of NHANES intakes are being analyzed together and if any of the above variables are required, select data by both variable names and combined results for reporting data by the variable description.

Some variables associated with a food record in the NHANES data, such as the day of week, meal name, and eating location, were not included in the NHANES MyPyramid intake records. Additional NHANES variables can be joined with the NHANES MyPyramid intake data by linking the “SEQN” and “DRXILINE” variables between “pyr_iff.sas7bdat” to a NHANES

“DRXIFF” file or by linking only the “SEQN” variables between the pyr_tot.sas7bdat” and a NHANES “DRXTOT” file.

See [Section 5.3](#) for issues before using the NHANES MyPyramid intake data

4.4.1.2. Variable lists

The name, type and label for each variable in the NHANES 1999-2002 MyPyramid equivalents intake data files (“pyr_iff.sas7bdat” and “pyr_tot.sas7bdat”) are listed below. See the NHANES web site (<http://www.cdc.gov/nchs/nhanes.htm>) for more information about the values for variables 1-32. For a description of each MyPyramid food group name (var num 33-64), see Section 4.2.2 above, beginning with G_TOTAL at position 16-23.

Variable List (num) for “pyr_iff.sas7bdat”:

<u>Var</u> <u>Num</u>	<u>Variable</u>	<u>Type</u>	<u>Label</u>
1	SEQN	N	Respondent sequence number
2	DRXILINE	N	Food/individ. component number (sequentl#)
3	SDDSRVYR	N	Data Release Number
4	RIDSTATR	N	Interview/Examination Status
5	RIAGENDR	N	Gender - Adjudicated.
6	RIDAGEYR	N	Age at Screening Adjudicated - Recode
7	RIDAGEMN	N	Age in Months < 20 years - Recode
8	RIDAGEEX	N	Exam Age in Months < 20 yrs - Recode
9	RIDRETH1	N	Race/Ethnicity - Recode
10	RIDRETH2	N	Linked NH3 Race/Ethnicity - Recode
11	DMQMILIT	N	Served in the US Armed Forces – (2001-2002)
12	DMDBORN	N	Country of Birth - Recode – (2001-2002)
13	DMDEDUC	N	Education - Recode – (2001-2002)
14	DMQ051	N	Served in the US Armed Forces – (1999-2000)
15	DMD110	N	Country of Birth - Recode – (1999-2000)
16	DMD140	N	Education - Recode – (1999-2000)
17	INDHHINC	N	Annual Household Income
18	INDFMINC	N	Annual CPS Family Income
19	INDFMPIR	N	CPS Family PIR
20	DMDMARTL	N	Marital Status
21	RIDPREG	N	Pregnancy Status
22	WTINT2YR	N	Full Sample 2 Year Interview Weight
23	WTINT4YR	N	Full Sample 4 Year Interview Weight
24	WTMEC2YR	N	Full Sample 2 Year Mec Exam Weight
25	WTMEC4YR	N	Full Sample 4 Year MEC Exam Weight
26	SDMVPSU	N	Masked Variance Pseudo-PSU
27	SDMVSTRA	N	Masked Variance Pseudo-Stratum

Variable List (num) for “pyr_iff.sas7bdat”: continued

<u>Var</u>	<u>Variable</u>	<u>Type</u>	<u>Label</u>
28	DRDDRSTZ	N	Dietary recall status – (2001-2002)
29	DRDDRSTS	N	Dietary recall status – (1999-2000)
30	DRDDAY	N	Intake day of the week
31	DRDIFDCD	N	USDA food code
32	DRXIGRMS	N	Grams
33	G_TOTAL	N	Total number of grain ounce equivalents
34	G_WHL	N	Number of whole grain ounce equivalents
35	G_NWHL	N	Number of nonwhole grain ounce equivalents
36	V_TOTAL	N	Total number of vegetable cup equivalents
37	V_DRKGR	N	Number of dark-green vegetable cup equivalents
38	V_ORANGE	N	Number of orange vegetable cup equivalents
39	V_POTATO	N	Number of white potato cup equivalents
40	V_STARCY	N	Number of other starchy vegetable cup equivalents
41	V_TOMATO	N	Number of tomato cup equivalents
42	V_OTHER	N	Number of other vegetable cup equivalents
43	F_TOTAL	N	Total number of fruit cup equivalents
44	F_CITMLB	N	Number of citrus, melon, berry fruit and juice cup equivalents
45	F_OTHER	N	Number of other fruit and juice cup equivalents
46	D_TOTAL	N	Total number of milk group (milk, yogurt & cheese) cup equivalents
47	D_MILK	N	Number of milk cup equivalents
48	D_YOGURT	N	Number of yogurt cup equivalents
49	D_CHEESE	N	Number of cheese cup equivalents
50	M_MPF	N	Oz cooked lean meat from meat, poultry, fish
51	M_MEAT	N	Oz cooked lean meat from beef, pork, veal, lamb, and game
52	M_ORGAN	N	Oz cooked lean meat from organ meats
53	M_FRANK	N	Oz cooked lean meat from franks, sausages and luncheon meats
54	M_POULT	N	Oz cooked lean meat from chicken, turkey and other poultry
55	M_FISH_HI	N	Oz cooked lean meat from fish, other seafood high in omega-3
56	M_FISH_LO	N	Oz cooked lean meat from fish, other seafood low in omega-3
57	M_EGG	N	Oz equivalents lean meat from eggs
58	M_SOY	N	Oz equivalents lean meat from soy products
59	M_NUTSD	N	Oz equivalents lean meat from nuts and seeds
60	LEGUMES	N	Number of cooked dry beans and peas cup equivalents
61	DISCFAT_OIL	N	Grams of discretionary oil
62	DISCFAT_SOL	N	Grams of discretionary solid fat
63	ADD_SUG	N	Teaspoon equivalents of added sugars
64	A_BEV	N	Total drinks of alcohol

Variable list (num) for “pyr_tot.sas7bdat”:

<u>Var</u>	<u>Variable</u>	<u>Type</u>	<u>Label</u>
1	SEQN	N	Respondent sequence number
2	SDDSRVYR	N	Data Release Number
3	RIDSTATR	N	Interview/Examination Status
4	RIAGENDR	N	Gender - Adjudicated.
5	RIDAGEYR	N	Age at Screening Adjudicated - Recode
6	RIDAGEMN	N	Age in Months < 20 years - Recode
7	RIDAGEEX	N	Exam Age in Months < 20 yrs - Recode
8	RIDRETH1	N	Race/Ethnicity - Recode
9	RIDRETH2	N	Linked NH3 Race/Ethnicity - Recode
10	DMQMILIT	N	Served in the US Armed Forces – (2001-2002)
11	DMDBORN	N	Country of Birth - Recode – (2001-2002)
12	DMDEDUC	N	Education - Recode – (2001-2002)
13	DMQ051	N	Served in the US Armed Forces – (1999-2000)
14	DMD110	N	Country of Birth - Recode – (1999-2000)
15	DMD140	N	Education - Recode – (1999-2000)
16	INDHHINC	N	Annual Household Income
17	INDFMINC	N	Annual CPS Family Income
18	INDFMPIR	N	CPS Family PIR
19	DMDMARTL	N	Marital Status
20	RIDPREG	N	Pregnancy Status
21	WTINT2YR	N	Full Sample 2 Year Interview Weight
22	WTINT4YR	N	Full Sample 4 Year Interview Weight
23	WTMEC2YR	N	Full Sample 2 Year Mec Exam Weight
24	WTMEC4YR	N	Full Sample 4 Year MEC Exam Weight
25	SDMVPSU	N	Masked Variance Pseudo-PSU
26	SDMVSTRA	N	Masked Variance Pseudo-Stratum
27	DRDDRSTZ	N	Dietary recall status – (2001-2002)
28	DRDDRSTS	N	Dietary recall status – (1999-2000)
29	G_TOTAL	N	Total number of grain ounce equivalents
30	G_WHL	N	Number of whole grain ounce equivalents
31	G_NWHL	N	Number of nonwhole grain ounce equivalents
32	V_TOTAL	N	Total number of vegetable cup equivalents
33	V_DRKGR	N	Number of dark-green vegetable. cup equivalents
34	V_ORANGE	N	Number of orange vegetable cup equivalents
35	V_POTATO	N	Number of white potato cup equivalents
36	V_STARCHY	N	Number of other starchy vegetable cup equivalents
37	V_TOMATO	N	Number of tomato cup equivalents
38	V_OTHER	N	Number of other vegetable cup equivalents
39	F_TOTAL	N	Total number of fruit cup equivalents
40	F_CITMLB	N	Number of citrus, melon, berry fruit and juice cup equivalents
41	F_OTHER	N	Number of other fruit and juice cup equivalents

Variable list (num) for “pyr_tot.sas7bdat”: continued

<u>Var</u>			
<u>Num</u>	<u>Variable</u>	<u>Type</u>	<u>Label</u>
42	D_TOTAL	N	Total number of milk group (milk, yogurt & cheese) cup equivalents
43	D_MILK	N	Number of milk cup equivalents
44	D_YOGURT	N	Number of yogurt cup equivalents
45	D_CHEESE	N	Number of cheese cup equivalents
46	M_MPF	N	Oz cooked lean meat from meat, poultry, fish
47	M_MEAT	N	Oz cooked lean meat from beef, pork, veal, lamb, and game
48	M_ORGAN	N	Oz cooked lean meat from organ meats
49	M_FRANK	N	Oz cooked lean meat from franks, sausages, and luncheon meats
50	M_POULT	N	Oz cooked lean meat from chicken, turkey and other poultry
51	M_FISH_HI	N	Oz cooked lean meat from fish, other seafood high in omega-3
52	M_FISH_LO	N	Oz cooked lean meat from fish, other seafood low in omega-3
53	M_EGG	N	Oz equivalents lean meat from eggs
54	M_SOY	N	Oz equivalents lean meat from soy products
55	M_NUTSD	N	Oz equivalents lean meat from nuts and seeds
56	LEGUMES	N	Number of cooked dry beans and peas cup equivalents
57	DISCFAT_OIL	N	Grams of discretionary oil
58	DISCFAT_SOL	N	Grams of discretionary solid fat
59	ADD_SUG	N	Teaspoon equivalents of added sugars
60	A_BEV	N	Total drinks of alcohol

4.4.2. CSFII 1994-96, 1998 MyPyramid equivalents intake data files

4.4.2.1. File characteristics

Each record contains the number of equivalents from each of the 32 MyPyramid food groups.

file name:	“rt32.sas7bdat”	“rt42.sas7bdat”
size:	138.1 megabytes	17.3 megabytes
format:	SAS version 8 data set	SAS version 8 data set
records:	538,009	55,189
variables:	89 variables	70 variables
sample: (individuals \geq 2 yrs)	19,027	19,027

Control counts on the number of records and control statistics (number, mean, minimum, maximum, and sums) for the data in these two files are provided in Appendix C.

These data files include MyPyramid equivalents intake records for all individuals two years of age and older, including ten breast fed children. The file “rt32.sas7bdat” contains one record for each food eaten per individual per day. The file “rt42.sas7bdat” provides daily MyPyramid equivalents intakes per individual for Day 1 and Day 2, and daily average intakes for individuals who completed 2 days of intakes.

Some foods in the “pyr_iff.sas7bdat” data file have zero (0) equivalents for all 32 MyPyramid food groups. For more information concerning these foods, see Section 4.2.1 above.

See [Section 5.3](#) for issues before using the CSFII MyPyramid intake data.

4.4.2.2. Variable lists

The name, type and label for each variable in the CSFII 1994-96, 1998 MyPyramid equivalents intake data files (“rt32.sas7bdat” and “rt42.sas7bdat”) are listed below. See the CSFII documentation (USDA/ARS 2000) for more information about the values for variables 1-56. For a description for each MyPyramid food group name (var num 57-88), see Section 4.2.2 above, beginning with G_TOTAL at position 16-23.

Variable list (num) for “rt32.sas7bdat”:

<u>Var</u>			
<u>Num</u>	<u>Variable</u>	<u>Type</u>	<u>Label</u>
1	RT	N	Record type
2	HHID	N	Household ID
3	SPNUM	N	SP number
4	LINELET	A	Line letter

Variable list (num) for "rt32.sas7bdat": continued

<u>Var</u> <u>Num</u>	<u>Variable</u>	<u>Type</u>	<u>Label</u>
5	VARSTRAT	N	Variance-estimation stratum
6	VARUNIT	N	Variance-estimation unit
7	REGION	N	Region
8	URB	N	Urbanization
9	HHSIZE	N	Household size
10	INCOME	N	Annual income: total
11	INCREP	N	Annual income: actual report
12	INCCODE	A	Annual income: category
13	PCTPOV	N	Annual income: percent of poverty
14	POVCAT	N	Annual income: % of poverty category
15	IMPFLAG	N	Annual income: imputation flag
16	FS_RCV12	N	Food stamps: in last 12 months
17	AGE	N	Age in years
18	AGE_M	N	Age in months
19	SEX	N	Sex
20	REL_REF	N	Relationship to reference person
21	RACE	N	Race
22	ORIGIN	N	Hispanic origin
23	HEAD_HH	N	Head of household
24	PL_STAT	N	Pregnant/lactating status
25	BF_STAT	N	Breast feeding status
26	FS_AUTH	N	Food stamps: authorized
27	COMP_D1	N	Day 1 flag
28	COMP_D2	N	Day 2 flag
29	COMP_DHK	N	DHKS flag
30	WTA_DAY1	N	Annual day 1 weight
31	WTA_2DAY	N	Annual two day weight
32	WT3_DAY1	N	Three-year day 1 weight
33	WT3_2DAY	N	Three-year two day weight
34	WT4_DAY1	N	Four-year day 1 weight
35	WT4_2DAY	N	Four-year two day weight
36	YEAR	N	Year of survey
37	DAYCODE	N	Day of intake
38	SEQNUM	N	Line item number
39	FOODCODE	N	Food code
40	MODCODE	N	Modification code
41	SUBCODE	N	Subcode
42	FOODAMT	N	Amount of food in grams
43	OCC_TIME	N	Occasion: time
44	OCC_HR	N	Occasion: hour

Variable list (num) for “rt32.sas7bdat”: continued

<u>Var</u> <u>Num</u>	<u>Variable</u>	<u>Type</u>	<u>Label</u>
45	OCC_MIN	N	Occasion: minute
46	OCC_AMPM	N	Occasion: am / pm
47	OCC_NAME	N	Occasion: name
48	FOODSRCE	N	Source of food item
49	EATHOME	N	Was food eaten at home
50	EVERHOME	N	Was food ever at home
51	COMBNUM	N	Combination number
52	COMBTYP	N	Combination type
53	SALTUSED	N	Salt used in preparation
54	HOWMANY	N	# of units of measure
55	MEASURE	A	Common unit of measure
56	MEASRNUM	N	Measure description #
57	G_TOTAL	N	Total number of grain ounce equivalents
58	G_WHL	N	Number of whole grain ounce equivalents
59	G_NWHL	N	Number of nonwhole grain ounce equivalents
60	V_TOTAL	N	Total number of vegetable cup equivalents
61	V_DRKGR	N	Number of dark-green vegetable cup equivalents
62	V_ORANGE	N	Number of orange vegetable cup equivalents
63	V_POTATO	N	Number of white potato cup equivalents
64	V_STARCHY	N	Number of other starchy vegetable cup equivalents
65	V_TOMATO	N	Number of tomato cup equivalents
66	V_OTHER	N	Number of other vegetable cup equivalents
67	F_TOTAL	N	Total number of fruit cup equivalents
68	F_CITMLB	N	Number of citrus, melon, berry fruit and juice cup equivalents
69	F_OTHER	N	Number of other fruit and juice cup equivalents
70	D_TOTAL	N	Total number of milk group (milk, yogurt & cheese) cup equivalents
71	D_MILK	N	Number of milk cup equivalents
72	D_YOGURT	N	Number of yogurt cup equivalents
73	D_CHEESE	N	Number of cheese cup equivalents
74	M_MPF	N	Oz cooked lean meat from meat, poultry, fish
75	M_MEAT	N	Oz cooked lean meat from beef, pork, veal, lamb, and game
76	M_ORGAN	N	Oz cooked lean meat from organ meats
77	M_FRANK	N	Oz cooked lean meat from franks, sausages, luncheon meats
78	M_POULT	N	Oz cooked lean meat from chicken, turkey and other poultry
79	M_FISH_HI	N	Oz cooked lean meat from fish, other seafood high in omega-3
80	M_FISH_LO	N	Oz cooked lean meat from fish, other seafood low in omega-3
81	M_EGG	N	Oz equivalents lean meat from eggs
82	M_SOY	N	Oz equivalents lean meat from soy products
83	M_NUTSD	N	Oz equivalents lean meat from nuts and seeds

Variable list (num) for “rt32.sas7bdat”: continued

<u>Var</u>	<u>Variable</u>	<u>Type</u>	<u>Label</u>
84	LEGUMES	N	Number of cooked dry beans and peas cup equivalents
85	DISCFAT_OIL	N	Grams of discretionary oil
86	DISCFAT_SOL	N	Grams of discretionary solid fat
87	ADD_SUG	N	Teaspoon equivalents of added sugars
88	A_BEV	N	Total drinks of alcohol

Variable list (num) for “rt42.sas7bdat”:

<u>Var</u>	<u>Variable</u>	<u>Type</u>	<u>Label</u>
1	RT	N	Record type
2	HHID	N	Household ID
3	SPNUM	N	Sample person number
4	LINELET	A	Line letter for HH members
5	VARSTRAT	N	Variance-estimation stratum
6	VARUNIT	N	Variance-estimation unit
7	REGION	N	Region
8	URB	N	Urbanization
9	HHSIZE	N	Household size
10	INCOME	N	Annual income: total
11	INCREP	N	Annual income: actual report
12	INCCODE	A	Annual income: category
13	PCTPOV	N	Annual income: percent of poverty
14	POVCAT	N	Annual income: % of poverty category
15	IMPFLAG	N	Annual income: imputation flag
16	FS_RCV12	N	Food stamps: in last 12 months
17	AGE	N	Age in years
18	AGE_M	N	Age in months
19	SEX	N	Sex
20	REL_REF	N	Relationship to reference person
21	RACE	N	Race
22	ORIGIN	N	Hispanic origin
23	HEAD_HH	N	Head of household
24	PL_STAT	N	Pregnant/lactating status
25	BF_STAT	N	Breast feeding status
26	FS_AUTH	N	Food stamps: authorized
27	COMP_D1	N	Day 1 flag
28	COMP_D2	N	Day 2 flag

Variable list (num) for “rt42.sas7bdat”: (continued)

<u>Var</u>	<u>Variable</u>	<u>Type</u>	<u>Label</u>
29	COMP_DHK	N	DHKS flag
30	WTA_DAY1	N	Final one year day 1 weight
31	WTA_2DAY	N	Final one year two day weight
32	WT3_DAY1	N	Final three year day 1 weight
33	WT3_2DAY	N	Final three year two day weight
34	WT4_DAY1	N	Final four year day 1 weight
35	WT4_2DAY	N	Final four year two day weight
36	DAYCODE	N	Day / average code
37	YEAR	N	Year of survey
38	G_TOTAL	N	Total number of grain ounce equivalents
39	G_WHL	N	Number of whole grain ounce equivalents
40	G_NWHL	N	Number of nonwhole grain ounce equivalents
41	V_TOTAL	N	Total number of vegetable cup equivalents
42	V_DRKGR	N	Number of dark-green vegetable cup equivalents
43	V_ORANGE	N	Number of orange vegetable cup equivalents
44	V_POTATO	N	Number of white potato cup equivalents
45	V_STARCHY	N	Number of other starchy vegetable cup equivalents
46	V_TOMATO	N	Number of tomato cup equivalents
47	V_OTHER	N	Number of other vegetable cup equivalents
48	F_TOTAL	N	Total number of fruit cup equivalents
49	F_CITMLB	N	Number of citrus, melon, berry fruit and juice cup equivalents
50	F_OTHER	N	Number of other fruit and juice cup equivalents
51	D_TOTAL	N	Total number of dairy cup equivalents
52	D_MILK	N	Number of milk group (milk, yogurt & cheese) cup equivalents
53	D_YOGURT	N	Number of yogurt cup equivalents
54	D_CHEESE	N	Number of cheese cup equivalents
55	M_MPF	N	Oz cooked lean meat from meat, poultry, fish
56	M_MEAT	N	Oz cooked lean meat from beef, pork, veal, lamb, and game
57	M_ORGAN	N	Oz cooked lean meat from organ meats
58	M_FRANK	N	Oz cooked lean meat from franks, sausages, luncheon meats
59	M_POULT	N	Oz cooked lean meat from chicken, turkey and other poultry
60	M_FISH_HI	N	Oz cooked lean meat from fish, other seafood high in omega-3
61	M_FISH_LO	N	Oz cooked lean meat from fish, other seafood low in omega-3
62	M_EGG	N	Oz equivalents lean meat from eggs
63	M_SOY	N	Oz equivalents lean meat from soy products
64	M_NUTSD	N	Oz equivalents lean meat from nuts and seeds
65	LEGUMES	N	Number of dry beans and peas cup equivalents
66	DISCFAT_OIL	N	Grams of discretionary oil
67	DISCFAT_SOL	N	Grams of discretionary solid fat
68	ADD_SUG	N	Teaspoon equivalents of added sugars
69	A_BEV	N	Total drinks of alcohol

4.5. References

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Section 5. Using the MyPyramid Equivalents Food and Intake Files

This section provides important information on the following topics that should be considered before using the MyPyramid equivalents food and intake data for analyses:

- comparison of equivalents intakes to USDA MyPyramid Food Guidance System recommendations (USDA/CNPP 2005)
- whether to place cooked dry beans and peas into either the vegetables or the meat and beans group
- SAS® programs which document how the MyPyramid equivalents food files were joined to survey intake records to create MyPyramid equivalents intake records
- SAS programs to show how to use MyPyramid equivalents intake records
- statistical issues specific to survey intakes for What We Eat in America, NHANES 2001-2002, NHANES 1999-2000, and CSFII 1994-96, 1998 (CDC/NCHS 2004, USDA/ARS 2000, 2004)

5.1. Issues specific to MyPyramid equivalents recommendations

5.1.1. Comparing equivalents intakes to MyPyramid recommendations

The MyPyramid Food Guidance System provides suggested intake amounts at multiple calorie levels for people to use as general guides about the number of equivalents to consume from the five major food groups, oils and “extras” to meet energy needs (see <http://www.mypyramid.gov> for more details). The recommendations for any given individual for the grains, vegetables, fruits, and meat and beans groups depend on his energy and nutrient needs, which is determined by age, sex, body size, and level of physical activity (USDA/CNPP 2005, USDA 1992, USDA/CNPP 1999). The recommendation for the milk group depends on age (USDA/CNPP 2005, USDA and HHS 2000).

MyPyramid provides a general guide for healthful eating. It is not intended to rigidly define how much from each food group a given individual should consume each day. Rather, the recommendations are meant to be achieved over time. Different combinations of equivalents from each food group can provide the nutrients people need in appropriate amounts.

5.1.2. Dry beans and peas . . . vegetable or meat alternate?

Cooked dry beans and peas can be counted as either a vegetable or meat alternate (but not double counted in both) according to MyPyramid (USDA/CNPP 2005). The data for cooked dry beans

and peas in this database have been calculated as cup equivalents of vegetable. MyPyramid identifies 1/4 cup of cooked dry beans and peas as equivalent to 1 ounce of cooked lean meat. Therefore, multiply the number of cup equivalents by 4 to convert cooked dry beans and peas to ounce equivalents of cooked lean meat. MyPyramid suggest an alternative method for counting dry beans and peas for individuals who seldom eat meat, poultry or fish. For these individuals, dry beans and peas can be counted towards the meat and beans group until the suggested intake level reached, and then any remaining dry beans and peas can then be counted towards the vegetables group.

See the program files “pyrrpt.sas” or “pyrrecom.sas” for programming guidance on assigning the variable for dry beans and peas (LEGUMES) to a MyPyramid group.

5.2. Program files

Programs (see [Appendix D](#)) are provided with MyPyrEquivDB_v1 to document how the MyPyramid equivalents intake files were created and to show how intake results can be compared to the MyPyramid Food Guidance System recommendations. SAS® (SAS 2000) has been used for these programs, but SAS is not the only system that may be used to process and analyze the data, nor is the USDA recommending SAS over other software systems. These programs can serve as models for programs in other software systems.

The programs can also serve as models to join the MyPyramid equivalents food data files to any food consumption survey that uses the USDA food codes. These programs require at least minimal editing to provide directory and file names. Each program ran successfully under SAS version 8 running under Windows XP®. Nevertheless, other editing may be necessary for these programs to run under conditions different than those we applied.

5.2.1. Programs to create MyPyramid equivalents intake data

The first program reads and stores each MyPyramid equivalents food data file in SAS format. Next, two programs are run to join the MyPyramid food data to survey intake files. There are separate programs to join the MyPyramid food data to the CSFII 1994-96, 1998 intake and demographic files and to the What We Eat in America, NHANES 2001-2002 and NHANES 1999-2000 intake and demographic files. The naming convention for the MyPyramid intake files follow those used for the survey intake data files:

Type of file	File names	
<i>Dietary intake data per individual:</i>		
individual foods file (amounts from each food reported by each respondent)	drxiff*.xpt	rt30.txt
total nutrient intakes file (daily intake per respondent)	drxtot*.xpt	rt40.txt

MyPyramid equivalents intake data per individual:

individual MyPyramid equivalents foods file (equivalents from each food reported by each respondent)	pyr_iff.sas7bdat	rt32.sas7bdat
total MyPyramid equivalents file (daily intake per respondent)	pyr_tot.sas7bdat	rt42.sas7bdat

5.2.1.1. Preparing MyPyramid equivalents food data to join with survey intake and demographic files

readequiv.sas reads the ASCII fixed format MyPyramid equivalents food data files “equiv9400.txt” and “equiv0102.txt” and stores the data in SAS format as “equiv9400.sas7bdat” and “equiv0102.sas7bdat”, respectively. These SAS files are used as input to specific intake programs for CSFII or NHANES intakes.

5.2.1.2. Creating CSFII 1994-96, 1998 MyPyramid equivalents intake files

rt32.sas joins “equiv9400.sas7bdat” food data file to CSFII 1994-96, 1998 intake and demographic data files (USDA/ARS 2000) and creates MyPyramid equivalents intake data (“rt32.sas7bdat”) by each food eaten per individual two years of age and older. There are two days of intake data.

rt42.sas reads CSFII 1994-96, 1998 MyPyramid food intake data from “rt32.sas7bdat” and creates daily MyPyramid equivalents intake data (“rt42.sas7bdat”) per individual for Day 1, Day 2, and a 2-day average for each individual completing intakes for 2 days. More information on the CSFII collection methods for 1 and 2 days of food intake is available (USDA/ARS 2000; see also <http://www.barc.usda.gov/bhnrc/foodsurvey>).

5.2.1.3. Creating NHANES 1999-2002 MyPyramid equivalents intake files

pyr_iff.sas joins the “equiv0102.sas7bdat” to What We Eat in America, NHANES 2001-2002 intake and demographic files and joins “equiv9400.sas7bdat” to NHANES 1999-2000 food intake and demographic files to create the combined NHANES 1999-2002 MyPyramid equivalents intake data (“pyr_iff.sas7bdat”) by each food eaten per individual two years of age and older.

The variable “SDDSRVYR” in “pyr_iff.sas7bdat” distinguishes 1999-2000 MyPyramid intakes from 2001-2002 MyPyramid intakes. Only records for individuals providing reliable intakes are included in the NHANES MyPyramid intake files. More information on What We Eat in

America, NHANES 2001-2002 and NHANES 1999-2000 dietary and demographic data is available (CDC/NCHS 2004, USDA 2004; see also <http://www.cdc.gov/nchs/nhanes.htm>).

`pyr_tot.sas` reads NHANES 1999-2002 MyPyramid equivalents food intake data from “pyr_iff.sas7bdat” and creates daily MyPyramid intake data (“pyr_tot.sas7bdat”) per individual two years of age and older.

5.2.2 Programs to use MyPyramid equivalents intake files

Before using the MyPyramid equivalents intake files, (“rt32.sas7bdat”, “rt42.sas7bdat”, “pyr_iff.sas7bdat”, and “pyr_tot.sas7bdat”), adjustments included in the programs below need to be run in order to appropriately address the MyPyramid issues discussed in Section 5.1. It is also *important to read the information in [Section 5.3 about statistical issues](#)* that must be considered before analyzing and reporting MyPyramid equivalents intake results.

Two programs (“pyrrpt.sas” and “pyrecom.sas”) are provided in MyPyrEquivDB_v1 for analyzing and reporting MyPyramid equivalents intakes. These programs illustrate how to:

- Insure that cooked dry beans and peas are counted as either a vegetable or meat alternate, but not double counted as both (see Section 5.1.2).
- Compare MyPyramid equivalents intakes for each individual to the recommended number of equivalents by calorie levels determined by age, sex and level of physical activity. This program shows one way MyPyramid equivalents intakes can be compared to the recommendations based on caloric intakes.

Both programs for using MyPyramid equivalents intakes include code to assign cooked dry beans and peas to either the vegetable or meat and beans group, but only one program makes comparisons of intakes to MyPyramid recommendations.

- “pyrrpt.sas” is used to report the average number of MyPyramid equivalents consumed for each MyPyramid group and subgroup (see [Table 1](#)) when comparison of MyPyramid intakes are not made to the MyPyramid Food Guidance System recommendations.
- “pyrrecom.sas” is used to compare MyPyramid equivalents intakes to the MyPyramid Food Guidance System recommendations and report the number and percentage of individuals meeting and not meeting the recommendations.

5.3 Statistical issues

Before using MyPyramid equivalents intake data files for analyses and reports, it is important to understand the statistical issues related to the sample design and weights appropriate to the survey used to create the MyPyramid equivalents intake files. Specific guidelines for using the dietary records and reporting intakes from the NHANES 1999-2002 are available from the NCHS Web site at <http://www.cdc.gov/nchs/nhanes.htm>. Guidelines for using the CSFII 1994-96, 1998 intakes and reporting intakes can be found in the documentation released with the CSFII micro data (USDA/ARS 2000).

For surveys with complex sample designs, such as NHANES and CSFII, ARS suggests that data users calculate variance estimates and related statistics using software such as SAS® 8.1 or later (SAS 2000), SUDAAN® (Shah et al. 1997), or Stata® (Stata 2000) which can account for the sample design and weights. Sample weights are intended for use in developing summary information about the entire population under study, not just the sample, and should be used when calculating descriptive statistics -- means, medians, and variances.

The four years of dietary intakes provided in the NHANES 1999-2002 MyPyramid equivalents intake (“pyr_iff.sas7bdat” and “pyr_tot.sas7bdat”) data can either be analyzed together or as the individual two-year data releases NHANES 1999-2000 and What We Eat in America, NHANES 2001-2002. However the data are analyzed, it is important to use the appropriate sampling weight included on each intake record:

- two-year weights (WTMEC2YR) to be used when data from the individual two-year data releases (1999-2000, or 2001-2002) are analyzed separately
- four-year weights (WTMEC4YR) to be used when data from all four years (1999-2002) are analyzed together

The CSFII 1994-96, 1998 MyPyramid equivalents intake data (“rt32.sas7bdat” and “rt42.sas7bdat”) includes three sets of sample weights:

- one-year weights (WTA_DAY1 and WTA_2DAY) to be used when data from a single survey year (1994, 1995, 1996, or 1998) are analyzed separately
- three-year weights (WT3_DAY1 and WT3_2DAY) to be used when data from the first three survey years (1994-96) are analyzed together
- four-year weights (WT4_DAY1 and WT4_2DAY) to be used when data from all four years (1994-96, 1998) are analyzed together

Each set of CSFII weights includes a weight to be used when only the day one intakes (DAY1) are analyzed, and another for when 2 days of intakes (2DAY) are analyzed.

CSFII and NHANES dietary data were collected using different sampling designs and **are not meant to be combined and analyzed together.**

5.4 References

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Appendix A. Useful web sites

National Food Surveys:

An introduction and overview of What We Eat in America, National Health and Nutrition Examination Survey 2001-2002 are available at:

<http://www.barc.usda.gov/bhnrc/foodsurvey/wweia.html>.

Data and documentation for the National Health and Nutrition Examination Surveys are available at <http://www.cdc.gov/nchs/nhanes.htm>.

A description of the Continuing Survey of Food Intakes by Individuals, 1994-96, 1998 is available at <http://www.barc.usda.gov/bhnrc/foodsurvey/Cd98.html>. Data files for this survey can be purchased from the National Technical Information Service:

<http://www.ntis.gov/>; search on "PB2000500027".

The Food and Nutrient Database for Dietary Studies, 1.0 used to code the dietary component of the What We Eat in America, National Health and Nutrition Examination Survey 2001-2002 is available at <http://www.barc.usda.gov/bhnrc/foodsurvey>.

National Nutrient Database for Standard Reference and Retention Factors are available at http://www.ars.usda.gov/main/site_main.htm?modecode=12354500

USDA MyPyramid Food Guidance System:

The official MyPyramid Web Site is at <http://www.mypyramid.gov>.

"Inside the Pyramid" – Information about each pyramid food group such as foods they contain and what counts as a cup or ounce is available at

<http://www.mypyramid.gov/pyramid/index.html>.

MyPyramid Consumer Research Base Documents are available at

<http://www.cnpp.usda.gov/pyramid-update/Research/index.html>.

USDA and USDHHS Dietary Guidelines for Americans

Dietary Guidelines for Americans, 6th Edition, 2005 available online at

<http://www.cnpp.usda.gov/DietaryGuidelines.htm>

Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2005 - to the Secretary of Health and Human Services and the Secretary of Agriculture. Prepared for the committee by the Agricultural Research Service is available at <http://www.health.gov/dietaryguidelines/dga2005/document/>.

Appendix B: What Counts in each MyPyramid Food Group

The Tables in this appendix identify what MyPyramid counts as a cup or ounce equivalent of grains, vegetables, fruits, dairy and meat and beans. These tables are from the MyPyramid Web site (<http://www.mypyramid.gov/pyramid/index.html>) and they provide estimates of cup and ounce equivalents rounded to consumer friendly units.

- Table B.1. What counts as an ounce equivalent of grains in MyPyramid
- Table B.2. What counts as an ounce equivalent of vegetables in MyPyramid
- Table B.3. What counts as an ounce equivalent of fruits in MyPyramid
- Table B.4. What counts as an ounce equivalent of milk in MyPyramid
- Table B.5. What counts as an ounce equivalent of meat and beans in MyPyramid

Table B.1: What counts as an ounce equivalent of grains in MyPyramid? ^{1,2}

	Amount that counts as 1 ounce equivalent of grains	Common portions and ounce equivalents
Bagels WG*: whole wheat RG*: plain, egg	1 “mini” bagel	1 large bagel = 4 ounce equivalents
Biscuits (baking powder/ buttermilk—RG*)	1 small (2” diameter)	1 large (3” diameter) = 2 ounce equivalents
Breads WG*: 100% Whole wheat RG*: white, wheat, French, sourdough	1 regular slice 1 small slice French 4 snack-size slices rye bread	2 regular slices = 2 ounce equivalents
Bulgur , cracked wheat (WG*)	½ cup cooked	
Cornbread (RG*)	1 small piece (2 ½” x 1 ¼” x 1 ¼”)	1 medium piece (2 ½” x 2 ½” x 1 ¼”) = 2 ounce equivalents
Crackers WG*: 100% whole wheat, rye RG*: saltines, snack crackers	5 whole wheat crackers 2 rye crispbreads 7 square or round crackers	
English muffins WG*: whole wheat RG*: plain, raisin	½ muffin	1 muffin = 2 ounce equivalents
Muffins WG*: whole wheat RG*: bran, corn, plain	1 small (2 ½” diameter)	1 large (3 ½” diameter) = 3 ounce equivalents
Oatmeal (WG)	½ cup cooked 1 packet instant 1 ounce dry (regular or quick)	
Pancakes WG*: Whole wheat, buckwheat RG*: buttermilk, plain	1 pancake (4 ½” diameter) 2 small pancakes (3” diameter)	3 pancakes (4 ½” diameter) = 3 ounce equivalents
Popcorn (WG*)	3 cups, popped	1 microwave bag, popped = 4 ounce equivalents
Ready-to-eat breakfast cereal WG*: toasted oat, whole wheat flakes RG*: corn flakes, puffed rice	1 cup flakes or rounds 1 ¼ cup puffed	
Rice WG*: brown, wild RG*: enriched, white, polished	1/2 cup cooked 1 ounce dry	1 cup cooked = 2 ounce equivalents
Pasta--spaghetti, macaroni, noodles WG*: whole wheat RG*: enriched, durum	½ cup cooked 1 ounce dry	1 cup cooked = 2 ounce equivalents
Tortillas WG*: whole wheat, whole grain corn RG*: Flour, corn	1 small flour tortilla (6” diameter) 1 corn tortilla (6” diameter)	1 large tortilla (12” diameter) = 4 ounce equivalents

¹ Source: http://mypyramid.gov/pyramid/grains_counts.html

² These are estimates that are rounded to consumer friendly units.

*WG = whole grains, RG = refined grains. This is shown when products are available both in whole grain and refined grain forms.

Table B.2: What counts as a cup equivalent of vegetables in MyPyramid? ^{1,2}

	Amount that counts as 1 cup of vegetables	Amount that counts as 1/2 cup of vegetables
<i>Dark-Green Vegetables</i>		
Broccoli	1 cup chopped or florets 3 spears 5" long raw or cooked	
Greens (collards, mustard greens, turnip greens, kale)	1 cup cooked	
Spinach	1 cup, cooked 2 cups raw is equivalent to 1 cup of vegetables	1 cup raw is equivalent to 1/2 cup of vegetables
Raw leafy greens: Spinach, romaine, watercress, dark green leafy lettuce, endive, escarole	2 cups raw is equivalent to 1 cup of vegetables	1 cup raw is equivalent to 1/2 cup of vegetables
<i>Orange Vegetables</i>		
Carrots	1 cup, strips, slices, or chopped, raw or cooked 2 medium 1 cup baby carrots (about 12)	1 medium carrot About 6 baby carrots
Pumpkin	1 cup mashed, cooked	
Sweet potato	1 large baked (2 1/4" or more diameter) 1 cup sliced or mashed, cooked	
Winter squash (acorn, butternut, hubbard)	1 cup cubed, cooked	1/2 acorn squash, baked = 3/4 cup
<i>Dry beans and peas</i>		
Dry beans and peas (Such as black, garbanzo, kidney, pinto, soy beans, black eyed peas, split peas)	1 cup whole or mashed, cooked	
Tofu	1 cup 1/2" cubes (about 8 ounces)	1 piece 2 1/2 " x 2 3/4 " x 1" (about 4 ounces)
<i>Starchy Vegetables</i>		
Corn, yellow or white	1 cup 1 large ear (8" to 9" long)	1 small ear (about 6" long)
Green peas	1 cup	

Table B.2: What counts as a cup equivalent of vegetables in MyPyramid? ^{1,2} (continued)

	Amount that counts as 1 cup of vegetables	Amount that counts as 1/2 cup of vegetables
<i>Potatoes</i>		
White potatoes	1 cup diced, mashed 1 medium boiled/baked potato (2 ½ " to 3" diameter) French fried: 20 medium to long strips (2 ½" to 4" long)	
<i>Other Vegetables</i>		
Bean sprouts	1 cup cooked	
Cabbage, green	1 cup, chopped or shredded raw or cooked	
Cauliflower	1 cup pieces or florets raw or cooked	
Celery	1 cup, diced or sliced, raw or cooked 2 large stalks (11" to 12" long)	1 large stalk (11" to 12" long)
Cucumbers	1 cup raw, sliced or chopped	
Green or wax beans	1 cup cooked	
Green or red peppers	1 cup chopped, raw or cooked 1 large pepper (3" diameter, 3-¾" long)	1 small pepper
Lettuce, iceberg or head	2 cups raw, shredded or chopped = equivalent to 1 cup of vegetables	1 cup raw, shredded or chopped = equivalent to ½ cup of vegetables
Mushrooms	1 cup raw or cooked	
Onions	1 cup chopped, raw or cooked	
<i>Tomatoes</i>		
Tomatoes	1 large raw whole (3") 1 cup chopped or sliced, raw, canned, or cooked	1 small raw whole (2 ¼ ") 1 medium canned
Tomato or mixed vegetable juice	1 cup	½ cup
Summer squash or zucchini	1 cup cooked, sliced or diced	

¹ Source: http://mypyramid.gov/pyramid/grains_counts.html

² These are estimates that are rounded to consumer friendly units.

Table B.3: What counts a cup equivalent of fruits in MyPyramid? ^{1,2}

	Amount that counts as 1 cup of fruit	Amount that counts as ½ cup of fruit
Apple	½ large (3.25" diameter) 1 small (2.5" diameter) 1 cup sliced or chopped, raw or cooked	½ cup sliced or chopped, raw or cooked
Applesauce	1 cup	1 snack container (4 oz.)
Banana	1 cup sliced 1 large (8" to 9" long)	1 small (less than 6" long)
Cantaloupe	1 cup diced or melon balls	1 medium wedge (1/8 of a med. melon)
Grapes	1 cup whole or cut-up 32 seedless grapes	16 seedless grapes
Grapefruit	1 medium (4" diameter) 1 cup sections	½ medium (4" diameter)
Mixed fruit (fruit cocktail)	1 cup diced or sliced, raw or canned, drained	1 snack container (4 oz) drained = 3/8 cup
Orange	1 large (3-1/16" diameter) 1 cup sections	1 small (2-3/8" diameter)
Orange, mandarin	1 cup canned, drained	
Peach	1 large (2 ¾" diameter) 1 cup sliced or diced, raw, cooked, or canned, drained 2 halves, canned	1 small (2 3/8" diameter) 1 snack container (4 oz) drained = 3/8 cup
Pear	1 medium pear (2.5 per lb) 1 cup sliced or diced, raw, cooked, or canned, drained	1 snack container (4 oz.) drained = 3/8 cup
Pineapple	1 cup chunks, sliced or crushed, raw, cooked or canned, drained	1 snack container (4 oz) drained = 3/8 cup
Plum	1 cup sliced raw or cooked 3 medium or 2 large plums	1 large plum
Strawberries	About 8 large berries 1 cup whole, halved, or sliced, fresh or frozen	1/2 cup whole, halved, or sliced
Watermelon	1 small wedge (1" thick) 1 cup diced or balls	6 melon balls
Dried fruit (raisins, prunes, apricots, etc.)	½ cup dried fruit is equivalent to 1 cup fruit ½ cup raisins ½ cup prunes ½ cup dried apricots	¼ cup dried fruit is equivalent to ½ cup fruit 1 small box raisins (1.5 oz)
100% fruit juice (orange, apple, grape, grapefruit, etc.)	1 cup	½ cup

¹ Source: http://mypyramid.gov/pyramid/grains_counts.html

² These are estimates that are rounded to consumer friendly units.

Table B.4: What counts as a cup equivalent of milk in MyPyramid? ^{1,2}

	Amount that counts as 1 cup in the milk group	Common portions and cup equivalents
Milk	1 cup 1 half-pint container ½ cup evaporated milk	
Yogurt	1 regular container (8 fluid ounces) 1 cup	1 small container (6 ounces) = ¾ cup 1 snack size container (4 ounces) = ½ cup
Cheese	1 ½ ounces hard cheese (cheddar, mozzarella, Swiss, parmesan) 1/3 cup shredded cheese 2 ounces processed cheese (American) ½ cup ricotta cheese 2 cups cottage cheese	1 slice of hard cheese is equivalent to ½ cup milk 1 slice of processed cheese is equivalent to 1/3 cup milk ½ cup cottage cheese is equivalent to ¼ cup milk
Milk-based desserts	1 cup pudding made with milk 1 cup frozen yogurt 1 ½ cups ice cream	1 scoop ice cream is equivalent to 1/3 cup milk

¹ Source: http://mypyramid.gov/pyramid/grains_counts.html

² These are estimates that are rounded to consumer friendly units.

Table B.5: What counts as an ounce equivalent of meat and beans in MyPyramid? ^{1,2}

	Amount that counts as 1 ounce equivalent in the Meat and Beans group	Common portions and ounce equivalents
<i>Meats</i>	1 ounce cooked lean beef 1 ounce cooked lean pork or ham	1 small steak (eye of round, filet) = 3 ½ to 4 ounce equivalents 1 small lean hamburger = 2 to 3 ounce equivalents
<i>Poultry</i>	1 ounce cooked chicken or turkey, without skin 1 sandwich slice of turkey (4 ½ x 2 ½ x 1/8")	1 small chicken breast half = 3 ounce equivalents ½ Cornish game hen = 4 ounce equivalents
<i>Fish</i>	1 ounce cooked fish or shell fish	1 can of tuna, drained = 3 to 4 ounce equivalents 1 salmon steak = 4 to 6 ounce equivalents 1 small trout = 3 ounce equivalents
<i>Eggs</i>	1 egg	
<i>Nuts and seeds</i>	½ ounce of nuts (12 almonds, 24 pistachios, 7 walnut halves) ½ ounce of seeds (pumpkin, sunflower or squash seeds, hulled, roasted) 1 Tablespoon of peanut butter or almond butter	1 ounce of nuts or seeds = 2 oz eq
<i>Dry beans and peas</i>	¼ cup of cooked dry beans (such as black, kidney, pinto, or white beans) ¼ cup of cooked dry peas (such as chickpeas, cowpeas, lentils, or split peas) ¼ cup of baked beans, refried beans ¼ cup (about 2 ounces) of tofu 1 oz. tempeh, cooked ¼ cup roasted soybeans 1 falafel patty (2 ¼", 4 oz) 2 Tbsp. hummus	1 cup split pea soup = 2 oz eq 1 cup lentil soup = 2 oz eq 1 cup bean soup = 2 oz eq 1 soy or bean burger patty = 2 oz eq

¹ Source: http://mypyramid.gov/pyramid/grains_counts.html

² These are estimates that are rounded to consumer friendly units.

Appendix C: Control counts for MyPyramid equivalents food and intake files

This appendix provides control counts on the number of records (n) and control statistics (mean, minimum, maximum, and sum) for the MyPyramid equivalents data files in the MyPyrEquivDB_v1. The numbers in these tables are unweighted and are intended to be used as benchmarks when using the servings food and intake data files.

- C.1: Control counts for the Pyramid servings food file “equiv0102.txt”
- C.2: Control counts for the Pyramid servings food file “equiv9400.txt”
- C.3: Control counts for the Pyramid servings intake file “pyr_iff.sas7bdat”
- C.4: Control counts for the Pyramid servings intake file “pyr_tot.sas7bdat”
- C.5: Control counts for the Pyramid servings intake file “rt32.sas7bdat”
- C.6: Control counts for the Pyramid servings intake file “rt42.sas7bdat”

There are three types of data files in MyPyrEquivDB_v1:

- Pyramid servings food files (“equiv0102.txt” and “equiv9900.txt”)
- food descriptions for each food code (“fddes0102.txt” and “fddes9900.txt”)
- Pyramid servings intake files (“pyr_iff.sas7bdat”, “pyr_tot.sas7bdat”, “rt32.sas7bdat”, “rt42.sas7bdat”)

There are two MyPyramid equivalents food files with data for the number of equivalents for each of the [32 Pyramid food groups](#) per 100 grams food. The equivalents data may be different for the same code in both files because the data in each MyPyramid food file was created using food data (recipes, nutrients, portions) specific to a survey. The numbers, that is “0102” or “9400”, in the name of the two MyPyramid food files represent the last two digits of the years during which a survey was conducted.

MyPyrEquivDB_v1 has four MyPyramid equivalents intake files, two files contain NHANES MyPyramid intakes and two contain CSFII MyPyramid intakes, each for individuals 2 years of age and older.

- NHANES 1999-2002 (combined What We Eat In America, NHANES 2001-2002 and NHANES 1999-2000) MyPyramid intake files :
 - “pyr_iff.sas7bdat” contains one record for each food eaten per individual
 - “pyr_tot.sas7bdat” contains one record per individual
- CSFII 1994-96, 1998 MyPyramid intake files:
 - “rt32.sas7bdat” contains one record for each food eaten per individual per day
 - “rt42.sas7bdat” contains one record per individual for Day 1, Day 2, or daily average

MyPyramid intake records for NHANES are only for responding sample persons with reliable intakes.

For more information about the contents of the MyPyramid equivalents food and intake data files in MyPyrEquivDB_v1, see the following sections in the database documentation:

- [sections 4.2 and 4.4](#) for the file characteristics and formats or variable lists.
- [section 5](#) for issues **before using MyPyramid equivalents intake data.**

C.1: Control counts for the MyPyramid equivalents food file “equiv0102.txt”

File name: “equiv0102.txt”
 Data: number of MyPyramid equivalents for 32 MyPyramid food groups per food code
 Survey: What We Eat In America, NHANES 2001-2002
 Format: ASCII fixed
 Record length: 255 characters
 Total byte count: 1,792,318 bytes
 Total records: 6,974 records

Variable	N	Mean	Minimum	Maximum	Sum
FOODCODE	6974	51249100.58	11000000.00	94000000.00	357411227431
EQUIVFLAG	6974	1.00	0.00	2.00	6958.00
G_TOTAL	6974	0.66	0.00	7.87	4589.19
G_WHL	6974	0.11	0.00	6.25	793.74
G_NWHL	6974	0.54	0.00	7.87	3795.44
V_TOTAL	6974	0.16	0.00	13.33	1085.22
V_DRKGR	6974	0.02	0.00	3.13	131.08
V_ORANGE	6974	0.01	0.00	2.70	87.95
V_POTATO	6974	0.02	0.00	2.99	140.26
V_STARCY	6974	0.02	0.00	1.76	138.94
V_TOMATO	6974	0.02	0.00	3.70	106.28
V_OTHER	6974	0.07	0.00	13.33	480.71
F_TOTAL	6974	0.05	0.00	2.78	355.62
F_CITMLB	6974	0.01	0.00	1.67	97.32
F_OTHER	6974	0.04	0.00	2.78	258.29
D_TOTAL	6974	0.07	0.00	4.41	516.50
D_MILK	6974	0.03	0.00	4.41	210.36
D_YOGURT	6974	0.00	0.00	0.42	8.17
D_CHEESE	6974	0.04	0.00	3.53	286.08
M_MPF	6974	0.55	0.00	3.53	3840.53
M_MEAT	6974	0.21	0.00	3.53	1471.70
M_ORGAN	6974	0.01	0.00	3.53	67.84
M_FRANK	6974	0.06	0.00	3.53	397.35
M_POULT	6974	0.13	0.00	3.53	887.60
M_FISH_HI	6974	0.04	0.00	3.53	278.94
M_FISH_LO	6974	0.11	0.00	3.53	737.11
M_EGG	6974	0.03	0.00	2.66	208.60
M_SOY	6974	0.02	0.00	4.48	122.34
M_NUTSD	6974	0.10	0.00	7.06	727.85
LEGUMES	6974	0.01	0.00	1.33	54.46
DISCFAT_OIL	6974	1.91	0.00	100.00	13299.57
DISCFAT_SOL	6974	4.67	0.00	100.00	32579.15
ADD_SUG	6974	1.44	0.00	23.83	10018.57
A_BEV	6974	0.01	0.00	2.40	82.67

Table notes:

The numbers in these tables are unweighted and are intended to be used as a reference only.

C.2: Control counts for the MyPyramid equivalents food file “equiv 9400.txt”

File name: “equiv 9400.txt”
 Data: number of MyPyramid equivalents for 32 MyPyramid food groups per food code
 Surveys: NHANES 1999-2000, CSFII 1994-96, 1998
 Format: ASCII fixed
 Record length: 255 characters
 Total byte count: 2,894,334 bytes
 Total records: 11,262 records

Variable	N	Mean	Minimum	Maximum	Sum
FOODCODE	11262	50812151.55	11000000.00	94000000.00	572246450810
EQUIVFLAG	11262	1.00	0.00	2.00	11296.00
MODCODE	11262	60031.44	0.00	205031.00	676074128.00
G_TOTAL	11262	0.58	0.00	7.87	6507.07
G_WHL	11262	0.09	0.00	6.41	1068.72
G_NWHL	11262	0.49	0.00	7.87	5468.36
V_TOTAL	11262	0.17	0.00	13.33	1951.12
V_DRKGR	11262	0.02	0.00	3.13	222.33
V_ORANGE	11262	0.01	0.00	2.70	151.84
V_POTATO	11262	0.03	0.00	2.99	321.12
V_STARCY	11262	0.02	0.00	1.76	245.86
V_TOMATO	11262	0.01	0.00	3.70	167.99
V_OTHER	11262	0.07	0.00	13.33	841.94
F_TOTAL	11262	0.04	0.00	2.78	420.45
F_CITMLB	11262	0.01	0.00	1.67	115.90
F_OTHER	11262	0.03	0.00	2.78	304.54
D_TOTAL	11262	0.09	0.00	4.41	957.86
D_MILK	11262	0.03	0.00	4.41	382.77
D_YOGURT	11262	0.00	0.00	0.42	8.17
D_CHEESE	11262	0.05	0.00	3.53	551.27
M_MPF	11262	0.54	0.00	3.53	6124.43
M_MEAT	11262	0.17	0.00	3.53	1964.88
M_ORGAN	11262	0.02	0.00	3.53	188.60
M_FRANK	11262	0.04	0.00	3.53	470.02
M_POULT	11262	0.15	0.00	3.53	1708.24
M_FISH_HI	11262	0.04	0.00	3.53	467.62
M_FISH_LO	11262	0.12	0.00	3.53	1325.09
M_EGG	11262	0.06	0.00	2.66	674.36
M_SOY	11262	0.01	0.00	4.48	121.37
M_NUTSD	11262	0.07	0.00	7.06	830.46
LEGUMES	11262	0.01	0.00	1.33	125.75
DISCFAT_OIL	11262	1.71	0.00	100.00	19274.87
DISCFAT_SOL	11262	4.37	0.00	100.00	49217.90
ADD_SUG	11262	1.08	0.00	23.83	12109.75
A_BEV	11262	0.01	0.00	8.33	98.27

Table notes:

The numbers in these tables are unweighted and are intended to be used as a reference only.

C.3: Control counts for the MyPyramid equivalents intake file “pyr_iff.sas7bdat”

File name: “pyr_iff.sas7bdat”
 Pyramid Data: number of MyPyramid equivalents for 32 MyPyramid food groups per food code per individual
 Survey: NHANES 1999-2002
 Format: SAS version 8 data file
 Total byte count: 49,693,696 bytes
 Total records: 250,507 records

Variable	N	Mean	Minimum	Maximum	Sum
SEQN	250507	10534.99	1.00	21004.00	2639088339.0
DRXILINE	250502	8.98	1.00	49.00	2250226.00
SDDSRVYR	250507	1.53	1.00	2.00	382468.00
RIDSTATR	250507	2.00	2.00	2.00	501014.00
RIAGENDR	250507	1.52	1.00	2.00	379955.00
RIDAGEYR	250507	32.93	2.00	85.00	8248028.00
RIDAGEMN	110465	137.43	24.00	239.00	15181753.00
RIDAGEEX	110344	138.23	24.00	241.00	15252636.00
RIDRETH1	250507	2.67	1.00	5.00	669160.00
RIDRETH2	250507	2.06	1.00	5.00	516338.00
DMQMILIT	84413	1.86	1.00	7.00	156691.00
DMDBORN	131762	1.22	1.00	3.00	160294.00
DMDEDUC	118874	1.82	1.00	9.00	215802.00
DMQ051	76390	1.87	1.00	9.00	142659.00
DMD110	117858	1.27	1.00	3.00	149832.00
DMD140	108568	1.72	1.00	9.00	186721.00
INDHHINC	222781	7.29	1.00	99.00	1625132.00
INDFMINC	247228	9.10	1.00	99.00	2248609.00
INDFMPIR	226322	2.44	0.00	5.00	552623.72
DMDMARTL	174145	2.85	1.00	99.00	496511.00
RIDPREG	90530	1.92	1.00	9.00	173978.00
WTINT2YR	131961	28351.74	1492.09	201188.12	3741323472.9
WTINT4YR	131961	14959.68	683.46	94900.90	1974093729.1
WTMEC2YR	250507	31282.96	980.34	261361.34	7836600603.6
WTMEC4YR	250507	15823.93	632.54	103831.17	3964005285.4
SDMVPSU	250507	1.52	1.00	3.00	381304.00
SDMVSTRA	250507	14.11	1.00	28.00	3535031.00
DRDDRSTZ	131961	1.00	1.00	1.00	131961.00
DRDDRSTS	118546	1.00	1.00	1.00	118546.00
DRDDAY	250502	4.54	1.00	7.00	1136144.00
DRDIFDCD	250502	57640420.02	11100000.00	94000000.00	1.443904E13
DRXIGRMS	250502	143.89	0.02	9360.00	36043706.05

C.3: Control counts for the MyPyramid equivalents intake file “pyr_iff.sas7bdat” (continued)

<u>Variable</u>	<u>N</u>	<u>Mean</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Sum</u>
G_TOTAL	250507	0.45	0.00	33.17	113598.69
G_WHL	250507	0.04	0.00	16.00	8979.26
G_NWHL	250507	0.42	0.00	33.17	104619.84
V_TOTAL	250507	0.09	0.00	10.84	22726.69
V_DRKGR	250507	0.00	0.00	5.18	1246.43
V_ORANGE	250507	0.00	0.00	4.50	1190.98
V_POTATO	250507	0.02	0.00	6.96	6245.07
V_STARCY	250507	0.01	0.00	5.07	1341.18
V_TOMATO	250507	0.02	0.00	7.76	5222.72
V_OTHER	250507	0.03	0.00	8.43	7479.80
F_TOTAL	250507	0.08	0.00	17.52	19049.25
F_CITMLB	250507	0.03	0.00	17.52	8693.70
F_OTHER	250507	0.04	0.00	16.04	10354.79
D_TOTAL	250507	0.11	0.00	32.64	28797.72
D_MILK	250507	0.07	0.00	32.64	18707.02
D_YOGURT	250507	0.00	0.00	3.50	410.52
D_CHEESE	250507	0.04	0.00	17.29	9589.21
M_MPF	250507	0.29	0.00	76.75	71623.85
M_MEAT	250507	0.12	0.00	76.75	30500.83
M_ORGAN	250507	0.00	0.00	15.52	600.40
M_FRANK	250507	0.05	0.00	27.65	12199.04
M_POULT	250507	0.08	0.00	38.28	20895.88
M_FISH_HI	250507	0.01	0.00	20.25	1585.56
M_FISH_LO	250507	0.02	0.00	46.06	5842.33
M_EGG	250507	0.03	0.00	9.09	7167.37
M_SOY	250507	0.00	0.00	13.05	583.80
M_NUTSD	250507	0.03	0.00	41.20	6423.26
LEGUMES	250507	0.01	0.00	6.00	2149.46
DISCFAT_OIL	250507	1.00	0.00	285.86	249652.65
DISCFAT_SOL	250507	3.18	0.00	246.95	796930.86
ADD_SUG	250507	1.54	0.00	221.33	386306.64
A_BEV	250507	0.03	0.00	45.09	7150.00

Table notes:

The numbers in these tables are unweighted and are intended to be used as a reference only.

See [section 5.3](#) for issues before using NHANES Pyramid serving intake data.

C.4: Control counts for the MyPyramid equivalents intake file “pyr_tot.sas7bdat”

File name: “pyr_tot.sas7bdat”
 Pyramid Data: number of MyPyramid equivalents for 32 MyPyramid food groups per individual
 Survey: NHANES 1999-2002
 Format: SAS version 8 data file
 Total byte count: 4,948,992 bytes
 Total records: 17,107 records

Variable	N	Mean	Minimum	Maximum	Sum
SEQN	17107	10548.73	1.00	21004.00	180457058.00
SDDSRVYR	17107	1.53	1.00	2.00	26140.00
RIDSTATR	17107	2.00	2.00	2.00	34214.00
RIAGENDR	17107	1.51	1.00	2.00	25913.00
RIDAGEYR	17107	31.32	2.00	85.00	535731.00
RIDAGEMN	8124	141.50	24.00	239.00	1149554.00
RIDAGEEX	8115	142.29	24.00	241.00	1154658.00
RIDRETH1	17107	2.68	1.00	5.00	45768.00
RIDRETH2	17107	2.11	1.00	5.00	36160.00
DMQMILIT	5576	1.87	1.00	7.00	10412.00
DMDBORN	9019	1.22	1.00	3.00	10967.00
DMDEDUC	8176	1.73	1.00	9.00	14121.00
DMQ051	5000	1.88	1.00	9.00	9407.00
DMD110	8024	1.28	1.00	3.00	10274.00
DMD140	7409	1.63	1.00	9.00	12103.00
INDHHINC	15164	7.19	1.00	99.00	108998.00
INDFMINC	16872	9.15	1.00	99.00	154362.00
INDFMPIR	15408	2.32	0.00	5.00	35696.18
DMDMARTL	11773	3.03	1.00	99.00	35724.00
RIDPREG	6246	1.94	1.00	9.00	12139.00
WTINT2YR	9033	27228.49	1492.09	201188.12	245954918.51
WTINT4YR	9033	14332.94	683.46	94900.90	129469482.84
WTMEC2YR	17107	29793.11	980.34	261361.34	509670671.35
WTMEC4YR	17107	15037.82	632.54	103831.17	257251957.57
SDMVPSU	17107	1.52	1.00	3.00	26023.00
SDMVSTRA	17107	14.16	1.00	28.00	242251.00
DRDDRSTZ	9033	1.00	1.00	1.00	9033.00
DRDDRSTS	8074	1.00	1.00	1.00	8074.00
G_TOTAL	17107	6.64	0.00	51.11	113598.69
G_WHL	17107	0.52	0.00	16.18	8979.26
G_NWHL	17107	6.12	0.00	51.11	104619.84
V_TOTAL	17107	1.33	0.00	14.55	22726.69
V_DRKGR	17107	0.07	0.00	7.40	1246.43
V_ORANGE	17107	0.07	0.00	4.50	1190.98

C.4: Control counts for the MyPyramid equivalents intake file “pyr_tot.sas7bdat” (continued)

Variable	N	Mean	Minimum	Maximum	Sum
V_POTATO	17107	0.37	0.00	6.96	6245.07
V_STARCH	17107	0.08	0.00	5.07	1341.18
V_TOMATO	17107	0.31	0.00	8.89	5222.72
V_OTHER	17107	0.44	0.00	9.30	7479.80
F_TOTAL	17107	1.11	0.00	24.09	19049.25
F_CITMLB	17107	0.51	0.00	17.52	8693.70
F_OTHER	17107	0.61	0.00	16.08	10354.79
D_TOTAL	17107	1.68	0.00	37.17	28797.72
D_MILK	17107	1.09	0.00	35.20	18707.02
D_YOGURT	17107	0.02	0.00	3.50	410.52
D_CHEESE	17107	0.56	0.00	18.34	9589.21
M_MPF	17107	4.19	0.00	79.11	71623.85
M_MEAT	17107	1.78	0.00	79.11	30500.83
M_ORGAN	17107	0.04	0.00	15.52	600.41
M_FRANK	17107	0.71	0.00	27.65	12199.04
M_POULT	17107	1.22	0.00	38.28	20895.88
M_FISH_HI	17107	0.09	0.00	20.25	1585.56
M_FISH_LO	17107	0.34	0.00	46.06	5842.33
M_EGG	17107	0.42	0.00	9.09	7167.37
M_SOY	17107	0.03	0.00	13.06	583.80
M_NUTSD	17107	0.38	0.00	41.20	6423.26
LEGUMES	17107	0.13	0.00	7.00	2149.46
DISCFAT_OIL	17107	14.59	0.00	311.93	249652.65
DISCFAT_SOL	17107	46.59	0.00	409.61	796930.86
ADD_SUG	17107	22.58	0.00	263.79	386306.64
A_BEV	17107	0.42	0.00	69.10	7150.00

Table notes:

The numbers in these tables are unweighted and are intended to be used as a reference only.

See [section 5.3](#) for issues before using NHANES Pyramid serving intake data.

C.5: Control counts for the MyPyramid equivalents intake file “rt32.sas7bdat”

File name: “rt32.sas7bdat”
 Pyramid Data: number of MyPyramid equivalents for 32 MyPyramid food groups per food per individual
 Survey: CSFII 1994-96, 1998
 Format: SAS version 8 data file
 Total byte count: 136,266,752 bytes
 Total records: 538,009 records

Variable	N	Mean	Minimum	Maximum	Sum
RT	538009	32.00	32.00	32.00	17216288.00
HHID	538009	25997.88	10001.00	52852.00	13987095849
SPNUM	538009	1.71	1.00	11.00	917927.00
VARSTRAT	538009	16.58	1.00	43.00	8918526.00
VARUNIT	538009	1.51	1.00	2.00	812004.00
REGION	538009	2.61	1.00	4.00	1403735.00
URB	538009	1.94	1.00	3.00	1044138.00
HHSIZE	538009	3.62	1.00	16.00	1947447.00
INCOME	538009	40288.22	0.00	100000.00	21675422694
INCREP	538009	2.51	1.00	9.00	1350246.00
PCTPOV	538009	213.87	0.00	300.00	115062292.00
POVCAT	538009	2.09	1.00	3.00	1123030.00
IMPFLAG	538009	1.40	1.00	5.00	754319.00
FS_RCV12	538009	1.92	1.00	9.00	1032494.00
AGE	538009	29.70	2.00	90.00	15977144.00
AGE_M	0
SEX	538009	1.48	1.00	2.00	796656.00
REL_REF	538009	1.51	0.00	12.00	809714.00
RACE	538009	1.47	1.00	5.00	792652.00
ORIGIN	538009	4.68	1.00	5.00	2516928.00
HEAD_HH	538009	1.55	1.00	9.00	831777.00
PL_STAT	538009	4.79	1.00	5.00	2577252.00
BF_STAT	538009	2.84	1.00	3.00	1529294.00
FS_AUTH	538009	1.96	1.00	9.00	1053451.00
COMP_D1	538009	1.00	1.00	1.00	538009.00
COMP_D2	538009	1.03	1.00	2.00	551570.00
COMP_DHK	538009	1.69	1.00	2.00	906590.00
WTA_DAY1	538009	41239.11	580.00	669591.00	22187009771
WTA_2DAY	524448	43503.21	507.00	1058203.00	22815170042
WT3_DAY1	421297	16817.31	1404.00	226692.00	7085082364.0
WT3_2DAY	410681	17743.76	1016.00	434881.00	7287024701.0
WT4_DAY1	538009	13186.13	340.00	226692.00	7094256521.0
WT4_2DAY	524448	13915.70	286.00	434881.00	7298058979.0
YEAR	538009	1995.64	1994.00	1998.00	1073670017.0

C.5: Control counts for the MyPyramid equivalents intake file “rt32.sas7bdat” (continued)

<u>Variable</u>	<u>N</u>	<u>Mean</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Sum</u>
DAYCODE	538009	1.48	1.00	2.00	796019.00
SEQNUM	538009	8.74	1.00	56.00	4702025.00
FOODCODE	538009	56703546.75	11000000.00	94000000.00	3.0507018E13
MODCODE	538009	7432.30	0.00	205031.00	3998646567.0
SUBCODE	538009	8146.10	0.00	1000302.00	4382677708.0
FOODAMT	537980	131.15	0.01	9472.00	70554346.94
OCC_TIME	538009	1447.20	0.00	9999.00	778608636.00
OCC_HR	538009	7.76	1.00	99.00	4176266.00
OCC_MIN	538009	13.94	0.00	99.00	7500015.00
OCC_AMPM	538009	1.71	1.00	9.00	922642.00
OCC_NAME	538009	4.76	1.00	99.00	2559282.00
FOODSRCE	538009	3.71	1.00	99.00	1998567.00
EATHOME	537017	1.33	1.00	9.00	715220.00
EVERHOME	155224	2.13	1.00	9.00	330727.00
COMBNUM	538009	1.20	0.00	17.00	643011.00
COMBTYPE	269370	13.73	1.00	99.00	3699439.00
SALTUSED	538009	1.16	0.00	9.00	624725.00
HOWMANY	538009	3.63	0.00	1710.00	1952318.74
MEASRNUM	538009	32624.91	0.00	90010.00	17552494630
G_TOTAL	538009	0.42	0.00	55.00	223825.67
G_WHL	538009	0.05	0.00	13.74	25640.66
G_NWHL	538009	0.37	0.00	55.00	198186.56
V_TOTAL	538009	0.09	0.00	11.73	48650.36
V_DRKGR	538009	0.00	0.00	4.00	2445.97
V_DPYEL	538009	0.01	0.00	3.81	2812.53
V_POTATO	538009	0.03	0.00	11.73	14754.18
V_STARCY	538009	0.01	0.00	6.00	3745.67
V_TOMATO	538009	0.02	0.00	8.74	8933.18
V_OTHER	538009	0.03	0.00	6.52	15956.11
F_TOTAL	538009	0.08	0.00	26.95	40774.97
F_CITMLB	538009	0.03	0.00	26.95	16624.32
F_OTHER	538009	0.04	0.00	11.71	24147.61
D_TOTAL	538009	0.11	0.00	19.76	60746.21
D_MILK	538009	0.08	0.00	16.01	43309.99
D_YOGURT	538009	0.00	0.00	2.31	1124.75
D_CHEESE	538009	0.03	0.00	19.76	16120.30
M_MPF	538009	0.26	0.00	117.52	142367.07
M_MEAT	538009	0.12	0.00	117.52	62810.31
M_ORGAN	538009	0.00	0.00	17.94	807.06
M_FRANK	538009	0.05	0.00	22.86	25936.79
M_POULT	538009	0.07	0.00	43.20	38635.66
M_FISH_HI	538009	0.01	0.00	20.14	3032.22
M_FISH_LO	538009	0.02	0.00	30.14	11145.95

C.5: Control counts for the MyPyramid equivalents intake data “rt32.sas7bdat” (continued)

<u>Variable</u>	<u>N</u>	<u>Mean</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Sum</u>
M_EGG	538009	0.03	0.00	9.67	13507.15
M_SOY	538009	0.00	0.00	9.53	884.71
M_NUTSD	538009	0.02	0.00	38.10	12756.00
LEGUMES	538009	0.01	0.00	7.90	3251.42
DISCFAT_OIL	538009	0.86	0.00	162.51	465086.10
DISCFAT_SOL	538009	2.92	0.00	282.23	1571778.83
ADD_SUG	538009	1.21	0.00	196.73	652229.27
A_BEV	538009	0.02	0.00	48.00	9195.33

Table notes:

The numbers in these tables are unweighted and are intended to be used as a reference only.

See [section 5.3](#) for issues before using NHANES Pyramid serving intake data.

C.6: Control counts for the MyPyramid equivalents intake file data “rt42.sas7bdat”

File name: “rt42.sas7bdat”
 Pyramid Data: number of MyPyramid equivalents for 32 MyPyramid food groups per individual
 Survey: CSFII 1994-96, 1998
 Format: SAS version 8 data file
 Total byte count: 16,696,320 bytes
 Total records: 55,189 records

Variable	N	Mean	Minimum	Maximum	Sum
RT	55189	42.00	42.00	42.00	2317938.00
HHID	55189	26139.33	10001.00	52852.00	1442603737.0
SPNUM	55189	1.75	1.00	11.00	96632.00
VARSTRAT	55189	16.72	1.00	43.00	922675.00
VARUNIT	55189	1.51	1.00	2.00	83427.00
REGION	55189	2.63	1.00	4.00	145380.00
URB	55189	1.94	1.00	3.00	107133.00
HHSIZE	55189	3.67	1.00	16.00	202582.00
INCOME	55189	38744.26	0.00	100000.00	2138257234.0
INCREP	55189	2.53	1.00	9.00	139410.00
PCTPOV	55189	207.76	0.00	300.00	11465951.00
POVCAT	55189	2.04	1.00	3.00	112489.00
IMPFLAG	55189	1.41	1.00	5.00	77628.00
FS_RCV12	55189	1.91	1.00	9.00	105147.00
AGE	55189	28.78	2.00	90.00	1588238.00
AGE_M	0
SEX	55189	1.49	1.00	2.00	82291.00
REL_REF	55189	1.56	0.00	12.00	85874.00
RACE	55189	1.51	1.00	5.00	83084.00
ORIGIN	55189	4.66	1.00	5.00	257223.00
HEAD_HH	55189	1.56	1.00	9.00	85949.00
PL_STAT	55189	4.77	1.00	5.00	263457.00
BF_STAT	55189	2.84	1.00	3.00	156964.00
FS_AUTH	55189	1.95	1.00	9.00	107725.00
COMP_D1	55189	1.00	1.00	1.00	55189.00
COMP_D2	55189	1.02	1.00	2.00	56135.00
COMP_DHK	55189	1.69	1.00	2.00	93315.00
WTA_DAY1	55189	41585.04	580.00	669591.00	2295036865.0
WTA_2DAY	54243	43925.84	507.00	1058203.00	2382669375.0
WT3_DAY1	43540	16850.91	1404.00	226692.00	733688460.00
WT3_2DAY	42786	17803.59	1016.00	434881.00	761744259.00
WT4_DAY1	55189	13284.44	340.00	226692.00	733155143.00
WT4_2DAY	54243	14041.85	286.00	434881.00	761671821.00
DAYCODE	55189	2.31	1.00	4.00	127513.00
YEAR	55189	1995.61	1994.00	1998.00	110135952.00

C.6: Control counts for the MyPyramid equivalents intake file “rt42.sas7bdat” (continued)

Variable	N	Mean	Minimum	Maximum	Sum
G_TOTAL	55189	6.03	0.00	68.15	332822.53
G_WHL	55189	0.69	0.00	25.68	38122.66
G_NWHL	55189	5.34	0.00	66.87	294704.21
V_TOTAL	55189	1.31	0.00	15.58	72324.97
V_DRKGR	55189	0.07	0.00	6.00	3634.52
V_DPYEL	55189	0.08	0.00	7.95	4187.35
V_POTATO	55189	0.40	0.00	14.09	21927.38
V_STARCY	55189	0.10	0.00	6.00	5574.05
V_TOMATO	55189	0.24	0.00	8.74	13284.57
V_OTHER	55189	0.43	0.00	8.10	23726.95
F_TOTAL	55189	1.10	0.00	29.39	60649.81
F_CITMLB	55189	0.45	0.00	28.52	24696.54
F_OTHER	55189	0.65	0.00	12.65	35951.69
D_TOTAL	55189	1.64	0.00	25.91	90357.94
D_MILK	55189	1.17	0.00	17.01	64431.80
D_YOGURT	55189	0.03	0.00	3.50	1677.97
D_CHEESE	55189	0.43	0.00	24.76	23970.23
M_MPF	55189	3.83	0.00	120.65	211521.87
M_MEAT	55189	1.69	0.00	120.65	93318.27
M_ORGAN	55189	0.02	0.00	17.94	1203.85
M_FRANK	55189	0.70	0.00	22.86	38545.15
M_POULT	55189	1.04	0.00	45.45	57436.82
M_FISH_HI	55189	0.08	0.00	20.14	4521.00
M_FISH_LO	55189	0.30	0.00	30.14	16501.84
M_EGG	55189	0.36	0.00	12.65	20061.38
M_SOY	55189	0.02	0.00	11.71	1302.68
M_NUTSD	55189	0.34	0.00	38.10	18989.27
LEGUMES	55189	0.09	0.00	7.90	4836.99
DISCFAT_OIL	55189	12.53	0.00	218.83	691300.06
DISCFAT_SOL	55189	42.34	0.00	381.20	336607.37
ADD_SUG	55189	17.58	0.00	218.53	970034.55
A_BEV	55189	0.25	0.00	58.01	13627.36

Table notes:

The numbers in these tables are unweighted and are intended to be used as a reference only.

See [section 5.3](#) for issues before using NHANES Pyramid serving intake data.

Appendix D: Program Files

Programs are provided with MyPyrEquivDB_v1 to document how the MyPyramid equivalent intake files are created and to provide an example of how intake results can be compared to the MyPyramid recommendations. SAS® (SAS 2000) has been used for these programs, but SAS is not the only system that may be used to process and analyze the data, nor is the USDA recommending SAS over other software systems. These programs can serve as models for programs in other software systems.

The programs provided include:

readequiv.sas	Reads "equiv0102.txt" and "equiv9400.txt"; stores data in SAS formats ("equiv0102.sas7bdat" and "equiv9400.sas7bdat")
rt32.sas	Joins "equiv9400.sas7bdat" food data file to CSFII 1994-96, 1998 intake and demographic data files to create MyPyramid equivalents intake data for each food eaten per individual ("rt32.sas7bdat")
rt42.sas	Reads CSFII 1994-96, 1998 MyPyramid equivalent food intake data from "rt32.sas7bdat" and creates daily MyPyramid equivalents intake data ("rt42.sas7bdat") per individual for Day 1, Day 2, and a 2-day average for individuals completing intakes for 2 days
pyr_iff.sas	Joins the MyPyramid food data "equiv0102.sas7bdat" to What We Eat in America, NHANES 2001-2002 food intake and demographic records and "equiv9400" to NHANES 1999-2000 food intake and demographic records to create a combined NHANES 1999-2002 MyPyramid equivalents intake data for each food eaten per individual ("pyr_iff.sas7bdat")
pyr_tot.sas	Reads NHANES 1999-2002 MyPyramid equivalent food intake data from "pyr_iff.sas7bdat" and creates daily MyPyramid equivalents intake data ("pyr_tot.sas7bdat") per individuals two years of age and older
pyrrpt.sas	Example of how to prepare MyPyramid equivalent intakes for analyses and reports
pyrrecom.sas	Example of how MyPyramid equivalent intakes can be compared to MyPyramid recommendations

D.1: readequiv.sas

```
*****
*
* readequiv.sas
*
* This SAS program reads the fixed format MyPyramid
* Equivalents data files (equiv0102.txt and equiv9400.txt)
* and stores the data as equiv0102.ssd, equiv9400.ssd. The
* SAS output from this program serves as input into the
* pyr_iff.sas and rt32.sas programs.
*
* Be sure to modify the libname statement as appropriate.
*
*****

options ls = 128 ps = 87;

libname SASdata 'C:\<SAS_data_directory>';          /* Directory for SAS */
                                                    /* data files */

filename equiv0102 'C:\PyrEquivDB_v1\data\equiv0102\equiv0102.txt'; /* Default location */
filename equiv9400 'C:\PyrEquivDB_v1\data\equiv9400\equiv9400.txt'; /* for equivalents */
                                                    /* food data files */

*****
*
* Read and store the equiv0102.txt equivalents data. Create
* benchmark control counts data to verify results.
*
*****

data SASdata.equiv0102 (compress = yes                /* Create SAS output */
                      where=(MODCODE = 0)) ;        /* data file */
  infile equiv0102 lrecl = 271;
  input DRDI FDCD      1- 8
        EQUI VFLAG    9- 9
        MODCODE       10- 15
        G_TOTAL       16- 23
        G_WHL         24- 31
        G_NWHL        32- 39
        V_TOTAL       40- 47
        V_DRKGR       48- 55
        V_ORANGE      56- 63
        V_POTATO      64- 71
        V_STARCHY     72- 79
        V_TOMATO      80- 87
        V_OTHER       88- 95
        F_TOTAL       96-103
        F_CITMLB     104-111
        F_OTHER       112-119
        D_TOTAL      120-127
        D_MILK       128-135
        D_YOGURT     136-143
        D_CHEESE     144-151
        M_MPF        152-159
        M_MEAT       160-167
        M_ORGAN      168-175
        M_FRANK      176-183
        M_POULT     184-191
        M_FISH_HI    192-199
```

```

M_FISH_LO 200-207
M_EGG     208-215
M_SOY     216-223
M_NUTSD   224-231
LEGUMES   232-239
DISCFAT_OIL 240-247
DISCFAT_SOL 248-255
ADD_SUG   256-263
A_BEV     264-271;

```

label

```

DRDI_FDCD = "USDA Food code"
EQUI_VFLAG = "Equivalents Flag"
MODCODE = "Modification code"
G_TOTAL = "Total number of grain ounce equivalents"
G_WHL = "Number of whole grain ounce equivalents"
G_NWHL = "Number of non-whole grain ounce equivalents"
V_TOTAL = "Total number of vegetable cup equivalents, excl legumes"
V_DRKGR = "Number of dark-green vegetable cup equivalents"
V_ORANGE = "Number of orange vegetable cup equivalents"
V_POTATO = "Number of white potato cup equivalents"
V_STARCY = "Number of other starchy vegetable cup equivalents"
V_TOMATO = "Number of tomato cup equivalents"
V_OTHER = "Number of other vegetable cup equivalents"
F_TOTAL = "Total number of fruit cup equivalents"
F_CITMLB = "Number of citrus, melon, berry cup equivalents"
F_OTHER = "Number of other fruit cup equivalents"
D_TOTAL = "Total number of milk group (milk, yogurt & cheese) cup equivalent"
D_MILK = "Number of milk cup equivalents"
D_YOGURT = "Number of yogurt cup equivalents"
D_CHEESE = "Number of cheese cup equivalents"
M_MPF = "Oz cooked lean meat from meat, poultry, fish"
M_MEAT = "Oz cooked lean meat from beef, pork, veal, lamb, and game"
M_ORGAN = "Oz cooked lean meat from organ meats"
M_FRANK = "Oz cooked lean meat from franks, sausages, luncheon meats"
M_POULT = "Oz cooked lean meat from chicken, poultry, and other poultry"
M_FISH_HI = "Oz cooked lean meat from fish, other seafood high in Omega-3 "
M_FISH_LO = "Oz cooked lean meat from fish, other seafood low in Omega-3 "
M_EGG = "Oz equivalents of lean meat from eggs"
M_SOY = "Oz equivalents of lean meat from soy product"
M_NUTSD = "Oz equivalents of lean meat from nuts and seeds"
LEGUMES = "Number of cooked dry beans and peas cup equivalents"
/* or ounce equivalents of lean meat from cooked dry bean and pea */
DISCFAT_OIL = "Grams of discretionary Oil"
DISCFAT_SOL = "Grams of discretionary Solid fat"
ADD_SUG = "Teaspoon equivalents of added sugars"
A_BEV = "Total drinks of alcohol";

```

run;

```

proc sort data=SASdata.equiv0102 (drop=modcode);          /* Sort SAS output */
  by drdi_fdcid;                                          /* data file */
run;

```

```

proc contents data = SASdata.equiv0102;                  /* Generate listing of */
  title1 '0102EQUIV';                                    /* variables in SAS */
  title2 'MyPyramid Equivalents Data File';             /* output data file */
  title3 'Contents';
run;

```



```

proc means maxdec=2 n mean min max sum                                /* Create control */
  data = SASdata.equiv0102;                                          /* counts - see */
  title1 '0102EQUIV';                                               /* benchmark control */
  title2 'MyPyramid Equivalents Data File';                         /* counts below */
  title3 'Control Counts';
run;

```

```

*****
*
* Read and store the equiv9400.txt equivalents data. Create
* benchmark control counts data to verify results.
*
*****

```

```

data SASdata.equiv9400 (compress = yes);                             /* Create SAS output */
  infile equiv9400 lrecl = 271;                                       /* data file */
  input FOODCODE      1- 8
        EQUIVFLAG    9- 9
        MODCODE      10- 15
        G_TOTAL      16- 23
        G_WHL        24- 31
        G_NWHL       32- 39
        V_TOTAL      40- 47
        V_DRKGR      48- 55
        V_ORANGE     56- 63
        V_POTATO     64- 71
        V_STARCH     72- 79
        V_TOMATO     80- 87
        V_OTHER      88- 95
        F_TOTAL      96-103
        F_CITMLB     104-111
        F_OTHER      112-119
        D_TOTAL      120-127
        D_MILK       128-135
        D_YOGURT     136-143
        D_CHEESE     144-151
        M_MPF        152-159
        M_MEAT       160-167
        M_ORGAN      168-175
        M_FRANK      176-183
        M_POULT      184-191
        M_FISH_HI    192-199
        M_FISH_LO    200-207
        M_EGG        208-215
        M_SOY        216-223
        M_NUTSD      224-231
        LEGUMES      232-239
        DISCFAT_OIL  240-247
        DISCFAT_SOL  248-255
        ADD_SUG      256-263
        A_BEV        264-271;

```

Label

DRDI FDCD	= "USDA Food code"
EQUIVFLAG	= "Equivalents Flag"
MODCODE	= "Modification code"
G_TOTAL	= "Total number of grain ounce equivalents"

```

G_WHL          = "Number of whole grain ounce equivalents"
G_NWHL        = "Number of non-whole grain ounce equivalents"
V_TOTAL       = "Total number of vegetable cup equivalents, excl legumes"
V_DRKGR       = "Number of dark-green vegetable cup equivalents"
V_ORANGE      = "Number of orange vegetable cup equivalents"
V_POTATO      = "Number of white potato cup equivalents"
V_STARCY      = "Number of other starchy vegetable cup equivalents"
V_TOMATO      = "Number of tomato cup equivalents"
V_OTHER       = "Number of other vegetable cup equivalents"
F_TOTAL       = "Total number of fruit cup equivalents"
F_CITMLB      = "Number of citrus, melon, berry cup equivalents"
F_OTHER       = "Number of other fruit cup equivalents"
D_TOTAL       = "Total number of milk group (milk, yogurt & cheese) cup equivalent"
D_MILK        = "Number of milk cup equivalents"
D_YOGURT      = "Number of yogurt cup equivalents"
D_CHEESE      = "Number of cheese cup equivalents"
M_MPF         = "Oz cooked lean meat from meat, poultry, fish"
M_MEAT        = "Oz cooked lean meat from beef, pork, veal, lamb, and game"
M_ORGAN       = "Oz cooked lean meat from organ meats"
M_FRANK       = "Oz cooked lean meat from franks, sausages, luncheon meats"
M_POULT       = "Oz cooked lean meat from chicken, poultry, and other poultry"
M_FISH_HI     = "Oz cooked lean meat from fish, other seafood high in Omega-3 "
M_FISH_LO     = "Oz cooked lean meat from fish, other seafood low in Omega-3 "
M_EGG         = "Oz equivalents of lean meat from eggs"
M_SOY         = "Oz equivalents of lean meat from soy product"
M_NUTSD       = "Oz equivalents of lean meat from nuts and seeds"
LEGUMES       = "Number of cooked dry beans and peas cup equivalents"
/* or ounce equivalents of lean meat from cooked dry bean and pea */
DISCFAT_OIL   = "Grams of discretionary Oil"
DISCFAT_SOL   = "Grams of discretionary Solid fat"
ADD_SUG       = "Teaspoon equivalents of added sugars"
A_BEV         = "Total drinks of alcohol";

```

```
run;
```

```
proc sort data=SASdata.equi v9400;          /* Sort SAS output */
  by foodcode modcode;                     /* data file */
run;
```

```
proc contents data = SASdata.equi v9400;   /* Generate listing of */
  title1 ' 9400EQUI V';                   /* variables in SAS */
  title2 ' MyPyramid Equivalents Data File'; /* output data file */
  title3 ' Contents';
run;
```

```
proc means maxdec=2 n mean min max sum     /* Create control */
  data = SASdata.equi v9400;              /* counts - see */
  title1 ' 9400EQUI V';                   /* benchmark control */
  title2 ' MyPyramid Equivalents Data File'; /* counts below */
  title3 ' Control Counts';
run;
```

```
quit;
```

D.2: rt32.sas

```
*****
*
* rt32.sas
*
* This SAS program joins the MyPyramid equivalents data file*
* (equiv9400.ssd) with the CSFII 1994-96, 1998 intake data *
* (record types 30 and 25) to create CSFII 1994-96, 1998 *
* MyPyramid equivalents intakes. The output file (rt32.ssd)*
* contains one record per food (line item) for each *
* responding sample person 2 years and older for each day. *
* Each record has data on the number of equivalents of each *
* of the 32 MyPyramid food groups.
*
* Be sure to modify the libname statements as appropriate. *
*
* ARS suggests that prior to using the output file rt32.ssd *
* for analysis dry beans and peas be assigned to the *
* vegetables OR meat and beans group.
*
*****;

options ls = 128 ps = 87;

libname SASdata 'C:\<SAS_data_directory>'; /* Directory for SAS */
/* data files */

libname dirCSFII 'C:\<SAS_data_directory_for_CSFII>'; /* Directory for CSFII */
/* data files */

*****
*
* Sort selected rt30 data (grams of food consumed) by *
* foodcode and modcode and save data in a temporary data *
* file (data1).
*
*****;

proc sort data = dirCSFII.rt30
      (keep = hhid spnum daycode seqnum foodcode modcode
          foodamt age year
          where = (age >= 2))
      out = data1;
by foodcode modcode;

*****
*
* Merge the sorted rt30 data (data1) with the equiv9400.ssd *
* SAS file containing the number of equivalents per 100 gram *
* food. Calculate the number of equivalents consumed per *
* person per food code.
*
*****;
```

```

data sequivdat (keep = foodcode modcode val01--val32);
  set SASdata.equiv9400;

  length val01 val02 val03 val04 val05
         val06 val07 val08 val09 val10
         val11 val12 val13 val14 val15
         val16 val17 val18 val19 val20
         val21 val22 val23 val24 val25
         val26 val27 val28 val29 val30
         val31 val32 8;

  array grp g_total --a_bev;
  array val val01--val32;

  do i = 1 to dim(val);
    val[i] = grp[i];
  end;

data data1 (keep = hhid spnum daycode seqnum g_total --a_bev);
  merge data1 (in = in1)
        equivdat;
  by foodcode modcode;

  if in1;

  if foodcode eq 11000000 then do;
    foodamt = 0;
  end;

  length g_total g_whl g_nwhl v_total v_drkgr v_dpyel
         v_potato v_starcy v_tomato v_other
         f_total f_citmlb f_other d_total d_milk
         d_yogurt d_cheese m_mpf m_meat m_organ
         m_frank m_poult m_fish_hi m_fish_lo m_egg m_soy
         m_nutsd legumes discfat_oil discfat_sol add_sug a_bev 8;

  array equiv g_total --a_bev;
  array val val01--val32;

  do i = 1 to dim(equiv);
    equiv[i] = round((foodamt * val[i] / 100), 0.001);
  end;

*****
*
* Sort the equivalent intake records and merge them with
* rt30 and rt25 to add the key variables.
*
*****;

proc sort data = data1 out = data1;
  by hhid spnum daycode seqnum;

data data1 (compress = yes);
  merge data1 (in = in1)
        dirCSFII.rt30 (keep = hhid spnum daycode--subcode energy);
  by hhid spnum daycode seqnum;

```

```

if in1;

data data1 (compress = yes);
  merge data1 (in = in1)
        di rCSF11.rt25 (keep = hhi d--wt4_2day year--wt3_2day);
  by hhi d spnum;

if in1;

*****
*
* Reorder fields and save them as a SAS data file called
* rt32. Round equivalents intakes to 3 decimals.
*
*****

```

```

data dummy;

length
  RT HHID SPNUM                4
  LINELET                      $1
  VARSTRAT VARUNIT REGION URB HHSIZE 4
  INCOME                       8
  INCREP                       4
  INCCODE                      $1
  PCTPOV POVCAT IMPFLAG FS_RCV12 AGE AGE_M SEX
  REL_REF RACE ORIGIN
  HEAD_HH PL_STAT BF_STAT FS_AUTH
  COMP_D1 COMP_D2 COMP_DHK      4
  WTA_DAY1 WTA_2DAY WT3_DAY1 WT3_2DAY 8
  WT4_DAY1 WT4_2DAY YEAR        8
  DAYCODE SEQNUM              4
  FOODCODE MODCODE SUBCODE FOODAMT 8
  OCC_TIME OCC_HR OCC_MIN OCC_AMPM OCC_NAME FOODSRCE
  EATHOME EVERHOME COMBNUM COMBTYPER SALTUSED 4
  HOWMANY                      8
  MEASURE                      $2
  MEASRNUM                     4
  G_TOTAL G_WHL G_NWHL V_TOTAL V_DRKGR V_ORANGE
  V_POTATO V_STARCHY V_TOMATO V_OTHER
  F_TOTAL F_CITMLB F_OTHER D_TOTAL D_MILK
  D_YOGURT D_CHEESE M_MPF M_MEAT M_ORGAN
  M_FRANK M_POULT M_FISH_HI M_FISH_LO M_EGG M_SOY
  M_NUTSD LEGUMES DISCFAT_OIL DISCFAT_SOL ADD_SUG
  A_BEV ENERGY                8;

```

```

proc append base = dummy (compress = yes)
  data = data1 force;
/* Note: SAS will issue */
/* warning messages */

```

```

data SASdata.rt32 (drop = i
  compress = yes);
  set dummy (where = (hhi d > 0));

array equi v g_total --a_bev;

do i = 1 to dim(equi v);
  equi v[i] = round(equi v[i], 0.001);
end;

```

rt = 32;

Label	HHID	= "Household ID"
	RT	= "Record type"
	SPNUM	= "SP number"
	LINELET	= "Line letter"
	VARSTRAT	= "Variance-estimation stratum"
	VARUNIT	= "Variance-estimation unit"
	REGION	= "Region"
	URB	= "Urbanization"
	HHSIZE	= "Household size"
	INCOME	= "Annual income: total"
	INCREP	= "Annual income: actual report"
	INCCODE	= "Annual income: category"
	PCTPOV	= "Annual income: percent of poverty"
	POVCAT	= "Annual income: % of poverty category"
	IMPFLAG	= "Annual income: imputation flag"
	FS_RCV12	= "Food stamps: in last 12 months"
	AGE	= "Age in years"
	AGE_M	= "Age in months"
	SEX	= "Sex"
	REL_REF	= "Relationship to reference person"
	RACE	= "Race"
	ORIGIN	= "Hispanic origin"
	HEAD_HH	= "Head of household"
	PL_STAT	= "Pregnant/lactating status"
	BF_STAT	= "Breast feeding status"
	FS_AUTH	= "Food stamps: authorized"
	COMP_D1	= "Day 1 flag"
	COMP_D2	= "Day 2 flag"
	COMP_DHK	= "DHKS flag"
	WTA_DAY1	= "Annual day 1 weight"
	WTA_2DAY	= "Annual two day weight"
	WT3_DAY1	= "Three-year day 1 weight"
	WT3_2DAY	= "Three-year two day weight"
	WT4_DAY1	= "Four-year day 1 weight"
	WT4_2DAY	= "Four-year two day weight"
	DAYCODE	= "Day of intake"
	YEAR	= "Year of survey"
	SEQNUM	= "Line item number"
	FOODCODE	= "Food code"
	MODCODE	= "Modification code"
	SUBCODE	= "Subcode"
	FOODAMT	= "Amount of food in grams"
	OCC_TIME	= "Occasion: time"
	OCC_HR	= "Occasion: hour"
	OCC_MIN	= "Occasion: minute"
	OCC_AMPM	= "Occasion: am / pm"
	OCC_NAME	= "Occasion: name"
	FOODSRCE	= "Source of food item"
	EATHOME	= "Was food eaten at home"
	EVERHOME	= "Was food ever at home"
	COMBNUM	= "Combination number"
	COMBTYP	= "Combination type"
	SALTUSED	= "Salt used in preparation"
	HOWMANY	= "# of units of measure"
	MEASURE	= "Common unit of measure"
	MEASRNUM	= "Measure description #"
	G_TOTAL	= "Total number of grain ounce equivalents"

```

G_WHL          = "Number of whole grain ounce equivalents"
G_NWHL        = "Number of non-whole grain ounce equivalents"
V_TOTAL       = "Total number of vegetable cup equivalents, excl legumes"
V_DRKGR       = "Number of dark-green vegetable cup equivalents"
V_ORANGE      = "Number of orange vegetable cup equivalents"
V_POTATO      = "Number of white potato cup equivalents"
V_STARCHY     = "Number of other starchy vegetable cup equivalents"
V_TOMATO      = "Number of tomato cup equivalents"
V_OTHER       = "Number of other vegetable cup equivalents"
F_TOTAL       = "Total number of fruit cup equivalents"
F_CITMLB     = "Number of citrus, melon, berry cup equivalents"
F_OTHER       = "Number of other fruit cup equivalents"
D_TOTAL       = "Total number of milk group (milk, yogurt & cheese) cup equivalents "
D_MILK        = "Number of milk cup equivalents"
D_YOGURT      = "Number of yogurt cup equivalents"
D_CHEESE      = "Number of cheese cup equivalents"
M_MPF         = "Oz cooked lean meat from meat, poultry, fish"
M_MEAT        = "Oz cooked lean meat from beef, pork, veal, lamb, and game"
M_ORGAN       = "Oz cooked lean meat from organ meats"
M_FRANK       = "Oz cooked lean meat from franks, sausages, luncheon meats"
M_POULT       = "Oz cooked lean meat from chicken, poultry, and other poultry"
M_FISH_HI     = "Oz cooked lean meat from fish, other seafood high in Omega-3 "
M_FISH_LO     = "Oz cooked lean meat from fish, other seafood low in Omega-3 "
M_EGG         = "Oz equivalents of lean meat from eggs"
M_SOY         = "Oz equivalents of lean meat from soy product"
M_NUTSD       = "Oz equivalents of lean meat from nuts and seeds"
LEGUMES       = "Number of cooked dry beans and peas cup equivalents"
/* or ounce equivalents of lean meat from cooked dry bean and pea */
DISCFAT_OIL   = "Grams of discretionary Oil"
DISCFAT_SOL   = "Grams of discretionary Solid fat"
ADD_SUG       = "Teaspoon equivalents of added sugars"
A_BEV         = "Total drinks of alcohol";
ENERGY        = "Energy"

```

```

*****
*
*   Generate unweighted control counts for verifying the rt32
*   data set.
*
*****

```

```

proc contents data = SASdata.rt32;                                /* Generate listing */
  title1 'RT32';                                                /* of variables in */
  title2 'CSFII 1994-96, 1998 Equivalents Intake Records';     /* SAS output data */
  title3 'Contents';                                           /* file */
run;

```

```

proc means maxdec=2 n mean min max sum                          /* Create control */
  data = SASdata.rt32;                                         /* counts - see */
  title1 'RT32';                                              /* benchmark control */
  title2 'CSFII 1994-96, 1998 Equivalents Intake Records';    /* counts below */
  title3 'Control Counts (unweighted)';
  title4 'All Individuals 2 Years of Age and Older';
  title5 '++ Benchmark control counts are not to be used for analysis ++';
run;

```

```
quit;
```

D.3: rt42.sas

```
*****
*
* rt42.sas
*
* This SAS program summarizes the individual MyPyramid
* equivalent intakes (rt32.ssd) and calculates daily intakes
* for Day 1 and Day 2, and a 2-day average for respondents
* with completed 2 days of intakes. The output file,
* rt42.ssd, contains one record per responding sample
* person two years of age and older for each day of intake
* and two day average. Each record has data on the number
* of equivalents of each of the 32 MyPyramid food groups.
*
* Be sure to modify the libname statements as appropriate.
*
* ARS suggests that prior to using the output file rt42.ssd
* for analysis dry beans and peas be assigned to the
* vegetables OR meat and beans group.
*
* The DAYCODE variable can be used to select specific days
* of intakes for analysis. A DAYCODE value of 1=Day 1,
* 2=Day 2, and 4=2 day average.
*
*****
options ls = 128 ps = 87;

libname SASdata 'C:\<SAS_data_directory>';          /* Directory for SAS */
                                                    /* data files          */

libname dirCSFII 'C:\<SAS_data_directory_for_CSFII>'; /* Directory for CSFII */
                                                    /* data files          */

*****
*
* Generate a list of Sample Persons (SPs) with no
* foods reported for day 1 or day 2 (faster).
*
*****
data data1a (keep=hhid spnum daycode faster);
  set dirCSFII.rt25;

  if (d1_nrec = 0) then do;                          /* No day 1 intakes */
    daycode = 1;
    faster = 1;
    output;
  end;
  if (d2_nrec = 0) then do;                          /* No day 2 intakes */
    daycode = 2;
    faster = 1;
    output;
  end;
```



```
proc sort data=data1a;
  by hhi d spnum daycode;
run;
```

```
*****
*
* Generate daily Equivalent intake records for each SP.
*
*****,
```

```
proc means noprint data = SASdata.rt32; /* Aggregates by day */
  by hhi d spnum daycode;
  var g_total --a_bev energy;
  output out = data1b
    sum(g_total --a_bev energy) = g_total g_whl g_nwhl
    v_total v_drkgr v_ORANGE v_potato v_starcy v_tomato
    v_other f_total f_ci tmlb f_other d_total d_milk d_yogurt
    d_cheese m_mpf m_meat m_organ m_frank m_poult m_fish_hi m_fish_lo m_egg
    m_soy m_nutsd l_egumes di_scfat_oil di_scfat_sol add_sug a_bev energy;
```

```
*****
*
* Add the fasting SPs to the daily Equivalent intake records.
*
*****,
```

```
data data2;
  update data1a data1b;
  by hhi d spnum daycode;
```

```
proc sort data=data2;
  by hhi d spnum daycode;
run;
```

```
*****
*
* Merge the daily equivalent intake records with rt25 to get
* key household/person variables.
*
* Set totals to zero for those SPs with no food records and
* breast fed children.
*
*****,
```

```
data data2;
  merge data2
    dirCSFII.rt25 (keep = hhi d --wt4_2day wta_day1 wta_2day wt3_day1
                    wt3_2day year);
  by hhi d spnum;
```

```
if (age >= 2);
```

```
array grp g_total --a_bev energy;
```

```
if (faster eq 1) then
  do i = 1 to dim(grp);
    grp[i] = 0; /* Set group fields=0 */
  end;
```

```
*****
*
* Generate the 2-day average equivalent records for those SPs*
* providing two days of dietary data.
*
*****,
```

```
proc means noprint data = data2 (where = (comp_d2 eq 1));
  by hhi d spnum;
  var g_total --a_bev energy;
  output out = data3
    mean(g_total --a_bev energy) = g_total g_whl g_nwhl
    v_total v_drkgr v_ORANGE v_potato v_starcy v_tomato
    v_other f_total f_ci tmlb f_other d_total d_milk d_yogurt
    d_cheese m_mpf m_meat m_organ m_franc m_poult m_fish_hi m_fish_lo m_egg
    m_soy m_nutsd legumes discfat_oil discfat_sol add_sug a_bev energy;
```

```
data data3;
  merge data2 (drop = g_total --a_bev
    where = (daycode eq 2))
    data3;
  by hhi d spnum;
```

```
daycode = 4;
```

```
array amt g_total --a_bev;
```

```
do i = 1 to dim(amt);
  amt[i] = round(amt[i], .01);
end;
```

```
data data4;
  update data2 data3;
  by hhi d spnum daycode;
```

```
*****
*
* Reorder fields and save them as a SAS data file called
* rt42.ssd. Order is by HHID, SPNUM, and DAYCODE.
*
*****,
```

```
data dummy;
```

```
length
  RT HHID SPNUM 4
  LINELET $1
  VARSTRAT VARUNIT REGION URB HHSIZE 4
  INCOME 8
  INCREP 4
  INCCODE $1
  PCTPOV POVCAT IMPFLAG FS_RCV12 AGE AGE_M SEX
  REL_REF RACE ORIGIN
  HEAD_HH PL_STAT BF_STAT FS_AUTH
  COMP_D1 COMP_D2 COMP_DHK 4
  WTA_DAY1 WTA_2DAY WT3_DAY1 WT3_2DAY WT4_DAY1 WT4_2DAY 8
  DAYCODE 4
```

```

YEAR
G_TOTAL G_WHL G_NWHL V_TOTAL
V_DRKGR V_ORANGE v_POTATO V_STARCHY
V_TOMATO V_OTHER F_TOTAL F_CITMLB F_OTHER D_TOTAL
D_MILK D_YOGURT D_CHEESE M_MPF M_MEAT M_ORGAN
M_FRANK M_POULT M_FISH_HI M_FISH_LO M_EGG M_SOY
M_NUTSD LEGUMES DI SCFAT_OIL DI SCFAT_SOL ADD_SUG
A_BEV ENERGY

```

8;

```

proc append base = dummy                                /* Note: SAS will issue */
           data = data4                                /* warning messages   */
           force;

```

```

data SASdata.rt42 (compress = yes);
  set dummy (where = (hhid > 0));
rt = 42;

```

```

label RT          = "Record type"
      HHID        = "Household ID"
      SPNUM       = "Sample person number"
      LINELET     = "Line letter for HH members"
      VARSTRAT    = "Variance-estimation stratum"
      VARUNIT     = "Variance-estimation unit"
      REGION      = "Region"
      URB         = "Urbanization"
      HHSIZE      = "Household size"
      INCOME      = "Annual income: total"
      INCREP      = "Annual income: actual report"
      INCCODE     = "Annual income: category"
      PCTPOV     = "Annual income: percent of poverty"
      POVCAT     = "Annual income: % of poverty category"
      IMPFLAG     = "Annual income: imputation flag"
      FS_RCV12   = "Food stamps: in last 12 months"
      AGE        = "Age in years"
      AGE_M      = "Age in months"
      SEX        = "Sex"
      REL_REF    = "Relationship to reference person"
      RACE       = "Race"
      ORIGIN     = "Hispanic origin"
      HEAD_HH    = "Head of household"
      PL_STAT    = "Pregnant/lactating status"
      BF_STAT    = "Breast feeding status"
      FS_AUTH    = "Food stamps: authorized"
      COMP_D1    = "Day 1 flag"
      COMP_D2    = "Day 2 flag"
      COMP_DHK   = "DHKS flag"
      WTA_DAY1   = "Final one year day 1 weight"
      WTA_2DAY   = "Final one year two day weight"
      WT3_DAY1   = "Final three year day 1 weight"
      WT3_2DAY   = "Final three year two day weight"
      WT4_DAY1   = "Final four year day 1 weight"
      WT4_2DAY   = "Final four year two day weight"
      DAYCODE    = "Day / average code"
      YEAR       = "Year of survey"
      G_TOTAL    = "Total number of grain ounce equivalents"
      G_WHL     = "Number of whole grain ounce equivalents"
      G_NWHL    = "Number of non-whole grain ounce equivalents"
      V_TOTAL    = "Total number of vegetable cup equivalents, excl legumes"
      V_DRKGR    = "Number of dark-green vegetable cup equivalents"
      V_ORANGE   = "Number of orange vegetable cup equivalents"

```

```

V_POTATO      = "Number of white potato cup equivalents"
V_STARCHY    = "Number of other starchy vegetable cup equivalents"
V_TOMATO     = "Number of tomato cup equivalents"
V_OTHER      = "Number of other vegetable cup equivalents"
F_TOTAL      = "Total number of fruit cup equivalents"
F_CITMLB    = "Number of citrus, melon, berry cup equivalents"
F_OTHER      = "Number of other fruit cup equivalents"
D_TOTAL      = "Total number of milk group (milk, yogurt & cheese) cup equivalents "
D_MILK      = "Number of milk cup equivalents"
D_YOGURT     = "Number of yogurt cup equivalents"
D_CHEESE     = "Number of cheese cup equivalents"
M_MPF        = "Oz cooked lean meat from meat, poultry, fish"
M_MEAT       = "Oz cooked lean meat from beef, pork, veal, lamb, and game"
M_ORGAN      = "Oz cooked lean meat from organ meats"
M_FRANK      = "Oz cooked lean meat from franks, sausages, luncheon meats"
M_POULT      = "Oz cooked lean meat from chicken, poultry, and other poultry"
M_FISH_HI    = "Oz cooked lean meat from fish, other seafood high in Omega-3 "
M_FISH_LO    = "Oz cooked lean meat from fish, other seafood low in Omega-3 "
M_EGG        = "Oz equivalents of lean meat from eggs"
M_SOY        = "Oz equivalents of lean meat from soy product"
M_NUTSD      = "Oz equivalents of lean meat from nuts and seeds"
LEGUMES      = "Number of cooked dry beans and peas cup equivalents"
/* or ounce equivalents of lean meat from cooked dry bean and pea */
DISCFAT_OIL  = "Grams of discretionary Oil"
DISCFAT_SOL  = "Grams of discretionary Solid fat"
ADD_SUG      = "Teaspoon equivalents of added sugars"
A_BEV        = "Total drinks of alcohol";
ENERGY       = "Energy"

```

```

*****
*
*   Generate unweighted control counts for verifying the rt42
*   data set.
*
*****

```

```

proc contents data = SASdata.rt42;                                /* Generate listing */
  title1 'RT42';                                                /* of variables in */
  title2 'CSFII 1994-96, 1998 Equivalents Intake Records';    /* SAS output data */
  title3 'Contents';                                           /* file */
run;

```

```

proc means maxdec=2 n mean min max sum                          /* Create control */
  data = SASdata.rt42;                                          /* counts - see */
  title1 'RT42';                                               /* benchmark control */
  title2 'CSFII 1994-96, 1998 Equivalents Intake Records';    /* counts below */
  title3 'Control Counts (unweighted)';
  title4 'All Individuals 2 Years of Age and Older';
  title5 '++ Benchmark control counts are not to be used for analysis ++';
run;

```

```
quit;
```

D.4: pyr_iff.sas

```
*****
*
* pyr_iff.sas
*
* This SAS program joins the MyPyramid equivalent data files*
* (equiv0102.ssd and equiv9400.ssd) with the NHANES 2001-
* 2002 and NHANES 1999-2000 intake data respectively to
* create a comprehensive NHANES 1999-2002 MyPyramid
* equivalent intakes data file (pyr_iff.ssd). The output
* file contains one record per food (line item) for each
* responding sample person. Each record has data on the
* number of equivalent of each of the 32 MyPyramid food
* groups.
*
* Be sure to modify the libname statements as appropriate.
*
* ARS suggests that prior to using the output file
* (pyr_iff.ssd) for analysis dry beans and peas be assigned
* to the vegetables OR meat and beans group.
*
*****
options ls = 128 ps = 87;

libname SASdata 'C:\<SAS_data_directory>';          /* Directory for SAS */
                                                    /* data files          */

libname NH0102 'C:\<SAS_data_directory_for_NH0102>'; /* Directory for NHANES*/
                                                    /* 2001-2002 data     */

libname NH9900 'C:\<SAS_data_directory_for_NH9900>'; /* Directory for NHANES*/
                                                    /* 1999-2000 data     */

*****
*
* Begin creating MyPyramid equivalent Intake records for the
* WWEIA-NHANES 2001-2002 intakes.
*
*
* Sort reliable drxi ff_b data (grams of food consumed) by
* foodcode (drdi fdcd) and save data in a temporary data
* file (data1).
*
*****
proc sort data = NH0102.drxi ff_b
          (keep = seqn drxi line drddrstz drdi fdcd drxi grms drdday
           where = (drddrstz = 1))          /* selects reliable intakes only */
          out = data1;
  by drdi fdcd;
run;

*****
```

```

*
* Merge the sorted drxi ff_b data (data1) with the SAS file
* (equi v0102. ssd) containing the number of equivalent per 100*
* gram food. Calculate the number of equivalent consumed per*
* person per food code.
*
*****

```

```

data equi vdat (keep = drdi fdcd val 01--val 32);
set SASdata. equi v0102;

```

```

length val 01 val 02 val 03 val 04 val 05
        val 06 val 07 val 08 val 09 val 10
        val 11 val 12 val 13 val 14 val 15
        val 16 val 17 val 18 val 19 val 20
        val 21 val 22 val 23 val 24 val 25
        val 26 val 27 val 28 val 29 val 30
        val 31 val 32 8;

```

```

array grp g_total --a_bev;
array val val 01--val 32;

```

```

do i = 1 to dim(val);
    val [i] = grp[i];
end;

```

```
run;
```

```

data data1 (keep = seqn drxi line drddrstz drdi fdcd drxi grms drdday
                g_total --a_bev);
merge data1 (in = in1)
      equi vdat;
by drdi fdcd;

```

```
if in1;
```

```

length g_total g_whl g_nwhl v_total v_drkgr v_dpyel
        v_potato v_starcy v_tomato v_other
        f_total f_cimlb f_other d_total d_milk
        d_yogurt d_cheese m_mpf m_meat m_organ
        m_frank m_poult m_fish_hi m_fish_lo m_egg m_soy m_nutsd
        legumes di_scfat_oil di_scfat_sol add_sug a_bev

```

```
8;
```

```

array equi v g_total --a_bev;
array val val 01--val 32;

```

```

do i = 1 to dim(equi v);
    equi v[i] = round((drxi grms * val [i] / 100), 0.001);
end;

```

```
run;
```

```

*****
*
* Get NH0102 demographic data for all individuals providing
* reliable intakes, including fasters. The DRXTOT data file
* contains all valid individuals so it will be used as the
* basis for the SEQN list.
*
*****

```

```
data demo;
```

```

merge NH0102.drxtot_b (keep = seqn drddrstz
                      where = (drddrstz = 1)
                      in = in1)
      NH0102.demo_b (keep = seqn--sdmvstra);
by seqn;
if in1;
run;

proc sort data = demo out = demo;
by seqn;
run;

*****
*
* Sort the equivalent intake records and merge them with the
* demographic data to add the key variables.
*
*****

proc sort data = data1 out = data1;
by seqn drxiline;
run;

data data1 (compress = yes);
merge data1
      demo (where = (ri dageyr >= 2) /* limits data to individuals 2 */
           in = in1); /* years of age and older only */
by seqn ;

if in1;
run;

proc contents data = data1;
run;

*****
*
* Reorder fields and save them as a SAS data file called
* pyr_i ff. Round equivalent intakes to three decimals.
*
*****

data dummy;

length
SEQN DRXLINE SDDSRVYR RI DSTATR RI AGENDR
RI DAGEYR RI DAGEMN RI DAGEEX RI DRETH1 RI DRETH2
DMQMLIT DMDBORN DMDEDUC DMQ051 DMD110
DMD140 I NDHHC I NDFMNC I NDFMP1R DMDMARTL
RIDPREG WTI NT2YR WTI NT4YR WTMEC2YR WTMEC4YR
SDMVPSU SDMVSTRA DRDDRSTZ DRDDRSTS DRDDAY
DRDIFDCD DRXIGRMS
G_TOTAL G_WHL G_NWHL V_TOTAL V_DRKGR
V_ORANGE V_POTATO V_STARCY V_TOMATO V_OTHER
F_TOTAL F_CITMLB F_OTHER D_TOTAL D_MILK
D_YOGURT D_CHEESE M_MPF M_MEAT M_ORGAN
M_FRANK M_POULT M_FISH_HI M_FISH_LO M_EGG M_SOY
M_NUTSD LEGUMES DISCFAT_OIL DISCFAT_SOL ADD_SUG A_BEV 8;

```

```

proc append base = dummy (compress = yes)                                /* Note: SAS will issue */
  data = data1 force;                                                  /* warning messages      */
run;

data SASdata.pyr_i ff (drop = i
  compress = yes);
  set dummy (where = (SEQN > 0));

array equi v g_total --a_bev;

do i = 1 to dim(equi v);
  if equi v[i] = . then do;
    equi v[i] = 0;
  end;
else
  equi v[i] = round(equi v[i], 0.001);
end;

label
  SEQN          = "Respondent sequence number"
  DRXLINE       = "Food/individual component number(sequential#)"
  SDDSRVYR      = "Data Release Number"
  RIDSTATR      = "Interview/Examination Status"
  RIAGENDR      = "Gender - Adjudicated."
  RIDAGEYR      = "Age at Screening Adjudicated - Recode"
  RIDAGEMN      = "Age in Months < 20 years - Recode"
  RIDAGEEX      = "Exam Age in Months < 20 yrs - Recode"
  RIDRETH1      = "Race/Ethnicity - Recode"
  RIDRETH2      = "Linked NH3 Race/Ethnicity - Recode"
  DMQMLIT       = "Served in the US Armed Forces (NHANES 2001-2002)"
  DMDBORN       = "Country of Birth - Recode (NHANES 2001-2002)"
  DMDDEDUC      = "Education - Recode (NHANES 2001-2002)"
  DMQO51        = "Served in the US Armed Forces (NHANES 1999-2000)"
  DMD110        = "Country of Birth - Recode (NHANES 1999-2000)"
  DMD140        = "Education - Recode (NHANES 1999-2000)"
  INDHINC       = "Annual Household Income"
  INDFINC       = "Annual CPS Family Income"
  INDFPIR       = "CPS Family PIR"
  DMDMARTL      = "Marital Status"
  RIDPREG       = "Pregnancy Status"
  WTINT2YR      = "Full Sample 2 Year Interview Weight"
  WTINT4YR      = "Full Sample 4 Year Interview Weight"
  WTMEC2YR      = "Full Sample 2 Year Mec Exam Weight"
  WTMEC4YR      = "Full Sample 4 Year MEC Exam Weight"
  SDMVPSU      = "Masked Variance Pseudo-PSU"
  SDMVSTRA      = "Masked Variance Pseudo-Stratum"
  DRDDRSTZ      = "Dietary recall status (NHANES 2001-2002)"
  DRDDRSTS      = "Dietary recall status (NHANES 1999-2000)"
  DRDDAY        = "Intake day of the week"
  DRDIFDCD      = "USDA food code"
  DRXIGRMS      = "Grams"
  G_TOTAL       = "Total number of grain ounce equivalents"
  G_WHL         = "Number of whole grain ounce equivalents"
  G_NWHL        = "Number of non-whole grain ounce equivalents"
  V_TOTAL       = "Total number of vegetable cup equivalents, excl legumes"
  V_DRKGR       = "Number of dark-green vegetable cup equivalents"
  V_ORANGE      = "Number of orange vegetable cup equivalents"
  V_POTATO      = "Number of white potato cup equivalents"
  V_STARCHY     = "Number of other starchy vegetable cup equivalents"
  V_TOMATO      = "Number of tomato cup equivalents"

```



```

V_OTHER      = "Number of other vegetable cup equivalents"
F_TOTAL     = "Total number of fruit cup equivalents"
F_CITMLB    = "Number of citrus, melon, berry cup equivalents"
F_OTHER     = "Number of other fruit cup equivalents"
D_TOTAL     = "Total number of milk group (milk, yogurt & cheese) cup equivalents "
D_MILK      = "Number of milk cup equivalents"
D_YOGURT    = "Number of yogurt cup equivalents"
D_CHEESE    = "Number of cheese cup equivalents"
M_MPF       = "Oz cooked lean meat from meat, poultry, fish"
M_MEAT      = "Oz cooked lean meat from beef, pork, veal, lamb, and game"
M_ORGAN     = "Oz cooked lean meat from organ meats"
M_FRANK     = "Oz cooked lean meat from franks, sausages, luncheon meats"
M_POULT     = "Oz cooked lean meat from chicken, poultry, and other poultry"
M_FISH_HI   = "Oz cooked lean meat from fish, other seafood high in Omega-3 "
M_FISH_LO   = "Oz cooked lean meat from fish, other seafood low in Omega-3 "
M_EGG       = "Oz equivalents of lean meat from eggs"
M_SOY       = "Oz equivalents of lean meat from soy product"
M_NUTSD     = "Oz equivalents of lean meat from nuts and seeds"
LEGUMES     = "Number of cooked dry beans and peas cup equivalents"
/* or ounce equivalents of lean meat from cooked dry bean and pea */
DISCFAT_OIL = "Grams of discretionary Oil "
DISCFAT_SOL = "Grams of discretionary Solid fat"
ADD_SUG     = "Teaspoon equivalents of added sugars"
A_BEV       = "Total drinks of alcohol";

```

```
run;
```

```

*****
*
* Begin creating MyPyramid equivalent Intake records for the
* WWEIA-NHANES 1999-2000 intakes.
*
*
* Sort reliable drxi ff data (grams of food consumed) by
* foodcode (drdi fdcd) and save data in a temporary data
* file (data1).
*
*****

```

```

proc sort data = NH9900.drxi ff
      (keep = seqn drxi line drddrst drdi fdcd drxi grms drdday
        where = (drddrst = 1)) /* selects reliable intakes only */
      out = data2;
  by drdi fdcd;
run;

```

```

*****
*
* Merge the sorted drxi ff data (data2) with the SAS file
* (equiv9400.ssd) containing the number of equivalent per 100*
* gram food. Calculate the number of equivalent consumed per*
* person per food code.
*
*****

```

```

data equivdat (keep = drdi fdcd val 01--val 32);
  set SASdata.equiv9400 (where = (modcode = 0)
    rename = (foodcode = drdi fdcd));

```

```
length val01 val02 val03 val04 val05
```

```

    val 06 val 07 val 08 val 09 val 10
    val 11 val 12 val 13 val 14 val 15
    val 16 val 17 val 18 val 19 val 20
    val 21 val 22 val 23 val 24 val 25
    val 26 val 27 val 28 val 29 val 30
    val 31 val 32 8;

array grp g_total --a_bev;
array val val01--val32;

do i = 1 to dim(val);
    val[i] = grp[i];
end;
run;

data data2 (keep = seqn drxiline drddrsts drdifcd drxigrms drdday
              g_total --a_bev);
merge data2 (in = in1)
      equivat;
by drdifcd;

if in1;

length g_total g_whl g_nwhl v_total v_drkgr v_dpyel
        v_potato v_starcy v_tomato v_other
        f_total f_citmlb f_other d_total d_milk
        d_yogurt d_cheese m_mpf m_meat m_organ
        m_frank m_poult m_fish_hi m_fish_lo m_egg m_soy m_nutsd
        legumes discfat_oil discfat_sol add_sug a_bev 8;

array equiv g_total --a_bev;
array val val01-val32;

do i = 1 to dim(equiv);
    equiv[i] = round((drxigrms * val[i] / 100), 0.001);
end;
run;

*****
*
* Get NH9900 demographic data for all individuals providing *
* reliable intakes, including fasters. The DRXTOT data file *
* contains all valid individuals so it will be used as the *
* basis for the SEQN list. *
*
*****
*****

data demo;
merge NH9900.drxtot (keep = seqn drddrsts
                    where = (drddrsts = 1)
                    in = in1)
      NH9900.demo (keep = seqn--sdmvstra);
by seqn;
if in1;
run;

proc sort data = demo out = demo;
by seqn;
run;

```

```

*****
*
* Sort the equivalent intake records and merge them with the
* demographic data to add the key variables. Round
* equivalent intakes to three decimal places.
*
*****
proc sort data = data2 out = data2;
  by seqn drxiline;
run;

data data2 (compress = yes);
  merge data2
        demo (where = (ri dageyr >= 2)
              in = in1);
  by seqn ;
if in1;

array equiv g_total --a_bev;

do i = 1 to dim(equiv);
  if equiv[i] = . then do;
    equiv[i] = 0;
  end;
  else
    equiv[i] = round(equiv[i], 0.001);
end;

run;

proc contents data = data2;
run;

*****
*
* Append the NBHANES 1999-2000 MyPyramid equivalent intakes
* to the pyr_i ff data file.
*
*****
proc append base = SASdata.pyr_i ff (compress = yes)
  data = data2 force;
run;

*****
*
* Generate unweighted control counts for verifying the
* pyr_i ff data set.
*
*****
proc contents data = SASdata.pyr_i ff;
  title1 'PYR_I FF';
  title2 'NHANES 1999-2002 equivalent Intake Records';
  title3 'Contents';
run;

proc means maxdec=2 n mean min max sum

```

```
data = SASdata.pyr_i ff; /* counts - see */
title1 'PYR_I FF'; /* benchmark control */
title2 'NHANES 1999-2002 equivalent Intake Records'; /* counts below */
title3 'Control Counts (unweighted)';
title4 'All Individuals 2 and older';
title5 '++ Benchmark control counts are not to be used for analysis ++';
run;

quit;
```

D.5: pyr_tot.sas

```
*****
*
* pyr_tot.sas
*
* This SAS program summarizes the individual MyPyramid
* equivalent intakes (pyr_iff.ssd) and calculates total
* daily intakes. The output file, pyr_tot.ssd, contains one
* record for each responding sample person two years of age
* and older providing reliable intakes. Each record has
* data on the number of equivalents from each of the 32
* MyPyramid food groups.
*
* Be sure to modify the libname statements as appropriate.
*
* ARS suggests that prior to using the output file
* pyr_tot.ssd for analysis dry beans and peas be assigned
* to the vegetables OR meat and beans group.
*
*****
options ls = 128 ps = 87;

libname SASdata 'C:\<SAS_data_directory>';          /* Directory for SAS */
                                                    /* data files      */

*****
* Begin creating pyr_tot.ssd
*
* Calculate total daily equivalents intake records for each
* individual in the pyr_iff.ssd file. This data already 5
* individuals that are fasters.
*
*****
proc sort data = SASdata.pyr_iff out=data1;
  by seqn SDDSRVYR--DRDDRSTS;
run;

proc means noprint data = data1;                    /* Aggregates by day */
  by seqn SDDSRVYR--DRDDRSTS;
  var g_total--a_bev;
  output out = data1
    sum(g_total--a_bev) = g_total g_whl g_nwhl
    v_total v_drkgr v_ORANGE v_potato v_starcy v_tomato
    v_other f_total f_citmlb f_other d_total d_milk d_yogurt
    d_cheese m_mpf m_meat m_organ m_frunk m_poult m_fish_hi m_fish_lo m_egg
    m_soy m_nutsd legumes discfat_oil discfat_sol add_sug a_bev;
run;

*****
*
* Reorder fields and save them as a SAS data file called
* pyr_tot.ssd. Order is by SEQN.
*
*****

data dummy;
```

length

```
SEQN          SDDSRVYR  RI DSTATR      RI AGENDR
RIDAGEYR      RIDAGEMN  RIDAGEEX      RIDRETH1      RIDRETH2
DMQMLIT      DMDBORN    DMDEDUC      DMQ051        DMD110
DMD140       INDHHCNC  INDFMNC      INDFMPIR      DMDMARTL
RIDPREG       WTINT2YR  WTINT4YR     WTMEC2YR     WTMEC4YR
SDMVPSU      SDMVSTRA  DRDDRSTZ     DRDDRSTS
G_TOTAL      G_WHL     G_NWHL       V_TOTAL      V_DRKGR
V_ORANGE     V_POTATO  V_STARCHY    V_TOMATO     V_OTHER
F_TOTAL      F_CITMLB  F_OTHER      D_TOTAL      D_MILK
D_YOGURT     D_CHEESE  M_MPF        M_MEAT       M_ORGAN
M_FRANK      M_POULT   M_FISH_HI    M_FISH_LO    M_EGG        M_SOY
M_NUTSD      LEGUMES   DISCFAT_OIL  DISCFAT_SOL  ADD_SUG      A_BEV        8;
```

```
proc append base = dummy          /* Note: SAS will issue */
              data = data1        force; /* warning messages */
run;
```

```
data SASdata.pyr_tot (compress = yes);
  set dummy (where = (seqn > 0));
```

label

```
SEQN          = "Respondent sequence number"
SDDSRVYR      = "Data Release Number"
RIDSTATR      = "Interview/Examination Status"
RIAGENDR      = "Gender - Adjudicated."
RIDAGEYR      = "Age at Screening Adjudicated - Recode"
RIDAGEMN      = "Age in Months < 20 years - Recode"
RIDAGEEX      = "Exam Age in Months < 20 yrs - Recode"
RIDRETH1      = "Race/Ethnicity - Recode"
RIDRETH2      = "Linked NH3 Race/Ethnicity - Recode"
DMQMLIT      = "Served in the US Armed Forces (NHANES 2001-2002)"
DMDBORN      = "Country of Birth - Recode (NHANES 2001-2002)"
DMDEDUC      = "Education - Recode (NHANES 2001-2002)"
DMQ051       = "Served in the US Armed Forces (NHANES 1999-2000)"
DMD110       = "Country of Birth - Recode (NHANES 1999-2000)"
DMD140       = "Education - Recode (NHANES 1999-2000)"
INDHHCNC     = "Annual Household Income"
INDFMNC      = "Annual CPS Family Income"
INDFMPIR     = "CPS Family PIR"
DMDMARTL     = "Marital Status"
RIDPREG      = "Pregnancy Status"
WTINT2YR     = "Full Sample 2 Year Interview Weight"
WTINT4YR     = "Full Sample 4 Year Interview Weight"
WTMEC2YR     = "Full Sample 2 Year Mec Exam Weight"
WTMEC4YR     = "Full Sample 4 Year MEC Exam Weight"
SDMVPSU      = "Masked Variance Pseudo-PSU"
SDMVSTRA     = "Masked Variance Pseudo-Stratum"
DRDDRSTZ    = "Dietary recall status (NHANES 2001-2002)"
DRDDRSTS     = "Dietary recall status (NHANES 1999-2000)"
G_TOTAL      = "Total number of grain ounce equivalents"
G_WHL        = "Number of whole grain ounce equivalents"
G_NWHL       = "Number of non-whole grain ounce equivalents"
V_TOTAL      = "Total number of vegetable cup equivalents, excl legumes"
V_DRKGR      = "Number of dark-green vegetable cup equivalents"
V_ORANGE     = "Number of orange vegetable cup equivalents"
V_POTATO     = "Number of white potato cup equivalents"
V_STARCHY    = "Number of other starchy vegetable cup equivalents"
V_TOMATO     = "Number of tomato cup equivalents"
V_OTHER      = "Number of other vegetable cup equivalents"
```

```

F_TOTAL      = "Total number of fruit cup equivalents"
F_CITMLB    = "Number of citrus, melon, berry cup equivalents"
F_OTHER     = "Number of other fruit cup equivalents"
D_TOTAL     = "Total number of milk group (milk, yogurt & cheese) cup equivalents "
D_MILK      = "Number of milk cup equivalents"
D_YOGURT    = "Number of yogurt cup equivalents"
D_CHEESE    = "Number of cheese cup equivalents"
M_MPF       = "Oz cooked lean meat from meat, poultry, fish"
M_MEAT      = "Oz cooked lean meat from beef, pork, veal, lamb, and game"
M_ORGAN     = "Oz cooked lean meat from organ meats"
M_FRANK     = "Oz cooked lean meat from franks, sausages, luncheon meats"
M_POULT     = "Oz cooked lean meat from chicken, poultry, and other poultry"
M_FISH_HI   = "Oz cooked lean meat from fish, other seafood high in Omega-3 "
M_FISH_LO   = "Oz cooked lean meat from fish, other seafood low in Omega-3 "
M_EGG       = "Oz equivalents of lean meat from eggs"
M_SOY       = "Oz equivalents of lean meat from soy product"
M_NUTSD     = "Oz equivalents of lean meat from nuts and seeds"
LEGUMES     = "Number of cooked dry beans and peas cup equivalents"
/* or ounce equivalents of lean meat from cooked dry bean and pea */
DISCFAT_OIL = "Grams of discretionary Oil"
DISCFAT_SOL = "Grams of discretionary Solid fat"
ADD_SUG     = "Teaspoon equivalents of added sugars"
A_BEV       = "Total drinks of alcohol";

```

```
run;
```

```

*****
*
* Generate unweighted control counts for verifying the rt42 *
* data set.
*
*****

```

```

proc contents data = SASdata.pyr_tot; /* Generate listing */
  title1 'pyr_tot'; /* of variables in */
  title2 'NHANES 1999-2002 equivalents Intake Records'; /* SAS output data */
  title3 'Contents'; /* file */
run;

```

```

proc means maxdec=2 n mean min max sum /* Create control */
  data = SASdata.pyr_tot; /* counts - see */
  title1 'pyr_tot'; /* benchmark control */
  title2 'NHANES 1999-2002 equivalents Intake Records'; /* counts below */
  title3 'Control Counts (unweighted)';
  title4 'All Individuals 2 Years of Age and Older';
  title5 '++ Benchmark control counts are not to be used for analysis ++';
run;

```

```
quit;
```

D.6: pyrrpt.sas

```
*****
*
* pyrrpt.sas
*
* This SAS program is an example of the processing steps
* necessary to prepare equivalent intakes for analysis by
* assigning dry bean and peas (legumes) to the Meat and Beans
* group or Vegetables group.
*
* According to the MyPyramid Guidelines dry beans and peas
* can be counted as either lean meat or vegetable (but not
* both). The equivalents data for legumes in this database
* have been calculated as vegetable equivalents (cup
* equivalents of cooked dry beans and peas). The Guidelines
* identify 1/4 cup of dry beans and peas as equivalent to 1
* ounce of lean meat. Therefore, the number of cup
* equivalents can be multiplied by 4 to convert Legumes to
* ounces of lean meat equivalents.
*
* Depending on the users research objectives, one of the
* blocks of program code provided below should be inserted
* into an analysis program that uses any of the MyPyramid
* intake files ("pyr_1ff.ssd", "pyr_tot.ssd", "rt32.ssd"
* and/or "rt42.ssd").
*
* Appropriate precautions are required to ensure that dry
* beans and peas are counted toward just one of these major
* food groups, and not double counted in both groups.
*
*****
*
* Be sure to modify the libname statement as appropriate.
*
*****
options ls = 128 ps = 87;

libname SASdata 'C:\<SAS_data_directory>';          /* Directory for SAS */
                                                    /* data files      */

*****
*
* Code block #1 -
*
* Include legumes in the Meat and Bean Alternate group
*
*****
*
* Select the MyPyramid equivalents intake data to prepare
* for analysis. This example selects the 2 day average
* intake records from CSFII 1994-96, 1998 record type 42.
*
```



```

* Calculate total ounce equivalents of lean meat to include *
* dry beans and peas. *
* *
*****
data data1;
  set SASdata.rt42 (keep = hhid spnum age sex daycode
                    g_total--g_nwhl v_total--v_other
                    f_total--f_other m_mpf m_egg
                    m_soy m_nutstd legumes
                    where = (daycode eq 4));

TOTMEAT = m_mpf + m_egg + m_soy + m_nutstd + (legumes * 4); /* Include legumes in */
                                                         /* the total meat group */

label totmeat = "Oz lean meat equivalent from Meat and Beans Group (incl. legumes)";
label v_total = 'Total number of veg. equivalents (excl. legumes)';

run;

*****
* *
* Calculate the mean number of grain, fruit, and vegetable *
* and meat equivalents consumed by children 2-3 years of *
* age. *
* *
*****

proc means maxdec=2 n mean sum data=data1 (where = (age <= 3));
  var g_total--g_nwhl v_total--v_other f_total--f_other
      totmeat m_mpf m_egg m_soy m_nutstd legumes;
  title1 'Mean number of equivalents consumed (unweighted)';
  title2 'by children 2-3 years of age, CSFII 1994-1996, 1998';
  title3 '(legumes included in the total meat group)';

run;

*****
* *
* Code block #2 -- *
* *
* Include legumes in vegetable group and adjust equivalents *
* for children 2-3 years of age -- *
* *
*****
*****
* *
* Select the Pyramid equivalents intake data to prepare for *
* analysis. This example selects the 2 day average intake *
* records from CSFII 1994-96, 1998 record type 42. *
* *
* Calculate total ounces of meat and lean meat equivalents. *
* *
* Calculate total vegetable equivalents to include dry *
* beans and peas. *
* *
*****

```

```

data data2;
  set SASdata.rt42 (keep = hhid snum age sex daycode
                      g_total--g_nwhl v_total--v_other
                      f_total--f_other m_mpf m_egg
                      m_soy m_nutsd legumes
                      where = (daycode eq 4));

V_TOTAL = v_total + legumes; /* include legumes in */
TOTMEAT = m_mpf + m_egg + m_soy + m_nutsd; /* the vegetable group */

label TOTMEAT = "Oz lean meat equivalent from Meat and Beans Group (excl. legumes)";
label V_TOTAL = 'Total number of veg. equivalents (incl. legumes)';
label LEGUMES = 'Number of dry beans/peas equivalents';

run;

*****
*
* Calculate the mean number of grain, fruit, vegetable and
* meat equivalents consumed by children 2-3 years of age
* after including legumes in the vegetable group.
*
*****;

proc means maxdec=2 n mean sum data=data2 (where = (age <= 3));
  var g_total--g_nwhl v_total--v_other legumes f_total--f_other
      totmeat m_mpf m_egg m_soy m_nutsd;
  title1 'Mean number of equivalents consumed (unweighted)';
  title2 'by children 2-3 years of age, CSFII 1994-1996, 1998';
  title3 '(legumes included in the total vegetable group)';

run;

quit;

```

D.7: pyrrecom.sas

```
*****
*
* pyrrecom. sas
*
* This SAS program is an example of the processing steps
* necessary to compare the total equivalent intakes from
* the five major MyPyramid groups (total grains, total
* vegetables, total fruits, total meat, and total milk) for
* each sample person to the recommended number of
* equivalents for each group. See the the Dietary
* Guidelines for Americans 2005 for more information on the
* suggested amount of each food group to consume.
*
* The Dietary Guidelines provide suggested amounts of food
* to consume from the basic food groups to meet the
* recommended nutrient intakes at 12 different caloric
* levels (which are based on age, sex and level of physical
* activity). This program shows how to operationalize the
* MyPyramid equivalents intakes and compare them to these
* recommendations.
*
* Be sure to modify the libname statement as appropriate.
*
* NOTE: This program --
*
*     (1) includes dry beans and peas (legumes) in
*         the meat group. See pyr rpt. sas for
*         replacement code to include dry beans and
*         peas in the vegetable group.
*
*     (2) uses reported energy intake to identify
*         the recommended number of equivalents that
*         an individual should consume and does
*         not account for what an individual's
*         energy intake should be based on age, sex
*         and activity level.
*
*     (3) compares the number of equivalents
*         consumed by each individual to the
*         recommended amount interpolated for the
*         individual's reported caloric intake.
*
*****,
```

```
options ls = 128 ps = 87;
```

```
libname SASdata 'C:\<SAS_data_directory>';          /* Directory for SAS */
                                                    /* data files          */
```

```
*****
*
* Get the MyPyramid equivalent intakes to be compared to the*
```

```

* recommendations in the program steps that follow.          *
*                                                            *
* Read total grain, total vegetable, total fruit, and total  *
* dairy equivalents from record type 42.                      *
*                                                            *
* Calculate total ounces of meat and lean meat equivalents  *
* to include legumes.                                       *
*                                                            *
*****
data data1;
  set SASdata.rt42 (keep = hhid spnum age sex daycode
                    g_total v_total f_total d_total
                    m_mpf m_egg m_soy m_nutsd legumes energy
                    where = (daycode eq 4));

meatgrp = m_mpf + m_egg + m_soy + m_nutsd + (legumes * 4); /* Include legumes in */
                                                         /* the meat group */

*****
*
* Compare an individual's equivalents intake to the number  *
* of equivalents recommended interpolated for the amount of *
* calories consumed.                                       *
*
* The "grain", "veg", "fruit", "dairy", "meat" variables  *
* are preset to 2 (not meeting the recommendation) and then *
* set to 1 (meets the recommendation) if it is determined  *
* that a sample person meets the recommendation.          *
*
*****

grain = 2;
veg = 2;
fruit = 2;
dairy = 2;
meat = 2;

if (energy <= 1000) then do; /* 1000 calorie Level */
  if (f_total >= 1) then fruit = 1;
  if (v_total >= 1) then veg = 1;
  if (g_total >= 3) then grain = 1;
  if (meatgrp >= 2) then meat = 1;
  if (d_total >= 2) then dairy = 1;
end;

else if (1000 < energy <= 1200) then do; /* 1200 calorie Level */
  if f_total >= 1 then fruit = 1;
  if v_total >= (1 + ((.5) * ((energy - 1000) / 200))) then veg = 1;
  if g_total >= (3 + ((1) * ((energy - 1000) / 200))) then grain = 1;
  if meatgrp >= (2 + ((1) * ((energy - 1000) / 200))) then meat = 1;
  if d_total >= 2 then dairy = 1;
end;

else if (1200 < energy <= 1400) then do; /* 1400 calorie Level */
  if f_total >= (1 + ((.5) * ((energy - 1200) / 200))) then fruit = 1;
  if v_total >= 1.5 then veg = 1;
  if g_total >= (4 + ((1) * ((energy - 1200) / 200))) then grain = 1;
  if meatgrp >= (3 + ((1) * ((energy - 1200) / 200))) then meat = 1;

```

```

    if d_total >= 2 then dairy = 1;
end;

else if (1400 < energy <= 1600) then do;          /* 1600 calorie Level */
    if f_total >= 1.5 then fruit = 1;
    if v_total >= (1.5 + ((.5) * ((energy - 1400) / 200))) then veg = 1;
    if g_total >= 5 then grain = 1;
    if meatgrp >= (4 + ((1) * ((energy - 1400) / 200))) then meat = 1;
    if d_total >= (2 + ((1) * ((energy - 1400) / 200))) then dairy = 1;
end;

else if (1600 < energy <= 1800) then do;          /* 1800 calorie Level */
    if f_total >= 1.5 then fruit = 1;
    if v_total >= (2 + ((.5) * ((energy - 1600) / 200))) then veg = 1;
    if g_total >= (5 + ((1) * ((energy - 1600) / 200))) then grain = 1;
    if meatgrp >= 5 then meat = 1;
    if d_total >= 3 then dairy = 1;
end;

else if (1800 < energy <= 2000) then do;          /* 2000 calorie Level */
    if f_total >= (1.5 + ((.5) * ((energy - 1800) / 200))) then fruit = 1;
    if v_total >= 2.5 then veg = 1;
    if g_total >= 6 then grain = 1;
    if meatgrp >= (5 + ((.5) * ((energy - 1800) / 200))) then meat = 1;
    if d_total >= 3 then dairy = 1;
end;

else if (2000 < energy <= 2200) then do;          /* 2200 calorie Level */
    if f_total >= 2 then fruit = 1;
    if v_total >= (2.5 + ((.5) * ((energy - 2000) / 200))) then veg = 1;
    if g_total >= (6 + ((1) * ((energy - 2000) / 200))) then grain = 1;
    if meatgrp >= (5.5 + ((.5) * ((energy - 2000) / 200))) then meat = 1;
    if d_total >= 3 then dairy = 1;
end;

else if (2200 < energy <= 2400) then do;          /* 2400 calorie Level */
    if f_total >= 2 then fruit = 1;
    if v_total >= 3 then veg = 1;
    if g_total >= (7 + ((1) * ((energy - 2200) / 200))) then grain = 1;
    if meatgrp >= (6 + ((.5) * ((energy - 2200) / 200))) then meat = 1;
    if d_total >= 3 then dairy = 1;
end;

else if (2400 < energy <= 2600) then do;          /* 2600 calorie Level */
    if f_total >= 2 then fruit = 1;
    if v_total >= (3 + ((.5) * ((energy - 2400) / 200))) then veg = 1;
    if g_total >= (8 + ((1) * ((energy - 2400) / 200))) then grain = 1;
    if meatgrp >= 6.5 then meat = 1;
    if d_total >= 3 then dairy = 1;
end;

else if (2600 < energy <= 2800) then do;          /* 2800 calorie Level */
    if f_total >= (2 + ((.5) * ((energy - 2600) / 200))) then fruit = 1;
    if v_total >= 3.5 then veg = 1;
    if g_total >= (9 + ((1) * ((energy - 2600) / 200))) then grain = 1;
    if meatgrp >= (6.5 + ((.5) * ((energy - 1600) / 200))) then meat = 1;
    if d_total >= 3 then dairy = 1;
end;

else if (2800 < energy <= 3000) then do;          /* 3000 calorie Level */

```

```

    if f_total >= 2.5 then fruit = 1;
    if v_total >= (3.5 + ((.5) * ((energy - 2800) / 200))) then veg = 1;
    if g_total >= 10 then grain = 1;
    if meatgrp >= 7 then meat = 1;
    if d_total >= 3 then dairy = 1;
end;

else if (energy >= 3000) then do; /* 3200 calorie Level */
    if f_total >= 2.5 then fruit = 1;
    if v_total >= 4 then veg = 1;
    if g_total >= 10 then grain = 1;
    if meatgrp >= 7 then meat = 1;
    if d_total >= 3 then dairy = 1;
end;

```

```

*****
*
* Summarize the comparison results from above and report
* the total number and percentage of individuals meeting
* and not meeting the MyPyramid Recommendations for the
* grain, vegetable, fruit, dairy and meat MyPyramid groups.
*
*****

```

```

proc format;
  value grain
    1 = "Meet"
    2 = "Not Meet";

  value fruit
    1 = "Meet"
    2 = "Not Meet";

  value veg
    1 = "Meet"
    2 = "Not Meet";

  value dairy
    1 = "Meet"
    2 = "Not Meet";

  value meat
    1 = "Meet"
    2 = "Not Meet";
run;

```

```

proc tabulate data=data1 format=10.0;
  class grain veg fruit dairy meat;
  table n*(grain veg fruit dairy meat);
  table pctn*(grain veg fruit dairy meat);
  format grain grain. veg veg. fruit fruit. dairy dairy. meat meat.;
  keylabel n='Number of Individ. Meeting Recommendations'
           pctn='% of Individ. Meeting Recommendations';
  label grain='Grain Group'
         veg='Vegetable Group'
         fruit='Fruit Group'
         dairy='Dairy Group'
         meat='Meat Group w/ Legumes';
  title1 'Total Number and Percentage of Individuals';

```

```
title2 'Meeting and Not Meeting MyPyramid Recommendations';  
title3 '(unweighted)';  
run;  
quit;
```