



Food Category Sources Analysis Methodology

Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee

Federal Data Analysis Team and 2025 Dietary Guidelines Advisory Committee

Data analysis provided by: Mathematica®

Suggested citation: Federal Data Analysis Team and 2025 Dietary Guidelines Advisory Committee. *Food Category Sources Analysis Methodology: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. November 2024. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion. U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion. Available at: <https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>

Related citations: 2025 Dietary Guidelines Advisory Committee. 2024. *Scientific Report of the 2025 Dietary Guidelines Advisory Committee: Advisory Report to the Secretary of Health and Human Services and Secretary of Agriculture*. U.S. Department of Health and Human Services. <https://doi.org/10.52570/DGAC2025>

Cruz CM, DeSilva D, Beckman K, Kuczynski K, Lasswell T, Obudulu C, Pannucci T, Rorabaugh-Irwin J, Stoody E, de Jesus J. *Federal Data Analysis Plan for the 2025 Dietary Guidelines Advisory Committee*. June 2023. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion. U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion. Available at: <https://www.dietaryguidelines.gov/>

The contents of this document may be used and reprinted without permission. Endorsements by NGAD, CNPP, FNS, or USDA or ODPHP, OASH, or HHS of derivative products developed from this work may not be stated or implied.

The methodology memo contained in this report was prepared by Mathematica under Contract No. 47QRAA18D00BQ/12319823F0054, supported by CNPP, FNS, USDA. The findings and conclusions in this report are those of the authors and should not be construed to represent any official USDA or U.S. Government determination or policy.

In accordance with federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons using assistive technology should be able to access information in this report. For further assistance, please email DietaryGuidelines@usda.gov.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotope, American Sign Language, etc.) should contact the responsible agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at [How to File a Program Discrimination Complaint](#) and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by:

- (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410;
- (2) fax: (202) 690-7442; or
- (3) email: program.intake@usda.gov.

USDA is an equal opportunity provider, employer, and lender

Table of Contents

Table of Contents 3

Introduction 4

Acknowledgments and Funding 4

Mathematica Memorandum: Dietary Intake Analysis of Food Category Sources 6

References 37

Introduction

The 2025 Dietary Guidelines Advisory Committee (Committee) used data analysis to describe the current health and dietary intakes in the United States. The federal data analysis team and interagency collaborations supported the work of the Committee by analyzing data on specific topics and questions. The federal data analysis team included expert scientists with advanced degrees in nutrition, statistics, and epidemiology from the following Departments and agencies:

United States Department of Health and Human Services (HHS)

- Office of Disease Prevention and Health Promotion (ODPHP), Office of the Assistant Secretary for Health (OASH)
- National Cancer Institute, National Institutes of Health
- National Center for Health Statistics, Centers for Disease Control and Prevention

United States Department of Agriculture (USDA)

- Center for Nutrition Policy and Promotion (CNPP), Food and Nutrition Service (FNS), Food, Nutrition, and Consumer Services
- Agricultural Research Service, Research, Education, and Economics

A collection of federal data sources, including the National Health and Nutrition Examination Survey (NHANES), informed the Committee's work. The Federal Data Analysis Plan described the data analysis process and strategy and specified the analyses that would be used to support the Committee in answering the data analysis questions.¹ Data analysis results for the 2025 Committee are summarized in the Federal Data Analysis Reports and synthesized in the 2025 Committee's Scientific Report, however should not be interpreted as dietary guidance.²⁻⁷ The Committee's Scientific Report also includes conclusion statements which describe the state of the science based on the evidence considered for each data analysis question.

This supplemental report, Food Category Sources Analysis Methodology, includes the methodology for data analysis conducted for the 2025 Committee by the federal data analysis team, with contractor support. This methodology was used to analyze the food category and subcategory contributors of food groups, food subgroups, nutrients, and dietary components, and data tables are provided in separate supplemental reports.⁸⁻³⁵ These results contributed to the evidence for the following data analysis question:

- What are the current intakes of food groups, nutrients, and dietary components?

The methodology memo contained in this supplemental report was prepared by Mathematica under Contract No. 47QRAA18D00BQ/12319823F0054, supported by CNPP, FNS, USDA. The findings and conclusions in the memo are those of the authors and should not be construed to represent any official USDA or U.S. Government determination or policy. The contractor's memo described cross-sectional data using comparative and directional language, however is not intended to imply that data was longitudinal or statistical testing was completed.

Acknowledgments and Funding

The federal data analysis team supported the Committee by facilitating, executing, and documenting the work necessary to analyze federal data on dietary intake, nutrients and/or dietary components of public health concern, and nutrition-related chronic health conditions. The federal data analysis team was comprised of staff from ODPHP and CNPP, along with project leadership, and was supported by interagency collaborators who collect and analyze the federal data. Contractor support was also provided for analysis of food category sources of nutrients, dietary components, and food groups. The Committee members were involved in

identifying additional data analysis topics and needs, synthesizing analysis results, and writing conclusion statements for the Scientific Report.

Contributors to the supplementary data analysis are recognized below.

Federal Data Analysis Team

United States Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion

- Dana DeSilva, PhD, RD (Data Analysis Project Co-Lead)
- Janet de Jesus, MS, RD (Dietary Guidelines Project Lead; Designated Federal Officer)
- Dennis Anderson-Villaluz, MBA, RD, LDN, FAND
- Kara Beckman, PhD
- Sarah Karp, MNSP, RD, LDN
- Joe Rorabaugh-Irwin, MS, RD, LD, CDCES (Former Detailee; United States Department of Health and Human Services, Indian Health Services, Haskell Indian Health Center)

United States Department of Agriculture, Food, Nutrition, and Consumer Services, Food and Nutrition Service, Center for Nutrition Policy and Promotion

- Colleen M. Cruz, MPH, RDN (Data Analysis Project Co-Lead)
- Eve Stoodly, PhD (Dietary Guidelines Project Lead)
- Meghan Adler, MS, RDN
- Hazel Hiza, PhD, RDN
- Kevin Kuczynski, MS, RD
- Tessa Lasswell, MPH, RDN
- Chinwe Obudulu, MS, RD, LD
- TusaRebecca Pannucci, PhD, MPH, RD
- Leigh Ann Richardson, PhD, MPH (Contractor, Panum Telecom, LLC (A wholly owned subsidiary of Aretum))
- Kelley Scanlon, PhD, RD

Contractor Support

Mathematica (under contract with USDA, FNS, CNPP)

- Liz Gearan
- Sarah Bardin
- Hanzhi Zhou

Interagency Collaborations

United States Department of Agriculture, Research, Education, and Economics, Agricultural Research Service

- Joseph Goldman, MA
- Alanna Moshfegh, MS, RD
- Pamela Pehrsson, PhD
- Donna Rhodes, MS, RD
- Rhonda Sebastian, MA

United States Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics

- Joseph Afful, MS (Contractor, Peraton)

- Nicholas Ansai, MPH
- Margaret Carroll, MSPH
- Cheryl Fryar, MSPH
- Heather Hamner, PhD, MS, MPH
- Cynthia Ogden, PhD, MRP
- Bryan Stierman, MD, MPH
- Anne Williams, PhD, MPH

United States Department of Health and Human Services, National Institutes of Health, National Cancer Institute

- Kevin Dodd, PhD
- Kirsten Herrick, PhD, MSc
- Audrey Goldbaum, PhD, MPH
- Lisa Kahle, BA
- Jill Reedy, PhD, MPH, RDN
- Edwina Wambogo, PhD, MPH, RDN
- Amelia Willits-Smith, PhD

2025 Dietary Guidelines Advisory Committee: Data Analysis and Food Pattern Modeling Subcommittee

- Heather A. Eicher-Miller, PhD (Data Analysis Chair)
- Christopher A. Taylor, PhD, RDN, LD, FAND
- Sarah L. Booth, PhD
- Steven A. Abrams, MD
- Carol Byrd-Bredbenner, PhD, RD, FAND
- Valarie Blue Bird Jernigan, DrPH, MPH
- Teresa Fung, ScD, RD
- Sameera Talegawkar, PhD
- Deirdre Tobias, ScD

Funding: United States Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion, Alexandria, VA; United States Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion, Rockville, MD.

Mathematica Memorandum: Dietary Intake Analysis of Food Category Sources

Task 2: Dietary Intake Analysis of Food Category Sources

March 29, 2024

Liz Gearan, Sarah Bardin, and Hanzhi Zhou

Submitted to:

Center for Nutrition Policy and Promotion
Food and Nutrition Service
U.S. Department of Agriculture
1320 Braddock Place
Alexandria, VA 22314

Submitted by:

Mathematica
P.O. Box 2393
Princeton, NJ 08543-2393
Phone: (609) 799-3535
Fax: (609) 799-0005

Contents

I.	Introduction	4
II.	Methods	4
A.	Data sources.....	4
1.	WWEIA, NHANES dietary data files.....	5
2.	Other NHANES data files.....	6
3.	Food Patterns Equivalents Database (FPED)	7
4.	WWEIA Food Categories	8
5.	Materials provided by CNPP.....	9
B.	Variable construction.....	9
1.	Combination food items.....	9
2.	Regrouped WWEIA Food Categories	9
3.	Energy, nutrient, and FPED category and subcategory variables	10
4.	Sociodemographic subgroup variables.....	10
C.	Analysis.....	12
1.	Defining the analysis sample	12
2.	Analytic methods.....	13
III.	Tables.....	14
IV.	Summary of selected findings for individuals ages 2 and older	22
A.	Total Fruits	22
B.	Total Vegetables.....	22
C.	Whole Grains.....	22
D.	Added sugars.....	23
E.	Energy.....	24
F.	Dietary fiber.....	24
G.	Saturated fat.....	24
H.	Sodium	25
Appendix A	Mapping of WWEIA Food Categories to DGAC major categories and subcategories used in the analysis.....	26

Exhibits

Exhibit 1. Key variables from the WWEIA, NHANES Dietary Files (DR1IFF and DR1TOT).....	5
Exhibit 2. Variables used from other NHANES data files	7
Exhibit 3. Key FPED variables	7
Exhibit 4. Construction of sociodemographic subgroup variables	10
Exhibit 5. Summary of analysis plans	21

I. Introduction

The food category source analysis Mathematica conducted this work for the Center for Nutrition Policy and Promotion (CNPP) at the U.S. Department of Agriculture (USDA) in support of the 2025 Dietary Guidelines Advisory Committee (DGAC). We used data from What We Eat in America (WWEIA), the dietary intake component of the National Health and Nutrition Examination Survey (NHANES), to identify food category sources of energy, nutrients, and Food Pattern Equivalents Database (FPED) components. This work builds on analyses conducted by the National Cancer Institute (NCI) for the 2020 DGAC¹ but incorporates more recent waves of WWEIA, NHANES data and examines a broader range of subgroups.

The analysis examined food category sources by age group and the following sociodemographic subgroups: sex, race and/or ethnicity, household income as a percent of the federal poverty level, household food security status, household receipt of Supplemental Nutrition Assistance Program (SNAP) benefits currently and in the past 12 months, and, for children ages 2 to 4 years, current receipt of benefits from the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). We conducted separate analyses for infants (6 through 11 months) and young children (12 through 23 months), and individuals ages 2 years and older. Analyses for infants and young children examine food category sources of energy, nutrients, and FPED components from complementary foods and beverages.

In Section II, we describe the methods used, including data sources, variable construction, and analysis procedures. We discuss in Section III how the analytic tables are organized and, in Section IV, provide a summary of key findings for selected nutrients and FPED components. The Word files that accompany this report provide tabulations for the complete set of nutrients and FPED components included in the analysis.

II. Methods

In this section, we describe the methods used to examine food category sources of energy, nutrients, and FPED components. Before conducting the analysis, Mathematica developed a work plan that detailed our analysis approach. We also reviewed the report and available programming code from the food category source analysis conducted by NCI for the 2020 Dietary Guidelines Advisory Committee. The 2020 analysis used NHANES 2013–2016 data for individuals 2 years and older and NHANES 2007–2016 for infants and young children. Our goal was to replicate the methodology that NCI used in the 2020 analysis (to the extent possible, using the materials provided).

A. Data sources

We used data from several sources for the analysis, including WWEIA, NHANES dietary data, other NHANES data files that provided sociodemographic subgroup variables, FPED, and the WWEIA Food Categories. We also used the SAS code and report from NCI's 2020 analysis as a source of information.

¹ "Food Category Sources: All Life Stages." 2020 Dietary Guidelines Advisory Committee Supplementary Data Analysis. USDA, July 15, 2020. https://www.dietaryguidelines.gov/sites/default/files/2020-07/DA_Supplement_FoodCategorySources_0.pdf.

1. WWEIA, NHANES dietary data files

For the analysis for individuals ages 2 and older, we used the following waves of WWEIA, NHANES data: 2011–2012, 2013–2014, 2015–2016, and 2017–March 2020 pre-pandemic. For the analysis of infants and young children, we added earlier waves to increase sample sizes for the subgroup analyses—WWEIA, NHANES 2007–2008 and 2009–2010.

We used two Dietary Interview files for Day 1: Individual Foods, First Day (DR1IFF) and Total Nutrient Intakes, First Day (DR1TOT). The Individual Foods file is a food-level file with one record for each food and beverage consumed by a participant on a Day 1 recall. The file provides detailed information on each reported food and beverage item, including a USDA food code and the energy and nutrient content for the reported portion size calculated by using USDA’s Food and Nutrient Database for Dietary Studies (FNDDS). The Individual Foods file also identifies food and beverage items that were consumed together as combinations (referred to as “combination items”). For example:

- Foods or beverages with additions (for example, cereal with milk or coffee with cream)
- Multicomponent foods that have a specific protocol for collection (for example, some salads and sandwiches)
- Other combinations that do not have a unique code in the FNDDS

We provide more information below on the special procedures used for combination items.

For each participant, the Total Nutrient Intakes file (DR1TOT) provides daily total energy and nutrient intakes from foods and beverages. The energy and nutrient amounts included in the Individual Foods file (DR1IFF) and the Total Nutrient Intakes file (DR1TOT) reflect nutrients obtained only from foods, beverages, and water (including tap and bottled). They do not include nutrients from dietary supplements, antacids, or medication.

For infants and children who consumed human milk, there is a record in the Individual Foods file for each report of human milk. However, because amounts of human milk are not quantified, these records contain missing values for the amount consumed and for the amounts of energy and nutrients from human milk. Because of the missing nutrient information for human milk, breastfed infants and children do not have corresponding records in the Total Nutrient Intakes file.

CNPP specified the nutrients of interest for the analysis of individuals 2 years and older and for the analysis of infants (6 through 11 months) and young children (12 through 23 months). We list these nutrients and their associated variable names in Exhibit 1.

Exhibit 1. Key variables from the WWEIA, NHANES Dietary Files (DR1IFF and DR1TOT)

Variable name	Variable description
SEQN	Respondent sequence number
DR1DRSTZ	Dietary recall status
WTDRD1 WTDRD1PP (for 2017–March 2020 pre-pandemic)	Dietary Day 1 sample weight
DR1CCMNM	Combination food number (sequential number)

Variable name	Variable description
DR1CCMTX	Combination food type
Nutrients examined (DR1IFF and DR1TOT)	
DR1ICALC and DR1TCALC	Calcium (mg)
DR1IFIBE and DR1TFIBE	Dietary fiber (gm)
DR1IKCAL and DR1TKCAL (for individuals 2 years and older only)	Energy (kcal)
DR1IIRON and DR1TIRON (for infants and young children only)	Iron (mg)
DR1IPOTA and DR1TPOTA	Potassium (mg)
DR1IPROT and DR1TPROT	Protein (g)
DR1ISFAT and DR1TSFAT (for individuals 2 years and older only)	Saturated fat (g)
DR1ISODI and DR1TSODI	Sodium (mg)
DR1ICHL and DR1TCHL (for infants and young children only)	Total choline (mg)
DR1ITFAT and DR1TTFAT (for infants and young children only)	Total fat (g)
DR1IFOLA and DR1TFOLA (for individuals 2 years and older only)	Total folate (mcg)
DR1IVB12 and DR1TVB12 (for individuals 2 years and older only)	Vitamin B-12 (mcg)
DR1IVD and DR1TVD	Vitamin D (mcg)
DR1IATOC and DR1TATOC	Vitamin E as alpha-tocopherol (mg)
DR1IZINC and DR1TZINC (for infants and young children only)	Zinc (mg)

The Individual Foods file (DR1IFF) and the Total Nutrient Intakes file (DR1TOT) also provide other key variables that we used during the analysis and are described in later sections:

- Respondent sequence number variable (SEQN), used to link to other NHANES data files
- Dietary Day 1 sample weight variable (WTDRD1 and WTDRD1PP), used during analysis for weighting the estimates
- Dietary recall status (DR1DRSTZ), used to identify the analysis sample.

2. Other NHANES data files

We used data from other NHANES data files to identify the analytic samples, including sociodemographic subgroups, and for weighting purposes.² CNPP identified the sociodemographic subgroups of interest for this analysis. In Exhibit 2, we list NHANES data files and relevant variables used to define the sociodemographic subgroups.

² Available at: <https://www.cdc.gov/nchs/nhanes/default.aspx>. Exhibit 2 provides the NHANES data file names that contain the variables used for the sociodemographic subgroups and weights.

Exhibit 2. Variables used from other NHANES data files

Variable name	Variable description
DEMO—Demographics Variables and Sample Weights	
RIDAGEYR	Age in years at the time of screening
RIDAGEMN	Age in months at the time of screening; reported for persons age 24 months or younger at the time of exam (or screening if not examined)
RIAGENDR	Gender
RIDEXPRG	Pregnancy status for females between 20 and 44 years of age at exam
RIDRETH3	Recode of reported race and Hispanic origin information, with non-Hispanic Asian category
INDFMPPIR	Ratio of family income to poverty guidelines
SDMVPSU	Masked variance pseudo-PSU (primary sampling unit)
SDMVSTRA	Masked variance pseudo-stratum
RHQ—Reproductive Health Questionnaire	
RHQ200	Now breastfeeding a child (asked of females ages 20–44 years)
FSQ—Food Security Questionnaire	
FSDHH	Household food security status
FSD230	Household food security benefit: Currently receives SNAP or Food Stamp benefits Note: Variable is not available in NHANES 2007–2008 and 2009–2010.
FSQ012 and FSQ171	Household food security benefit: Received SNAP or Food Stamp benefit in last 12 months
FSD660ZC	Child WIC benefit: Currently receiving WIC benefits

Source: NHANES Demographics Data and Questionnaire Data. Available at <https://www.cdc.gov/nchs/nhanes/default.aspx>.

Note: The respondent sequence number variable (SEQN) allows for linking across the various NHANES data files.

3. Food Patterns Equivalent Database (FPED)

The FPED converts the foods and beverages in the WWEIA, NHANES dietary intake files (DR1IFF and DR1TOT) into amounts of equivalents across 37 Food Pattern components and subcomponents.³ The main Food Pattern components include total Fruits, total Vegetables, total Grains, total Protein Foods, total Dairy and Fortified Soy Alternatives, oils, added sugars, solid fats, and alcoholic drinks present in FNDDS foods. Many of the main components in FPED also include subcomponents (for example, Whole Grains and Vegetable subgroups). There are separate FPED databases that correspond to each wave of the WWEIA, NHANES dietary data at the food and participant levels (FPED_DR1IFF and FPED_DR1TOT). CNPP specified the FPED components and subcomponents of interest for the analysis (Exhibit 3).

Exhibit 3. Key FPED variables

Variable name	Variable description	Name of FPED components and subcomponents analyzed
F_TOTAL	Total intact fruits (whole or cut) and fruit juices (cup eq.)	Total Fruits
V_TOTAL	Total dark green, red and orange, starchy, and other vegetables; excludes legumes (cup eq.)	Total Vegetables (includes legumes) ¹

³ "Food Patterns Equivalent Database." Food Surveys Research Group. <https://www.ars.usda.gov/northeast-area/beltsville-md-bhnrc/beltsville-human-nutrition-research-center/food-surveys-research-group/docs/fped-databases/>.

Variable name	Variable description	Name of FPED components and subcomponents analyzed
V_LEGUMES	Beans, peas, and lentils (legumes) computed as vegetables (cup eq.)	
G_TOTAL	Total whole and refined grains (oz. eq.)	Total Grains
G_WHOLE	Grains defined as whole grains and containing the entire grain kernel— the bran, germ, and endosperm (oz. eq.)	Whole Grains
G_REFINED	Refined grains that do not contain all of the components of the entire grain kernel (oz. eq.)	Refined Grains
PF_TOTAL	Total meat, poultry, organ meat, cured meat, seafood, eggs, soy, and nuts and seeds; excludes legumes (oz. eq.)	Total Protein Foods (excludes legumes)
PF_MEAT	Beef, veal, pork, lamb, and game meat; excludes organ meat and cured meat (oz. eq.)	Red meat
PF_CUREDMEAT	Frankfurters, sausages, corned beef, cured ham and luncheon meat made from beef, pork, or poultry (oz. eq.)	Cured meats
D_TOTAL	Total milk, yogurt, cheese, and whey (cup eq.)	Total Dairy and Fortified Soy Alternatives
D_MILK	Fluid milk, buttermilk, evaporated milk, dry milk, and calcium-fortified soy milk (soymilk) (cup eq.)	Milk and fortified soymilk
D_CHEESE	Cheeses (cup eq.)	Cheese
OILS	Fats naturally present in nuts, seeds, and seafood; all unhydrogenated vegetable oils, except palm oil, palm kernel oil, and coconut oils; the fat present in avocado and olives above the allowable amount; 50 percent of the fat present in stick and tub margarines and margarine spreads (grams)	Oils
ADD_SUGARS	Foods defined as added sugars (tsp. eq.)	Added sugars

¹ Total Vegetables (including legumes) was constructed by using the V_TOTAL and V_LEGUMES variables.
eq. = equivalent; oz = ounces; tsp = teaspoon.

4. WWEIA Food Categories

The WWEIA Food Categories are designed for use with the WWEIA, NHANES Individual Foods Files (DR1IFF).⁴ A new version of the WWEIA Food Categories is produced for each two-year release cycle of WWEIA, NHANES and FNDDS. The WWEIA Food Categories group similar foods and beverages together based on usage and nutrient content. Next, we list additional features of the food categorization system that are relevant to this analysis:

- The classification system includes over 150 unique categories (the number varies across years).
- Each category is assigned a unique four-digit number and description.
- Each FNDDS food code is linked to a unique category.

⁴ "What Are WWEIA Food Categories?" Food Surveys Research Group. <https://www.ars.usda.gov/northeast-area/beltsville-md-bhnrc/beltsville-human-nutrition-research-center/food-surveys-research-group/docs/dmr-food-categories/>.

- Categories contain discrete food items—there is no disaggregation into ingredients for mixed items (for example, pizza is assigned to a category rather than assigning its individual ingredients to grains, cheese, vegetables, and so forth).
- The categories are designed to be flexible and can easily be regrouped into smaller or larger groupings as needed to address specific research questions.

The WWEIA Food Category data files assign each item to a WWEIA category number and category description. For this analysis, the WWEIA Food Categories were regrouped. We provide more details on this step in the variable construction section below.

5. Materials provided by CNPP

NCI conducted the food category sources analysis for the 2020 DGAC, and the results are available online.⁵ CNPP also provided Mathematica with example SAS code developed by NCI that gave more details about the 2020 analysis, including Excel files that assigned combination items to WWEIA categories. To the extent possible, we used these materials to replicate the methodology used in NCI's 2020 analysis; however, the current approach deviates from the previous analysis because of small changes in the assignment of combination items to WWEIA categories as described more fully below.

B. Variable construction

Before conducting the analysis, we constructed several variables. Given slight differences across the various data sources used, we constructed the variables within each wave of NHANES data before combining the data files across waves.

1. Combination food items

We implemented NCI's procedures for assigning WWEIA Food Categories to combination food items. The procedures involved reading in the provided Excel files that assigned items consumed in combination to a single WWEIA Food Category (for example, cold cereal and fluid milk reported in combination are assigned to the "cold cereal" WWEIA Food Category).

Excel files with combination items for the 2007–2008 and 2009–2010 waves of data—which we used for the analysis of infants and young children—were not available. As a result, any combination food items reported by infants and young children in 2007–2010 may be handled differently from combination food items reported in the later waves of data (2011–March 2020 pre-pandemic).

2. Regrouped WWEIA Food Categories

For the analysis of individuals 2 years and older, NCI's 2020 analysis regrouped the WWEIA Food Categories into nine "DGAC major categories" and 36 "DGAC subcategories." Given that the programming code for the regrouping was not available, we used information from the 2020 DGAC report. Specifically, we used information provided in Table A: List of specific foods: Major categories and subcategories for

⁵ "Food Category Sources: All Life Stages." 2020 Dietary Guidelines Advisory Committee Supplementary Data Analysis. USDA, July 15, 2020. https://www.dietaryguidelines.gov/sites/default/files/2020-07/DA_Supplement_FoodCategorySources_0.pdf.

Dietary Guidelines 2020 analysis—Assignment of What We Eat in America (WWEIA) Food Categories. The table provided the mapping of WWEIA categories from NHANES 2013–2016 to the DGAC major categories and subcategories used in the 2020 analysis. Recognizing that the current analysis includes additional waves of data—NHANES 2011–2012 and 2017–March 2020 pre-pandemic—we reviewed the WWEIA Food Categories associated with these waves of data and mapped any new or modified categories to the existing DGAC major categories and subcategories. CNPP reviewed and approved the regrouping. When implementing NCI’s code for combination items, we identified new WWEIA category numbers that were created in the Excel files. We mapped these to the existing WWEIA category numbers such that they are regrouped for the analysis in the same manner. Appendix A provides the mapping of WWEIA categories from NHANES 2011–2012 through 2017–March 2020 pre-pandemic to the DGAC major categories and subcategories used in the analysis.

For the analysis of infants and young children, the 2020 NCI analysis used a different set of WWEIA categories. Based on input from CNPP, we implemented the same procedures described above so that all analyses used a consistent set of DGAC major categories and DGAC subcategories.

3. Energy, nutrient, and FPED category and subcategory variables

We used the existing variables for energy, nutrients, and FPED components for the analysis, with one exception. We constructed a new variable (V_TOTAL_ALL) for total Vegetables (including legumes) by summing values for V_TOTAL and V_LEGUMES.

The infants and young children analysis focused on intake of complementary foods and beverages only. After excluding observations of infant formula and human milk in the Individual Foods files, we re-estimated the daily total amounts of energy, nutrients, and FPED components to reflect intakes from complementary foods and beverages only. This identified 15 participants with no complementary foods or beverages. These participants are implicitly excluded from the analysis.

4. Sociodemographic subgroup variables

Exhibit 4 shows how we constructed the sociodemographic subgroup variables using the corresponding NHANES variables.

Exhibit 4. Construction of sociodemographic subgroup variables

Sociodemographic subgroup	NHANES variable	Construction steps
Age group	Age in years at the time of screening: RIDAGEYR	Recode RIDAGEYR into the following age groups: <ul style="list-style-type: none"> • 2 years and older • 2 to 4 years • 5 to 8 years • 9 to 13 years • 14 to 18 years • 2 to 18 years • 19 to 30 years • 19 years and older • 31 to 59 years

II. Methods

Sociodemographic subgroup	NHANES variable	Construction steps
		<ul style="list-style-type: none"> • 60 years and older • 71 years and older
Infant and young children age group	Age in months at the time of screening: RIDAGEMN	Recode RIDAGEMN into mutually exclusive groups: <ul style="list-style-type: none"> • 6 through 11 months • 12 through 23 months
Sex	Gender: RIAGENDR	No construction needed (Existing categories: Male and female.)
Race and/or ethnicity	Race/Hispanic origin w/ Non-Hispanic Asian category: RIDRETH3	No construction needed (Existing categories: Non-Hispanic White, Mexican American, Other Hispanic, Non-Hispanic Black, Non-Hispanic Asian, Other Race–Including Multiracial)
Household income as a percent of the federal poverty level	Ratio of family income to poverty guidelines: INDFMPIR	Recode INDFMPIR into the following groups: <ul style="list-style-type: none"> • < 1.31: Households with income below 131 percent of the federal poverty level • ≤ 1.85: Households with income at or below 185 percent of the federal poverty level • 1.86 to ≤ 3.50: Households with income between 186 and 350 percent of the federal poverty level • > 3.50: Households with income above 350 percent of the federal poverty level Note: The subgroup for households with income below 131 percent of the federal poverty level was used as an indicator of federal program income eligibility to be consistent with the 2020 DGAC’s data analysis and the 2025 DGAC’s food pattern modeling analysis.
Household food security status	Household food security category: FSDHH	No construction needed (Existing categories: Household full food security, household marginal food security, household low food security, household very low food security)
Household currently receiving SNAP	Household food security benefit – currently receives SNAP or Food Stamp benefits: FSD230	No construction needed (Existing categories: Yes and no) Note: Asked only of households that reported ever receiving SNAP Variable not available in NHANES 2007–2008 and 2009–2010.
Household received SNAP in last 12 months	Household food security benefit – received SNAP or Food Stamp benefit in last 12 months: FSQ012 and FSQ171	No construction needed (Existing categories: Yes and no) Note: Asked only of households that reported ever receiving SNAP
Children currently receiving WIC benefits	Child WIC benefit – currently receiving WIC benefit: FSD660ZC	No construction needed (Existing categories for ages 0 to 5 years: Yes and no) Note: Asked only of individuals that reported child ever received WIC
Infant milk source (for ages 6 to 11 months) ^a	(see next column)	Infants consuming any human milk:

Sociodemographic subgroup	NHANES variable	Construction steps
		<p>DR1DRSTZ = 4 and at least one food item includes WWEIA category_number = 9620 (human milk)</p> <p>Infants consuming no human milk: DR1DRSTZ = 1 and no food items includes WWEIA category_number = 9620 (human milk)</p> <p>Note: Infants who consumed no formula or no human milk (n=181) were included in the “infants consuming no human milk” group.</p>

Note: Some subgroup variables include values for missing, don't know, and refused. We recoded all these values to “missing” for the analysis.

^a NCI's 2020 analysis defined infant milk source groups differently: (1) infants consuming human milk only (no infant formula), and (2) infants consuming any infant formula (including infants who consumed any infant formula either by itself or in combination with human milk).

C. Analysis

In this section, we provide details on the methods used to estimate food category sources of energy, nutrients, and FPED components. In Exhibit 5, we provide a summary of the analysis plans. The analysis included descriptive cross-tabulations of food category sources by age group and the previously defined sociodemographic subgroups. To the extent possible, we used the available information in NCI's programming code to replicate the 2020 methodology. We used SAS for all programming, unless otherwise noted.

1. Defining the analysis sample

For the analysis of individuals ages 2 years and older, we defined the analysis sample using NHANES 2011–2012 to 2017–March 2020 pre-pandemic as follows:

- Inclusion of individuals with a complete and reliable Day 1 dietary recall (DR1DRSTZ = 1)
- Inclusion of individuals ages 2 years and older (RIDAGEYR ≥ 2)
- Exclusion of pregnant (RIDEXPRG=1) and lactating (RHQ200 =1) females
- Exclusion of children consuming human milk (DR1DRSTZ = 4)
- Exclusion of individuals who did not report consuming the nutrient or FPED
- When relevant for specific sociodemographic subgroups, exclusion of individuals with a missing value

The overall analysis sample for individuals ages 2 years and older was 35,312.

For the analysis of infants (6 through 11 months) and young children (12 through 23 months), we defined the analysis sample using NHANES 2007–2008 through 2017–March 2020 pre-pandemic as follows:

- Inclusion of individuals 6 to 23 months ($6 \leq \text{RIDAGEMN} < 24$)
- Complete and reliable Day 1 dietary recall (DR1DRSTZ = 1) or consuming human milk (DR1DRSTZ = 4).

The overall analysis sample included 1,198 infants and 1,517 young children.

2. Analytic methods

For the analysis, we estimated the mean percentage contribution of each major DGAC food category and each DGAC subcategory to the amount of energy and selected nutrients and FPED components consumed by individuals. We used the mean ratio approach, which first calculates the proportion of the outcome consumed from a given food category/subcategory for each individual and then takes the mean of all proportions.⁶ The mean ratio approach is designed to answer questions such as: “What is the group’s daily contribution of mixed dishes to energy intake?” To estimate the mean percentage contribution of mixed dishes to energy intake, we used the following formula to estimate a percentage for each individual in the analysis sample:

$$\left[\frac{\text{(sum of energy across all foods and beverages in mixed dishes DGAC major food category)}}{\text{(sum of energy across all foods and beverages)}} \right] * 100$$

Individuals with zero consumption of a given nutrient or FPED component are implicitly excluded from the analysis at this step. We then estimated the mean percentage across all individuals to produce the mean percentage contribution of mixed dishes to energy intake, as well as the standard error of the mean accounting for the complex survey design of NHANES. We produced estimates (percentages and standard errors) for each age group and sociodemographic subgroup combination, excluding individuals with missing values for a given sociodemographic variable. Due to the presence of singleton Primary Sampling Units (PSUs) for the sociodemographic subgroup analysis examining food category sources of cured meats for infants and young children currently receiving SNAP, it was not possible to compute standard errors in SAS. As a result, we re-estimated these two tables using R to explicitly account for singleton PSUs in the estimation of the standard errors.

We followed the NHANES analytic guidelines to construct multiyear sample weights based on the Dietary Day 1 sampling weight variables (WTDRD1 for 2007–2016 and WTDRD1PP for 2017–March 2020 pre-pandemic).⁷ Despite combining several waves of NHANES data, we had to base our estimates for some age group and sociodemographic subgroup combinations on small sample sizes. Consistent with the procedures used by NCI in the 2020 analyses, we used the following criteria to identify potentially unreliable estimates and omitted these values from the tables when either of two conditions were met:

- The coefficient of variation (cv) ≥ 30 , or
- The sample size (n) * 2.57 (variance inflation factor) < 30.

The suppression of estimates was implemented as part of continuous quality advancement efforts following the 2020 DGAC analysis and aims to ensure unreliable data are not misinterpreted.

⁶ Krebs-Smith, S. M., P. S. Kott, and P. M. Guenther. “Mean Proportion and Population Proportion: Two Answers to the Same Question?” *Journal of the American Dietetic Association*, vol. 89, no. 5, 1989, pp. 671–667; and <https://www.cdc.gov/nchs/nhanes/tutorials/DietaryAnalyses.aspx>.

⁷ “National Health and Nutrition Examination Survey, 2017–March 2020. Prepandemic File: Sample Design, Estimation, and Analytic Guidelines.” *Vital and Health Statistics*, series 2, no. 190, 2022. https://www.cdc.gov/nchs/data/series/sr_02/sr02-190.pdf.

III. Tables

- The analysis tables are provided in separate Word documents, organized by nutrient or FPED component, to facilitate CNPP's review. Each Word file includes the set of tables for infants and young children ages 6 through 23 months, followed by the set of tables for individuals 2 years and older. The tables are accompanied by a tracker in Excel that includes a listing of all tables (n=1,056 tables for individuals 2 years and older, and n= 960 tables for infants and young children). Within each Word file for a given nutrient or FPED component, there are separate tables for each sociodemographic subgroup value (for example, females). Each combination of outcome and sociodemographic subgroup value has two tables—one for the major category sources and one for the subcategory sources.
- The analysis for infants stratified by milk source (infants consuming any human milk and infants consuming no human milk) was completed as described in this document. However, these estimates were ultimately excluded from the tables because of the large number of unreliable estimates due to sample size limitations.
- In addition, there were 142 tables for infants and young children where all point estimates were unreliable. These tables were produced but not included in the final files of tables. A list of these tables is provided in the bullets below.
- In the tables, we sort the major categories and subcategories in descending order, with all subcategories displayed. Tables for individuals 2 years and older are sorted based on the ages 2+ column, and tables for infants and young children are sorted based on the young children column. We show percentages that are at or close to zero as < 0.1. Asterisks (*) denote unreliable point estimates that were suppressed due to small sample sizes or large coefficients of variation. Estimates were sorted prior to the suppression of unreliable estimates.
- In the final 508-compliant PDF deliverable, we will include a table of contents with active links to the corresponding table. We will also add headers for the two-page subcategory tables "(Table x.x.x continued)" that split across multiple pages.

List of tables for infants and young children (n=142) that were produced but not included in the files because all estimates were unreliable:

- Total Fruits: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Total Fruits: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Total Fruits: Distribution of intake (percentage) among major food categories - Other races, including multi-racial
- Total Fruits: Distribution of intake (percentage) among food subcategories - Other races, including multi-racial
- Total Fruits: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Total Fruits: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Total Vegetables (includes legumes): Distribution of intake (percentage) among major food categories - Non-Hispanic Asians

- Total Vegetables (includes legumes): Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Total Vegetables (includes legumes): Distribution of intake (percentage) among major food categories - Other races, including multi-racial
- Total Vegetables (includes legumes): Distribution of intake (percentage) among food subcategories - Other races, including multi-racial
- Total Vegetables (includes legumes): Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Total Vegetables (includes legumes): Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Total Grains: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Total Grains: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Total Grains: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Total Grains: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Whole Grains: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Whole Grains: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Whole Grains: Distribution of intake (percentage) among major food categories - Other Hispanics
- Whole Grains: Distribution of intake (percentage) among food subcategories - Other Hispanics
- Whole Grains: Distribution of intake (percentage) among major food categories - Other races, including multi-racial
- Whole Grains: Distribution of intake (percentage) among food subcategories - Other races, including multi-racial
- Whole Grains: Distribution of intake (percentage) among major food categories - Households with very low food security
- Whole Grains: Distribution of intake (percentage) among food subcategories - Households with very low food security
- Whole Grains: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Whole Grains: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Refined Grains: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Refined Grains: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Refined Grains: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Refined Grains: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Total Protein Foods (excludes legumes): Distribution of intake (percentage) among major food categories - Non-Hispanic Asians

- Total Protein Foods (excludes legumes): Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Total Protein Foods (excludes legumes): Distribution of intake (percentage) among major food categories - Other races, including multi-racial
- Total Protein Foods (excludes legumes): Distribution of intake (percentage) among food subcategories - Other races, including multi-racial
- Total Protein Foods (excludes legumes): Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Total Protein Foods (excludes legumes): Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Red meat: Distribution of intake (percentage) among major food categories - Mexican Americans
- Red meat: Distribution of intake (percentage) among food subcategories - Mexican Americans
- Red meat: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Red meat: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Red meat: Distribution of intake (percentage) among major food categories - Other Hispanics
- Red meat: Distribution of intake (percentage) among food subcategories - Other Hispanics
- Red meat: Distribution of intake (percentage) among major food categories - Other races, including multi-racial
- Red meat: Distribution of intake (percentage) among food subcategories - Other races, including multi-racial
- Red meat: Distribution of intake (percentage) among major food categories - Households with income at or below 185 percent of the federal poverty level
- Red meat: Distribution of intake (percentage) among food subcategories - Households with income at or below 185 percent of the federal poverty level
- Red meat: Distribution of intake (percentage) among major food categories - Households with very low food security
- Red meat: Distribution of intake (percentage) among food subcategories - Households with very low food security
- Red meat: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Red meat: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Red meat: Distribution of intake (percentage) among major food categories - Households that did not receive SNAP benefits in past 12 months
- Red meat: Distribution of intake (percentage) among food subcategories - Households that did not receive SNAP benefits in past 12 months
- Cured meats: Distribution of intake (percentage) among major food categories - Mexican Americans
- Cured meats: Distribution of intake (percentage) among food subcategories - Mexican Americans
- Cured meats: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Cured meats: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Cured meats: Distribution of intake (percentage) among major food categories - Other Hispanics

- Cured meats: Distribution of intake (percentage) among food subcategories - Other Hispanics
- Cured meats: Distribution of intake (percentage) among major food categories - Other races, including multi-racial
- Cured meats: Distribution of intake (percentage) among food subcategories - Other races, including multi-racial
- Cured meats: Distribution of intake (percentage) among major food categories - Households with income at or below 185 percent of the federal poverty level
- Cured meats: Distribution of intake (percentage) among food subcategories - Households with income at or below 185 percent of the federal poverty level
- Cured meats: Distribution of intake (percentage) among major food categories - Households with very low food security
- Cured meats: Distribution of intake (percentage) among food subcategories - Households with very low food security
- Cured meats: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Cured meats: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Cured meats: Distribution of intake (percentage) among major food categories - Households that did not receive SNAP benefits in past 12 months
- Cured meats: Distribution of intake (percentage) among food subcategories - Households that did not receive SNAP benefits in past 12 months
- Total Dairy and Fortified Soy Alternatives: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Total Dairy and Fortified Soy Alternatives: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Total Dairy and Fortified Soy Alternatives: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Total Dairy and Fortified Soy Alternatives: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Milk and fortified soymilk: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Milk and fortified soymilk: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Milk and fortified soymilk: Distribution of intake (percentage) among major food categories - Other races, including multi-racial
- Milk and fortified soymilk: Distribution of intake (percentage) among food subcategories - Other races, including multi-racial
- Milk and fortified soymilk: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Milk and fortified soymilk: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Cheese: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Cheese: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Cheese: Distribution of intake (percentage) among major food categories - Other Hispanics
- Cheese: Distribution of intake (percentage) among food subcategories - Other Hispanics

- Cheese: Distribution of intake (percentage) among major food categories - Other races, including multi-racial
- Cheese: Distribution of intake (percentage) among food subcategories - Other races, including multi-racial
- Cheese: Distribution of intake (percentage) among major food categories - Households with very low food security
- Cheese: Distribution of intake (percentage) among food subcategories - Households with very low food security
- Cheese: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Cheese: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Oils: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Oils: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Oils: Distribution of intake (percentage) among major food categories - Other races, including multi-racial
- Oils: Distribution of intake (percentage) among food subcategories - Other races, including multi-racial
- Oils: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Oils: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Added sugars: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Added sugars: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Added sugars: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Added sugars: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Calcium: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Calcium: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Calcium: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Calcium: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Dietary fiber: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Dietary fiber: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Dietary fiber: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Dietary fiber: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Iron: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians

- Iron: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Iron: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Iron: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Potassium: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Potassium: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Potassium: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Potassium: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Protein: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Protein: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Protein: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Protein: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Sodium: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Sodium: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Sodium: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Sodium: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Total choline: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Total choline: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Total choline: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Total choline: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Total fat: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Total fat: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Total fat: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Total fat: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Vitamin D: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Vitamin D: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Vitamin D: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Vitamin D: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits

- Vitamin E: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Vitamin E: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Vitamin E: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Vitamin E: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits
- Zinc: Distribution of intake (percentage) among major food categories - Non-Hispanic Asians
- Zinc: Distribution of intake (percentage) among food subcategories - Non-Hispanic Asians
- Zinc: Distribution of intake (percentage) among major food categories - Households not currently receiving SNAP benefits
- Zinc: Distribution of intake (percentage) among food subcategories - Households not currently receiving SNAP benefits

Exhibit 5. Summary of analysis plans

Population	Age group subgroups	Sociodemographic subgroups	Energy and nutrients to be examined	FPED components and subcomponents to be examined
Age 2 years and older	<ul style="list-style-type: none"> • 2+ years • 2 to 4 years • 5 to 8 years • 9 to 13 years • 14 to 18 years • 2 to 18 years • 19 to 30 years • 19+ years • 31 to 59 years • 60+ years • 71+ years 	<ul style="list-style-type: none"> • Sex • Race and/or ethnicity • Household income as a percent of the federal poverty level • Household food security status • Household currently receives SNAP • Household received SNAP in past 12 months • Children 2 to 4 years currently receiving WIC benefits 	<ul style="list-style-type: none"> • Energy • Calcium • Potassium • Sodium • Dietary fiber • Vitamin D • Saturated fat • Vitamin E • Total folate • Vitamin B12 • Protein 	<ul style="list-style-type: none"> • Total Fruits • Total Vegetables (includes legumes) • Total Grains • Whole Grains • Refined Grains • Total Protein Foods (excludes legumes) • Red meat • Cured meats • Total Dairy and Fortified Soy Alternatives • Milk and fortified soymilk • Cheese • Oils • Added sugars
Infants and young children ^a	<ul style="list-style-type: none"> • 6 through 11 months: Stratified by consuming any human milk or consuming no human milk • 12 through 23 months 	<ul style="list-style-type: none"> • Race and/or ethnicity • Household income as a percent of the federal poverty level • Household food security status • Household currently receives SNAP • Household received SNAP in past 12 months • Children currently receiving WIC benefits 	From complementary foods: <ul style="list-style-type: none"> • Calcium • Potassium • Sodium • Dietary fiber • Vitamin D • Iron • Zinc • Vitamin E • Total choline • Total fat • Protein 	From complementary foods: <ul style="list-style-type: none"> • Total Fruits • Total Vegetables (includes legumes) • Total Grains • Whole Grains • Refined Grains • Total Protein Foods (excludes legumes) • Red meat • Cured meats • Total Dairy and Fortified Soy Alternatives • Milk and fortified soymilk • Cheese • Oils • Added sugars

^a There were 142 tables for infants and young children where all point estimates were unreliable. These tables were produced but not included in the final files of tables. ^b The analysis for infants stratified by milk source was completed as shown in this exhibit. However, these tables were ultimately excluded because of the large number of unreliable estimates due to sample size limitations.

IV. Summary of selected findings for individuals ages 2 and older

In this section, we summarize findings for selected nutrients and FPED components, focusing on differences across sociodemographic subgroups. Unless otherwise noted, all findings refer to estimates among individuals ages 2 and older. Due to the large number of unreliable estimates for the analysis of infants and young children, differences across sociodemographic subgroups are not summarized here.

A. Total Fruits

For all sociodemographic subgroups, the top source of daily total Fruits consumption among the major food categories was fruit and 100% fruit juice. The top source of total Fruits consumption among food subcategories was fruit (non-juice) followed by 100 percent fruit juice.

Race and/or ethnicity. Individuals who identify as non-Hispanic Asian obtained the highest percentage of total Fruits intake from fruits and fruit juice (76 percent), followed by those who identify as Mexican American (68 percent), Other Hispanic (67 percent), non-Hispanic Black (63 percent), another race (63 percent), and non-Hispanic White (60 percent). Fruit (non-juice) contributed to nearly two-thirds of the total Fruits consumed among individuals who identify as non-Hispanic Asian (62 percent). However, among those who identify as Mexican American, Other Hispanics, non-Hispanic White, or another race, fruit (non-juice) represented just under half of the total Fruits consumed (ranging between 44 and 49 percent). An even smaller proportion of daily total Fruits consumed came from fruit (non-juice) among individuals who identify as non-Hispanic Black (38 percent).

B. Total Vegetables

Mixed dishes and discrete vegetables were the primary and secondary sources (respectively) of total Vegetables intake across all sociodemographic subgroups, and all other major sources combined accounted for less than 15 percent of total Vegetables intake.

Race and/or ethnicity. Individuals ages 2 and older identifying as Mexican American or non-Hispanic Asian consumed a greater percentage of total Vegetables from mixed dishes (slightly over half) compared with discrete vegetables (around one-third), while for individuals identifying as non-Hispanic Black and non-Hispanic White, those two categories contributed almost equal percentages of total Vegetables consumption (around 40 percent for each group).

The top source of total Vegetables intake within food subcategories was non-starchy vegetables (including beans and peas) for non-Hispanic Asians, non-Hispanic Whites, other Hispanics, and other races, comprising between 20 to 29 percent of total Vegetables intake. However, burgers and sandwiches (including tacos and burritos) were the top source of total Vegetables consumption for Mexican Americans (22 percent), and starchy vegetables were the top source for non-Hispanic Blacks (21 percent).

C. Whole Grains

The top source of daily Whole Grains consumption across all major food categories was discrete grain items followed by mixed dishes. This was true for all sociodemographic subgroups except for children ages 2 to 4 years who are currently receiving WIC benefits, among whom the top two sources of Whole

Grains consumption were discrete grain items (60 percent) followed by snacks and sweets (19 percent).

Race and/or ethnicity. Among individuals who identify as non-Hispanic Asian, roughly two-thirds of daily Whole Grains consumed came from discrete grain items (60 percent). This proportion was roughly 10 percentage points higher than the contribution of discrete grain items to Whole Grains consumption among individuals among all other racial and ethnic subgroups (ranging between 44 and 52 percent).

For all racial and ethnic subgroups, breakfast and cereal bars were the top subcategory contributor to daily Whole Grains consumed (ranging from 26 to 40 percent). However, among individuals who identify as non-Hispanic Asian, yeast breads and tortillas represented about 25 percent of Whole Grains consumed—a substantially higher proportion than that among other racial and ethnic subgroups among whom yeast breads and tortillas contributed between 8 and 10 percent of Whole Grains intake.

D. Added sugars

Across all sociodemographic subgroups, the top source of added sugars for individuals ages 2 years and older was beverages followed by snacks and sweets. However, among children ages 2 to 4 years, the top source of added sugars was snacks and sweets followed by beverages regardless of receipt of WIC benefits.

Race and/or ethnicity. Sugar-sweetened and diet beverages were the top source of added sugars for all racial and ethnic subgroups (ranging from 20 to 34 percent) except for non-Hispanic Asians, whose top source of added sugars came from desserts and sweet snacks (21 percent) followed by coffee and tea (15 percent).

Beverages contributed nearly half of the added sugars consumed among individuals who identify as Mexican American, Other Hispanic, and non-Hispanic Black (around 46 percent for all). A similar proportion (41 percent) was observed among individuals who identify as another race, including multiracial. However, among those who identify as non-Hispanic Asian or non-Hispanic White, beverages contributed to only one-third of the added sugars consumed (31 and 34 percent, respectively).

For Mexican Americans, Other Hispanics, and non-Hispanic Blacks, about one-third of all added sugars came from sugar-sweetened and diet beverages; however, for non-Hispanic Whites and non-Hispanic Asians, sugar-sweetened and diet beverages accounted for 20 percent or less of all added sugars.

Household income as a percent of the federal poverty level. As household income relative to the federal poverty level increases, the contribution of beverages to added sugars intake decreases. Specifically, among households with incomes below 131 percent of the poverty level, beverages contributed to just under half (45 percent) of added sugars intake, whereas for households with incomes above 350 percent of the poverty level, beverages contributed to less than one-third (31 percent) of added sugars consumed.

Across most income levels, the top subcategory contributor to added sugars intake was sugar-sweetened and diet beverages (ranging from 25 to 32 percent). This was true for all income subgroups except for the highest-income households (those with income above 350 percent of the poverty level), where desserts and sweet snacks were the top contributor to added sugars consumption (21 percent) compared to 17

percent of daily added sugars intake from sugar-sweetened and diet beverages.

Food security. Among households with very low food security, beverages accounted for 48 percent of daily added sugars consumption compared to that of households with full food security, among which beverages accounted for 34 percent of added sugars intake. Across all food security subgroups, the top three contributors to added sugars intake were sugar-sweetened and diet beverages, desserts and sweet snacks, and coffee or tea, respectively.

E. Energy

Race and/or ethnicity. Across racial and ethnic subgroups, the top contributor to daily energy consumption was mixed dishes (ranging from 32 to 38 percent). For all but one racial and ethnic subgroup (non-Hispanic Asians), the second-largest contributor to daily energy consumption was snacks and sweets (ranging from 14 to 16 percent). Among individuals who identify as non-Hispanic Asian, the second-largest contributor to daily energy was discrete grain items (18 percent) followed by snacks and sweets (12 percent).

For all racial and ethnic subgroups except non-Hispanic Asian, burgers and sandwiches (including tacos and burritos) were the top contributor to daily energy intake (ranging from 15 to 18 percent). However, among individuals who identify as non-Hispanic Asian, three subcategories of foods each contributed just under 10 percent of daily energy intake: (1) rice, pasta, and other grain-based mixed dishes; (2) meat, poultry, seafood mixed dishes; and (3) burgers and sandwiches (including tacos and burritos),

F. Dietary fiber

Race and/or ethnicity. Across racial and ethnic subgroups, the top contributor to daily dietary fiber intake was mixed dishes (ranging from 36 to 40 percent). The second-largest contributor to dietary fiber intake for individuals who identify as Mexican American and non-Hispanic Asian was discrete grain items (ranging from 16 to 17 percent), and for all other subgroups it was vegetables (ranging from 15 to 18 percent).

For all racial and ethnic subgroups except non-Hispanic Asians, the top food subcategory contributor to daily dietary fiber intake was burgers and sandwiches (including tacos and burritos), accounting for between 15 and 19 percent of daily intakes of dietary fiber. For individuals who identify as non-Hispanic Asian, the top contributor to dietary fiber intake was fruit (non-juice), contributing 13 percent.

G. Saturated fat

Race and/or ethnicity. Across racial and ethnic subgroups, the top contributor to saturated fat intake was mixed dishes (ranging from 38 to 46 percent). The second-largest contributor to saturated fat consumption for all subgroups except non-Hispanic Asians was snacks and sweets (ranging from 16 to 20 percent). For individuals who identify as non-Hispanic Asian, protein foods were the second-largest contributor to saturated fat consumption (17 percent).

Burgers and sandwiches (including tacos and burritos) represented the top food subcategory contributor to daily saturated fat intake across all racial and ethnic subgroups. Among individuals who identify as Mexican American, non-Hispanic Black, non-Hispanic White, and Other Hispanic, burgers and sandwiches

(including tacos and burritos) contributed between 19 and 24 percent of daily saturated fat intake. However, among individuals who identify as non-Hispanic Asian, burgers and sandwiches (including tacos and burritos) contributed almost half as much to daily saturated fat intake (11 percent).

H. Sodium

Across all sociodemographic subgroups, mixed dishes were the top source of daily sodium intake. Mixed dishes accounted for about half of sodium intake across all groups (ranging between 46 and 53 percent).

Race and/or ethnicity. Individuals who identify as Mexican American reported consuming the largest proportion of sodium from mixed dishes among any racial and ethnic group (53 percent), whereas individuals who identify as non-Hispanic Black reported the smallest proportion (46 percent).

After mixed dishes, protein foods were the second leading source of daily sodium intake across all racial and ethnic groups (ranging between 13 and 19 percent), except for non-Hispanic Asians, whose second leading source of sodium consumption was grains (16 percent).

Among each racial and ethnic subgroup except for non-Hispanic Asians, burgers and sandwiches (including tacos and burritos) were the top source of sodium intake across all food subcategories, accounting for between 20 and 25 percent of daily sodium consumption for these groups. Among individuals who identify as non-Hispanic Asian, however, meat, poultry, and seafood mixed dishes were the top contributor of sodium consumption (14 percent).

Appendix A

Mapping of WWEIA Food Categories to DGAC major categories
and subcategories used in the analysis

Exhibit A.1. Mapping of WWEIA Food Categories to DGAC major categories and DGAC subcategories used in the analysis

DGAC Major Category	DGAC Subcategory	Original WWEIA Food Category numbers and descriptions	Differences in WWEIA Food Category numbers and descriptions			Complete set of WWEIA Food Category numbers and descriptions included in current analysis
		2013–2016 WWEIA, NHANES	2011–2012 WWEIA, NHANES	2017–2020 WWEIA, NHANES	NCI combination files ^a	
Dairy	Lower fat milk/yogurt	1006 Milk, low-fat 1008 Milk, nonfat 1206 Flavored milk, low-fat 1208 Flavored milk, nonfat 1404 Milk substitutes	1804 Yogurt, lowfat and nonfat	n/a	n/a	1006 Milk, low-fat 1008 Milk, nonfat 1206 Flavored milk, low-fat 1208 Flavored milk, nonfat 1404 Milk substitutes 1804 Yogurt, lowfat and nonfat
Dairy	Higher fat milk/yogurt	1002 Milk, whole 1004 Milk, reduced fat 1202 Flavored milk, whole 1204 Flavored milk, reduced fat 1402 Milk shakes and other dairy drinks 1820 Yogurt, regular 1822 Yogurt, Greek	1802 Yogurt, whole and reduced fat	n/a	n/a	1002 Milk, whole 1004 Milk, reduced fat 1202 Flavored milk, whole 1204 Flavored milk, reduced fat 1402 Milk shakes and other dairy drinks 1820 Yogurt, regular 1822 Yogurt, Greek 1802 Yogurt, whole and reduced fat
Dairy	Cheese	1602 Cheese 1604 Cottage/ricotta cheese	n/a	n/a	n/a	1602 Cheese 1604 Cottage/ricotta cheese
Protein foods	Meats (not incl. deli and mixed dishes)	2002 Beef, excludes ground 2004 Ground beef 2006 Pork 2008 Lamb, goat, game 2010 Liver and organ meats	n/a	n/a	n/a	2002 Beef, excludes ground 2004 Ground beef 2006 Pork 2008 Lamb, goat, game 2010 Liver and organ meats
Protein foods	Deli/cured products (meat and poultry)	2602 Cold cuts and cured meats 2604 Bacon 2606 Frankfurters 2608 Sausages	n/a	n/a	n/a	2602 Cold cuts and cured meats 2604 Bacon 2606 Frankfurters 2608 Sausages

Appendix A

DGAC Major Category	DGAC Subcategory	Original WWEIA Food Category numbers and descriptions	Differences in WWEIA Food Category numbers and descriptions			Complete set of WWEIA Food Category numbers and descriptions included in current analysis
		2013–2016 WWEIA, NHANES	2011–2012 WWEIA, NHANES	2017–2020 WWEIA, NHANES	NCI combination files ^a	
Protein foods	Poultry (not incl. deli and mixed dishes)	2202 Chicken, whole pieces 2204 Chicken patties, nuggets and tenders 2206 Turkey, duck, other poultry	n/a	n/a	n/a	2202 Chicken, whole pieces 2204 Chicken patties, nuggets and tenders 2206 Turkey, duck, other poultry
Protein foods	Seafood (not incl. mixed dishes)	2402 Fish 2404 Shellfish	n/a	n/a	n/a	2402 Fish 2404 Shellfish
Protein foods	Eggs	2502 Eggs and omelets	n/a	n/a	n/a	2502 Eggs and omelets
Protein foods	Nuts, seeds, and soy	2804 Nuts and seeds 2806 Processed soy products	n/a	n/a	n/a	2804 Nuts and seeds 2806 Processed soy products
Mixed dishes	Pizza	3602 Pizza	n/a	n/a	n/a	3602 Pizza
Mixed dishes	Burgers and sandwiches (incl. tacos and burritos)	3702 Burgers (single code) 3703 Frankfurter sandwiches (single code + combo codes) 3704 Chicken/turkey sandwiches (single code) 3706 Egg/breakfast sandwiches (single code) 3708 Other sandwiches (single code+combo codes) 3720 Cheese sandwiches (single code + combo codes) 3722 Peanut butter and jelly sandwiches (single code + combo codes) 3502 Burritos and Tacos	n/a	3730 Seafood sandwiches 3740 Deli and cured meat sandwiches 3742 Meat and BBQ sandwiches 3744 Vegetable sandwiches/burgers	n/a	3702 Burgers (single code) 3703 Frankfurter sandwiches (single code + combo codes) 3704 Chicken/turkey sandwiches (single code) 3706 Egg/breakfast sandwiches (single code) 3708 Other sandwiches (single code+combo codes) 3720 Cheese sandwiches (single code + combo codes) 3722 Peanut butter and jelly sandwiches (single code + combo codes) 3502 Burritos and Tacos 3730 Seafood sandwiches 3740 Deli and cured meat sandwiches 3742 Meat and BBQ sandwiches 3744 Vegetable sandwiches/burgers

Appendix A

DGAC Major Category	DGAC Subcategory	Original WWEIA Food Category numbers and descriptions	Differences in WWEIA Food Category numbers and descriptions			Complete set of WWEIA Food Category numbers and descriptions included in current analysis
		2013–2016 WWEIA, NHANES	2011–2012 WWEIA, NHANES	2017–2020 WWEIA, NHANES	NCI combination files ^a	
Mixed dishes	Meat, poultry, seafood mixed dishes	3002 Meat mixed dishes 3004 Poultry mixed dishes 3006 Seafood mixed dishes 3404 Stir-fry and soy-based sauce mixtures	n/a	n/a	3003 Meat mixed dishes 3405 Stir-fry and soy-based sauce mixtures	3002 Meat mixed dishes 3004 Poultry mixed dishes 3006 Seafood mixed dishes 3404 Stir-fry and soy-based sauce mixtures 3003 Meat mixed dishes 3405 Stir-fry and soy-based sauce mixtures
Mixed dishes	Rice, pasta, and other grain-based mixed dishes	3202 Rice mixed dishes 3204 Pasta mixed dishes, excludes macaroni and cheese 3206 Macaroni and cheese 3208 Turnovers and other grain-based items 3402 Fried rice and lo/chow mein 3406 Egg rolls, dumplings, sushi 3506 Other Mexican mixed dishes	n/a	n/a	3207 Rice mixed dishes 3209 Rice mixed dishes 3210 Rice mixed dishes 3211 Rice mixed dishes 3212 Rice mixed dishes 3213 Rice mixed dishes	3202 Rice mixed dishes 3204 Pasta mixed dishes, excludes macaroni and cheese 3206 Macaroni and cheese 3208 Turnovers and other grain-based items 3402 Fried rice and lo/chow mein 3406 Egg rolls, dumplings, sushi 3506 Other Mexican mixed dishes 3207 Rice mixed dishes 3209 Rice mixed dishes 3210 Rice mixed dishes 3211 Rice mixed dishes 3212 Rice mixed dishes 3213 Rice mixed dishes
Mixed dishes	Soups	3802 Soups	n/a	n/a	3804 Soups	3802 Soups 3804 Soups
Grains	Rice and pasta	4002 Rice 4004 Pasta, noodles, cooked grains	n/a	n/a	n/a	4002 Rice 4004 Pasta, noodles, cooked grains
Grains	Yeast breads and tortillas	4202 Yeast breads 4204 Rolls and buns	n/a	n/a	n/a	4202 Yeast breads 4204 Rolls and buns

Appendix A

DGAC Major Category	DGAC Subcategory	Original WWEIA Food Category numbers and descriptions	Differences in WWEIA Food Category numbers and descriptions			Complete set of WWEIA Food Category numbers and descriptions included in current analysis
		2013–2016 WWEIA, NHANES	2011–2012 WWEIA, NHANES	2017–2020 WWEIA, NHANES	NCI combination files ^a	
		4206 Bagels and English muffins 4208 Tortillas				4206 Bagels and English muffins 4208 Tortillas
Grains	Quick breads (e.g., biscuits, muffins, pancakes, waffles)	4402 Biscuits, muffins, quick breads 4404 Pancakes, waffles, French toast	n/a	n/a	n/a	4402 Biscuits, muffins, quick breads 4404 Pancakes, waffles, French toast
Grains	Breakfast cereals and bars	4602 Ready-to-eat cereal, higher sugar (>21.2g/100g) 4604 Ready-to-eat cereal, lower sugar (≤21.2g/100g) 4802 Oatmeal 4804 Grits and other cooked cereals 5402 Cereal bars 5404 Nutrition bars	n/a	n/a	4805 Grits and other cooked cereals 4806 Grits and other cooked cereals 4808 Grits and other cooked cereals 4809 Grits and other cooked cereals	4602 Ready-to-eat cereal, higher sugar (>21.2g/100g) 4604 Ready-to-eat cereal, lower sugar (≤21.2g/100g) 4802 Oatmeal 4804 Grits and other cooked cereals 5402 Cereal bars 5404 Nutrition bars 4805 Grits and other cooked cereals 4806 Grits and other cooked cereals 4808 Grits and other cooked cereals 4809 Grits and other cooked cereals
Snacks and sweets	Chips, crackers, and savory snacks	5002 Potato chips 5004 Tortilla, corn, other chips 5006 Popcorn 5008 Pretzels/snack mix 5202 Crackers, excludes saltines 5204 Saltine crackers 3504 Nachos	n/a	n/a	n/a	5002 Potato chips 5004 Tortilla, corn, other chips 5006 Popcorn 5008 Pretzels/snack mix 5202 Crackers, excludes saltines 5204 Saltine crackers 3504 Nachos
Snacks and sweets	Desserts and sweet snacks	5502 Cakes and pies 5504 Cookies and brownies 5506 Doughnuts, sweet rolls,	n/a	n/a	n/a	5502 Cakes and pies 5504 Cookies and brownies 5506 Doughnuts, sweet rolls, pastries

Appendix A

DGAC Major Category	DGAC Subcategory	Original WWEIA Food Category numbers and descriptions	Differences in WWEIA Food Category numbers and descriptions			Complete set of WWEIA Food Category numbers and descriptions included in current analysis
		2013–2016 WWEIA, NHANES	2011–2012 WWEIA, NHANES	2017–2020 WWEIA, NHANES	NCI combination files ^a	
		pastries 5802 Ice cream and frozen dairy desserts 5804 Pudding 5806 Gelatins, ices, sorbets				5802 Ice cream and frozen dairy desserts 5804 Pudding 5806 Gelatins, ices, sorbets
Snacks and sweets	Candy and sugars	5702 Candy containing chocolate 5704 Candy not containing chocolate 8802 Sugars and honey 8804 Sugar substitutes 8806 Jams, syrups, toppings	n/a	n/a	n/a	5702 Candy containing chocolate 5704 Candy not containing chocolate 8802 Sugars and honey 8804 Sugar substitutes 8806 Jams, syrups, toppings
Fruit and 100% fruit juices	Fruit (non-juice)	6002 Apples 6004 Bananas 6006 Grapes 6008 Peaches and nectarines 6010 Berries 6012 Citrus fruits 6014 Melons 6016 Dried fruits 6018 Other fruits and fruit salads	n/a	6009 Strawberries 6011 Blueberries and other berries 6020 Pears 6022 Pineapple 6024 Mango and papaya	n/a	6002 Apples 6004 Bananas 6006 Grapes 6008 Peaches and nectarines 6010 Berries 6012 Citrus fruits 6014 Melons 6016 Dried fruits 6018 Other fruits and fruit salads 6009 Strawberries 6011 Blueberries and other berries 6020 Pears 6022 Pineapple 6024 Mango and papaya
Fruit and 100% fruit juices	100% fruit juice	7002 Citrus juice 7004 Apple juice 7006 Other fruit juice	n/a	n/a	7009 Other fruit juice 7010 Other fruit juice	7002 Citrus juice 7004 Apple juice 7006 Other fruit juice 7009 Other fruit juice 7010 Other fruit juice

Appendix A

DGAC Major Category	DGAC Subcategory	Original WWEIA Food Category numbers and descriptions	Differences in WWEIA Food Category numbers and descriptions			Complete set of WWEIA Food Category numbers and descriptions included in current analysis
		2013–2016 WWEIA, NHANES	2011–2012 WWEIA, NHANES	2017–2020 WWEIA, NHANES	NCI combination files ^a	
Vegetables	Vegetables (incl. beans and peas, not starchy)	6402 Tomatoes 6404 Carrots 6406 Other red and orange vegetables 6408 Dark green vegetables, excludes lettuce 6410 Lettuce and lettuce salads (Incl. combo codes) 6412 String beans 6414 Onions 6420 Other vegetables and combinations 6422 Vegetable mixed dishes 7008 Vegetable juice 8410 Pasta sauces, tomato-based 2802 Beans, peas, legumes	n/a	6407 Broccoli 6409 Spinach 6411 Other dark green vegetables 6413 Cabbage 6430 Fried vegetables 6432 Coleslaw, non-lettuce salads 6489 Vegetables on a sandwich 3102 Bean, pea, legume dishes 3104 Vegetable dishes	n/a	6402 Tomatoes 6404 Carrots 6406 Other red and orange vegetables 6408 Dark green vegetables, excludes lettuce 6410 Lettuce and lettuce salads (Incl. combo codes) 6412 String beans 6414 Onions 6420 Other vegetables and combinations 6422 Vegetable mixed dishes 7008 Vegetable juice 8410 Pasta sauces, tomato-based 2802 Beans, peas, legumes 6407 Broccoli 6409 Spinach 6411 Other dark green vegetables 6413 Cabbage 6430 Fried vegetables 6432 Coleslaw, non-lettuce salads 6489 Vegetables on a sandwich 3102 Bean, pea, legume dishes 3104 Vegetable dishes
Vegetables	Starchy vegetables	6416 Corn 6418 Other starchy vegetables 6802 White potatoes, baked or boiled 6804 French fries and other fried white potatoes	n/a	n/a	n/a	6416 Corn 6418 Other starchy vegetables 6802 White potatoes, baked or boiled 6804 French fries and other fried white potatoes 6806 Mashed potatoes and white potato mixtures

Appendix A

DGAC Major Category	DGAC Subcategory	Original WWEIA Food Category numbers and descriptions	Differences in WWEIA Food Category numbers and descriptions			Complete set of WWEIA Food Category numbers and descriptions included in current analysis
		2013–2016 WWEIA, NHANES	2011–2012 WWEIA, NHANES	2017–2020 WWEIA, NHANES	NCI combination files ^a	
		6806 Mashed potatoes and white potato mixtures				
Beverages (not incl. milk and 100% fruit juice)	Sugar-sweetened and diet beverages	7102 Diet soft drinks 7104 Diet sport and energy drinks 7106 Other diet drinks 7202 Soft drinks 7204 Fruit drinks 7206 Sport and energy drinks 7208 Nutritional beverages 7802 Flavored or carbonated water 7220 Smoothies and grain drinks	n/a	n/a	n/a	7102 Diet soft drinks 7104 Diet sport and energy drinks 7106 Other diet drinks 7202 Soft drinks 7204 Fruit drinks 7206 Sport and energy drinks 7208 Nutritional beverages 7802 Flavored or carbonated water 7220 Smoothies and grain drinks
Beverages (not incl. milk and 100% fruit juice)	Coffee and tea	7302 Coffee 7304 Tea	n/a	n/a	n/a	7302 Coffee 7304 Tea
Beverages (not incl. milk and 100% fruit juice)	Alcoholic beverages [excluded for infant/young children analysis]	7502 Beer 7504 Wine 7506 Liquor and cocktails	n/a	n/a	n/a	7502 Beer 7504 Wine 7506 Liquor and cocktails
Beverages (not incl. milk and 100% fruit juice)	Waters	7702 Tap water 7704 Bottled water 7804 Enhanced or fortified water	n/a	n/a	n/a	7702 Tap water 7704 Bottled water 7804 Enhanced or fortified water
Condiments, gravies,	Condiments and gravies	8402 Tomato-based condiments	n/a	n/a	n/a	8402 Tomato-based condiments 8404 Soy-based condiments

Appendix A

DGAC Major Category	DGAC Subcategory	Original WWEIA Food Category numbers and descriptions	Differences in WWEIA Food Category numbers and descriptions			Complete set of WWEIA Food Category numbers and descriptions included in current analysis
		2013–2016 WWEIA, NHANES	2011–2012 WWEIA, NHANES	2017–2020 WWEIA, NHANES	NCI combination files ^a	
spreads, and salad dressings		8404 Soy-based condiments 8406 Mustard and other condiments 8408 Olives, pickles, pickled vegetables 8412 Dips, gravies, other sauces				8406 Mustard and other condiments 8408 Olives, pickles, pickled vegetables 8412 Dips, gravies, other sauces
Condiments, gravies, spreads, and salad dressings	Spreads	8002 Butter and animal fats 8004 Margarine 8006 Cream cheese, sour cream, whipped cream 8008 Cream and cream substitutes	n/a	n/a	n/a	8002 Butter and animal fats 8004 Margarine 8006 Cream cheese, sour cream, whipped cream 8008 Cream and cream substitutes
Condiments, gravies, spreads, and salad dressings	Salad dressings	8010 Mayonnaise 8012 Salad dressings and vegetable oils	n/a	n/a	n/a	8010 Mayonnaise 8012 Salad dressings and vegetable oils
Infant formula and baby food	Baby food [Note: All infant formula and baby food are excluded for the ages 2 years and older analysis. Infant formula and human milk are excluded from the infant/young children	9002 Baby food: cereals 9004 Baby food: fruit 9006 Baby food: vegetable 9008 Baby food: meat and dinners 9010 Baby food: yogurt 9012 Baby food: snacks and sweets 9202 Baby juice 9204 Baby water 9402 Formula, ready-to-feed 9404 Formula, prepared from powder 9602 Human milk	9406 Formula, prepared from concentrate	9007 Baby food: mixtures	n/a	For infants/young children analysis only: 9002 Baby food: cereals 9004 Baby food: fruit 9006 Baby food: vegetable 9008 Baby food: meat and dinners 9010 Baby food: yogurt 9012 Baby food: snacks and sweets 9202 Baby juice 9204 Baby water 9007 Baby food: mixtures

Appendix A

DGAC Major Category	DGAC Subcategory	Original WWEIA Food Category numbers and descriptions	Differences in WWEIA Food Category numbers and descriptions			Complete set of WWEIA Food Category numbers and descriptions included in current analysis
		2013–2016 WWEIA, NHANES	2011–2012 WWEIA, NHANES	2017–2020 WWEIA, NHANES	NCI combination files ^a	
	analysis, but baby food is included.]					
Other	[Excluded from all analyses.]	9802 Protein and nutritional powders 9999 Not included in a food category	n/a	n/a	n/a	9802 Protein and nutritional powders 9999 Not included in a food category

^a NCI provided Excel data files that mapped combination food items (in NHANES 2011–2020) to a corresponding WWEIA Food Category number. These combination files do not distinguish between NHANES survey waves when assigning WWEIA Food Category numbers. As a result, records from earlier WWEIA, NHANES waves may be associated with a WWEIA Food Category number that did not exist at the time of survey response. In addition, NCI occasionally developed new WWEIA Food Category numbers to classify combination food items. To ensure continuity with prior analyses, Mathematica used the combination files provided by NCI without modification to these numbers.

Notes: The analysis for infants and young children also included data from NHANES 2007–2008 and 2009–2010. There are no differences in WWEIA Food Categories for these waves relative to what is shown in the exhibit above.

Excel data files with combination food items were not available for NHANES 2007–2008 and 2009–2010—two of the waves included in the analysis for infants and young children.

n/a = Not applicable

Mathematica Inc.

Our employee-owners work nationwide and around the world.

Find us at mathematica.org and edi-global.com.



Mathematica, Progress Together, and the "spotlight M" logo are registered trademarks of Mathematica Inc.

References

1. Cruz CM, DeSilva D, Beckman K, et al. *Federal Data Analysis Plan for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2023. <https://www.dietaryguidelines.gov>
2. 2025 Dietary Guidelines Advisory Committee. *Scientific Report of the 2025 Dietary Guidelines Advisory Committee: Advisory Report to the Secretary of Health and Human Services and Secretary of Agriculture*. U.S. Department of Health and Human Services; 2024. <https://doi.org/10.52570/DGAC2025>
3. Cruz CM, DeSilva D, Beckman K, et al. *Federal Data Analysis Report for the 2025 Dietary Guidelines Advisory Committee: Current Patterns of Food and Beverage Intake*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024. <https://doi.org/10.52570/DA.DGAC2025.DA01>
4. Cruz CM, DeSilva D, Beckman K, et al. *Federal Data Analysis Report for the 2025 Dietary Guidelines Advisory Committee: Prevalence of Nutrition-Related Chronic Health Conditions*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024. <https://doi.org/10.52570/DA.DGAC2025.DA04>
5. DeSilva D, Cruz CM, Beckman K, et al. *Federal Data Analysis Report for the 2025 Dietary Guidelines Advisory Committee: Current Intakes of Nutrients and Dietary Components*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024. <https://doi.org/10.52570/DA.DGAC2025.DA03>
6. DeSilva D, Cruz CM, Beckman K, et al. *Federal Data Analysis Report for the 2025 Dietary Guidelines Advisory Committee: Current Intakes of Food Groups*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024. <https://doi.org/10.52570/DA.DGAC2025.DA02>
7. DeSilva D, Cruz CM, Beckman K, et al. *Federal Data Analysis Report for the 2025 Dietary Guidelines Advisory Committee: Nutritional Biomarker Outcomes*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024. <https://doi.org/10.52570/DA.DGAC2025.DA05>
8. Federal Data Analysis Team and 2025 Dietary Guidelines Advisory Committee. *Food Category Sources of Total Vegetables: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024. <https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
9. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Oils: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024. <https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
10. Federal Data Analysis Team and 2025 Dietary Guidelines Advisory Committee. *Food Category Sources of Added Sugars: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food

and Nutrition Service, Center for Nutrition Policy and Promotion; 2024.

<https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>

11. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Total Protein Foods: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024. <https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
12. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Cured Meats: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024. <https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
13. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Red Meats: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024. <https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
14. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Total Dairy and Fortified Soy Alternatives: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024. <https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
15. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Milk and Fortified Soy Milk: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024. <https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
16. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Cheese: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024. <https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
17. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Total Grains: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024. <https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
18. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Whole Grains: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024. <https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
19. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Refined Grains: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary

for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024.

<https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>

20. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Total Fruits: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024.
<https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
21. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Energy: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024.
<https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
22. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Sodium: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024.
<https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
23. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Dietary Protein: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024.
<https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
24. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Saturated Fat: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024.
<https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
25. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Dietary Fiber: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024.
<https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
26. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Calcium: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024.
<https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
27. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Potassium: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024.
<https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
28. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Vitamin D: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory*

- Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024.
<https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
29. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Vitamin E: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024.
<https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
30. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Folate as DFE: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024.
<https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
31. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Vitamin B12: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024.
<https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
32. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Iron: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024.
<https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
33. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Total Choline: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024.
<https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
34. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Zinc: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024.
<https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>
35. Federal Data Analysis Team, 2025 Dietary Guidelines Advisory Committee, and Mathematica. *Food Category Sources of Total Fat: Supplementary Data Analysis for the 2025 Dietary Guidelines Advisory Committee*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion and U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion; 2024.
<https://www.dietaryguidelines.gov/2025-advisory-committee-report/data-analysis>