Food Sources of Energy and Nutrients of Public Health Concern and Nutrients to Limit with a Focus on Milk and other Dairy Foods in Children 2 to 18 Years of Age: National Health and Nutrition Examination Survey, 2011–2014

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Abstract: Many children are not meeting current nutrient recommendations. The objective of this study was to determine the food sources of energy, nutrients of public health concern, and nutrients to limit with a focus on dairy foods. Twenty-four-hour dietary recall data from children 2–5 (n = 1511), 6–11 (n = 2193), and 12–18 years (n = 2172) participating in NHANES 2011–2014 were analyzed. Energy, fiber, calcium, potassium, vitamin D, added sugars, saturated fatty acids (SFA), and sodium intakes were sample-weighted and ranked on percentage contribution to the diet using specific food group intake and disaggregated data for dairy foods. For children 2–5, 6–11, and 12–18 years, milk, sweet bakery products, and sweetened beverages, respectively were the top food sources of energy, respectively. For calcium, potassium, and vitamin D, milk was the top ranked food source in all age groups. For children 2–5, 6–11, and 12–18 years, milk, sweet bakery products, and pizza, respectively were the top three ranked food sources of SFA; and sugar sweetened beverages and sweet bakery products were to top two food group sources of added sugars. Cured meats/poultry, pizza, and pizza, respectively, were the top ranked food sources of sodium for the three age groups. Identification of food sources of these nutrients can help health professionals implement appropriate dietary recommendations and plan age-appropriate interventions.

Keywords: NHANES; energy intakes; nutrients; children; adolescents; dietary sources; dairy foods

1. Introduction

Dairy products are rich in three of the four nutrients of public health concern: calcium, vitamin D, and potassium [1]. The 2015–2020 Dietary Guidelines Advisory Committee (DGAC) determined that several nutrients: vitamins A, E, and C; folate; magnesium; and iron (in adolescent females) were under consumed relative to the Estimated Average Requirement (EAR) or Adequate Intake (AI) levels set by the Institute of Medicine and these were characterized as “shortfall nutrients”. The DGAC confirmed that fiber, calcium, vitamin D, and potassium remained nutrients of public health concern since underconsumption has been linked to adverse health outcomes [2]. In children 2–18 years of age (years), milk has previously been shown to be the primary source of calcium, vitamin D, and potassium [3]. Dairy products, especially milk and yogurt, also provide protein, saturated fatty acids (SFA), riboflavin, vitamin B_{12}, and phosphorus.
Modeling techniques with data from the National Health and Nutrition Examination Survey (NHANES) have shown that the prevalence of inadequate calcium and potassium intakes could be reduced if additional servings of dairy foods were consumed [4,5]. However, per captia consumption of fluid milk has declined sharply since 1975, when it was 247 pounds per person, to 154 pounds per person in 2016. The lack of nutrients from fluid milk has been partially offset by an increase in cheese and yogurt consumption over this time span [6].

Although dairy foods contribute to shortfall nutrients, there is concern that these foods may also contribute high levels of energy, added sugars, from flavored milk and sweet dairy drinks; SFA; and sodium—all of which may lead to chronic diseases in older adolescents and adults [7,8]. There has been some speculation that plant-based drinks may provide health benefits over dairy foods. However, modeling studies, using NHANES 2007–2010 data, have shown that when comparing the usual intake of macronutrients and shortfall nutrients of three dietary scenarios that increased intake of: (1) plant-based foods; (2) protein-rich plant foods; and (3) dairy foods, including milk, cheese, and yogurt. The dairy model reduced the percent of children not meeting the EAR for calcium, vitamins A and D, magnesium, and protein, while sodium and SFA intakes increased [9]. Thus, it is very important to understand more fully the food sources that provide these important sources of nutrients in dairy; this can be done in part by disaggregating the data.

To help assuage nutrient shortfalls, the recommendation for daily dairy intake for children is age dependent: 2 cup equivalents (CE) for children 2–3 years of age (years), 2.5 CE for children 4–8 years, and 3 CE for children 9–18 years [10]. In general, young children meet the recommendations for dairy; on average, males and females 2–5 years consume 2.04 and 2.03 CE of total dairy, respectively [11]. However, as children get older, consumption goes down, especially in females. Males and females 6–11 years consume 2.53 and 1.90 CE, respectively; and males and females 12–19 years consume 2.40 and 1.61 CE, respectively [11]. These data are concerning, especially for females, since although the recommendation for dairy intake does not change with gender, in general females need [12] and consume [13] less energy than males. In addition, it is concerning that consumption declines with age.

Understanding food sources of energy, shortfall nutrients, and nutrients to limit is important at any age, including children. Dietary influences and eating behaviors established in childhood play an important role in growth and development in children [14,15]. They also provide a reasonable basis for adult dietary preferences [16]. Although the majority of information linking diet to chronic disease is available for adults, there is some evidence suggesting that encouraging consumption of foods that provide shortfall nutrients while reducing nutrients to limit may reduce risk factors for chronic diseases, including cardiovascular disease (CVD) [17], hypertension [18], insulin sensitivity [19], obesity [20], and abdominal adiposity [21].

Identifying food sources, including mixed-dish foods—such as pizza or Mexican dishes—that provide energy, shortfall nutrients, and nutrients to limit can help nutrition educators design age-specific programs to help them modify food and nutrient intake [22,23]. Targeted nutrition education may have an indirect positive effect of increasing children’s intakes of food groups that provide shortfall nutrients, while limiting foods that provide nutrients to limit, thus moving children closer to meeting dietary recommendations [10,24]. The purpose of this study was to examine food sources providing energy, shortfall nutrients, and nutrients to limit in three age groups of children using data from the NHANES 2011–2014. This is the first detailed list of food sources in children (2–18 years) since the NHANES 2003–2006 studies [3] and is the first to examine food sources in three age groups of children. Additionally, given milk, cheese, and yogurt are used as ingredients in many mixed dishes, which are not captured in a simple analyses of food sources of nutrients, this study also determined the nutrients from milk, cheese, and yogurt in mixed dishes thereby obtaining a more thorough contribution of dairy products to the diet of children.
2. Materials and Methods

2.1. Study Overview, Study Population, and Analytic Sample

The NHANES is a program of studies designed to assess the health and nutritional status of free-living individuals in the US. Online information about the NHANES, including the purpose [25], plan and operations, sampling and weighting procedures, analytic guidelines [26], response rates, and population totals [27], is available. Data from children 2–18 years of age (years) participating in the NHANES from 2011 to 2014 were used for these analyses. The final analytic sample had 5876 participants; children were separated into three age groups: 2–5 years \( n = 1511 \), 6–11 years \( n = 2193 \), and 12–18 years \( n = 2172 \). The National Center for Health Statistics (NCHS) Research Ethics Review Board has approved the use of human subjects for NHANES studies [28]; and further institutional review was not required.

2.2. Dietary Intake

Dietary intake data for the NHANES used in this study were obtained from the in-person 24-h dietary recall interview [29] using an Automated Multiple-Pass Method [30]. Although a second, telephone interview, was also taken 3 to 10 days after the in-person interview, only the in-person interview was used because of the difference in the methodology for collecting the two recalls. A single 24-h dietary recall administered in a large population can provide data to adequately estimate population mean intakes [31]. Survey participants 12 years and older completed their own dietary interview; children 6 to 11 years were assisted by an adult, usually a parent; and parents/guardians reported for children younger than 6 years [29].

2.3. Food Groupings and Composition

The relevant What We Eat in America (WWEIA), the dietary component of NHANES, food category classification systems [32] were used to classify all foods. The WWEIA food categories contain 15 main groups: milk and dairy; protein foods; mixed dishes; grains; snacks and sweets; fruit; vegetables; beverages, nonalcoholic; alcoholic beverages; water; fats and oils; condiments and sauces; sugars; infant formula and baby food; and other. The WWEIA food categories also consists of 47 subgroups. For example, for the milk and dairy main group, the subgroups were milk, flavored milk, cheese, dairy drinks and substitutes, and yogurt. For these analyses we focused on the 47 subgroups.

Using the relevant Food Patterns Equivalent Database [33] milk, cheese, and yogurt servings of non-dairy foods and especially mixed dishes were determined. The nutrient composition in the relevant Food and Nutrient Database for Dietary Studies FNDDS 2011–2012 and 2013–2014 [34] linked to SR 26 and SR 28 respectively [1] for milk, NFS (not further specified); cheese, NFS; and yogurt, NFS was used to assess energy and nutrient contribution of dairy servings non-dairy foods. The nutrients reported herein are the nutrients of public health concern [2]: dietary fiber, calcium, vitamin D, and potassium; and nutrients to limit: SFA, added sugars, and sodium.

Data are reported as specific food group (SFG) intake, adjusted intake, and delta intake. Specific food group intake is intake from the dairy food groups (milk, cheese, and yogurt). Adjusted intake is the total daily intake after nutrients from dairy from non-dairy foods (e.g., mixed dishes) have been included, and reflect the disaggregation. Delta intake is the amount of nutrients from dairy in non-dairy foods that was added to or removed from the specific food group intake to calculate the adjusted intake. The consumer number \( n \) for delta was the number of subjects that consumed dairy from mixed dishes.

2.4. Statistical Analyses

Data were analyzed using SAS 9.2 and SUDAAN release 11.0 (Research Triangle Institute, Research Triangle Park, NC, USA) with survey parameters including strata, primary sampling units, and dietary sample weights [26]. Means and standard errors (SE) of energy and nutrient intakes from the total diet
and from each food group were determined using PROC DESCRIPT of SUDAAN. Percentages of total energy and nutrient intakes from each food group were calculated from the average consumption of each food. Mean intakes were tabulated by ranked order to 1% of consumption.

3. Results

3.1. Contribution of Foods to Percent Energy Intake

Total mean daily energy consumption was 1535 ± 19 kcas ± SE; 1953 ± 23.0 kcas; and 2056.0 ± 33.2 kcas, respectively for children 2–5, 6–11, and 12–18 years, respectively. Table 1 shows the food sources contributing at least 1% of percent energy intake from the WWEIA sub-categories. There were 31, 29, and 31 food sources that contributed at least 1% of SFG energy intake of children 2–5, 6–11, and 12–18 years, respectively. Using SFG intake data (kcas; % of energy) for children 2–5 years, milk (136 kcas; 8.9% of energy), sweet bakery products (116 kcas; 7.6%), and grain-based mixed dishes (86 kcas; 5.6%) were ranked as the top food sources of energy. Cheese was ranked as the 18th food source of energy (39 kcas; 2.5%). Using adjusted (disaggregated) data, milk and sweet bakery products remained the two top ranked foods (151 kcas; 9.8% and 115 kcas; 7.5%) with mean delta intakes of +15 and −1 kcas, respectively. Cheese was the fifth ranked energy source (74 kcas; 4.8%).

The top SFG sources of energy for children 6–11 years were sweet bakery products (164 kcas; 8.4%), pizza (132 kcas; 6.8%), and sweetened beverages (112 kcas; 5.7%), with milk and cheese ranked 7th (96 kcas; 4.9%) and 21st (38 kcas; 1.9%), respectively. Using adjusted data, sweet bakery products and milk ranked first (163 kcas; 8.3%) and second (117 kcas; 6.0%), respectively, with mean delta intakes of −2 and +21 kcas.

For children 12–18 years, the top SFG intakes of food sources were sweetened beverages (162 kcas; 7.9%), sweet bakery products (139 kcas; 6.8%), and pizza (135 kcas; 6.6%), with milk and cheese ranked 7th (96 kcas; 4.7%) and 18th (42 kcas; 2.1%), respectively. Using adjusted data sweetened beverages and sweet bakery products continued to rank first (160 kcas; 7.8%) and second (137 kcas; 6.7%); respectively; each with a delta value of −1 kcas. Milk (117 kcas; 5.7%) and cheese (118 kcas; 5.7%) were the fourth and fifth ranked food groups, with mean delta intakes of +21.5 kcas and +74 kcas.

3.2. Contribution of Foods to Percent Fiber Intake

Total mean daily dietary fiber intake was 11.8 ± 0.2 g; 14.6 ± 0.3 g; and 14.7 ± 0.3 g, for children 2–5, 6–11, and 12–18 years, respectively. Table 2 shows the food sources contributing to at least 1% of daily fiber intake. In all three age groups there were 22 different food groups that contributed at least 1% of fiber intake. For the specific food group intakes, fruit was the top contributor to fiber intake with a mean of 2 g; 17.2%; 1.9 g; 12.8%, and 1.5 g; 10%, for each age group, respectively. For children 2–5 years, SFG intake was followed by bread, rolls, tortillas (1.2 g; 10%) and ready-to-eat cereal (RTEC) (0.9 g; 7.4%). For children 6–11 years, bread, rolls, tortillas (1.5 g; 10%) and mixed dishes—pizza (1.1%; 7.4%) followed; finally, in children 12–18 years bread, rolls, tortillas (1.5 g; 10%), was followed by mixed dishes—Mexican (1.1 g; 7.7%). There were no differences in rank order after adjustment of any of the foods in all three age groups and delta intake was zero.
Table 1. Food/food group sources of mean energy (kcal) intake \(^1\) among US children aged 2–18 years (\(N = 5876\)): National Health and Nutrition Examination Survey 2011–2014.

| Sub Group Description | WWEIA Food Group | Specific Food Group Intake | Adjusted Intake \(^2\) | Delta Intake |
|-----------------------|----------------------|-----------------------------|------------------------|-------------|
|                       | Cons Rank Mean SE Pct SE | Cons Rank Mean SE Pct SE | Cons Mean SE Pct SE |
| Milk                  | 1120 1 136 5.5 8.9 0.3 | 1415 1 151 5.3 9.8 0.3 | 1120 15 0.7 1.0 0.1 |
| Sweet Bakery Products | 723 2 116 5.3 7.6 0.3 | 723 2 115 5.5 7.5 0.3 | 262 −1 0.1 0 0 |
| Mixed Dishes—Grain-based | 466 3 86 6.5 5.6 0.4 | 466 4 79 6.2 6.2 0.4 | 266 −7 0.7 −0.5 0 |
| Breads, Rolls, Tortillas | 818 4 83 6.2 5.4 0.4 | 818 3 83 6.2 5.4 0.4 | 30 0 0 0 0 |
| 100% Juice            | 755 5 66 4.1 4.3 0.3 | 755 6 66 4.1 4.3 0.3 | 0 0 0 0 0 |
| Savory Snacks         | 688 6 65 6.6 4.2 0.4 | 688 7 65 6.5 4.2 0.4 | 140 0 0 0 0 |
| Fruits                | 945 7 63 2.3 1.1 0.2 | 945 8 63 2.3 4.1 0.2 | 2 0 0 0 0 |
| Sweetened Beverages   | 787 8 61 4.5 4.0 0.3 | 787 9 61 4.5 4.0 0.3 | 23 0 0 0 0 |
| Poultry               | 526 9 59 5.1 3.8 0.3 | 526 10 59 5.1 3.8 0.3 | 0 0 0 0 0 |
| Mixed Dishes—Mexican  | 201 10 54 6.2 3.5 0.4 | 201 13 43 4.9 2.8 0.4 | 189 −11.3 1.4 −0.7 0.1 |
| Mixed Dishes—Pizza    | 247 11 53 5.9 3.5 0.4 | 247 17 39 4.2 2.5 0.4 | 247 −14 1.8 −0.9 0.1 |
| Ready-to-Eat Cereals  | 695 12 51 2.6 3.3 0.2 | 695 11 51 2.6 3.3 0.2 | 12 0 0 0 0 |
| Flavored Milk         | 253 13 48 6.5 3.1 0.4 | 253 12 48 6.5 3.1 0.4 | 0 0 0 0 0 |
| Quick Breads/Bread Products | 293 14 41 5.3 2.7 0.4 | 293 15 40 5.0 2.6 0.4 | 274 −2 0 0 0 |
| Cured Meats/Poultry   | 459 15 40 4.0 2.6 0.3 | 459 14 40 4.0 2.6 0.3 | 2 0 0 0 0 |
| Crackers              | 353 16 40 3.9 2.6 0.3 | 353 16 39 3.9 2.6 0.3 | 0 0 0 0 0 |
| Mixed Dishes—Sauces   | 208 17 39 4.0 2.6 0.3 | 208 18 37 3.9 2.4 0.2 | 67 −2 0.4 0 0 |
| Cheese                | 542 18 39 5.3 2.5 0.3 | 1047 5 74 5.7 4.8 0.4 | 820 36 1.8 2.3 0.1 |
| Candy                 | 507 19 37 2.7 2.4 0.2 | 507 19 35 2.6 2.3 0.2 | 181 −1 0.2 −0.1 0 |
| Other Desserts        | 416 20 37 3.6 2.4 0.2 | 416 21 32 3.2 2.1 0.2 | 291 −5 0.6 −0.3 0 |
| White Potatoes        | 401 21 35 3.7 2.3 0.2 | 401 20 34 3.7 2.2 0.2 | 78 0 0 0 0 |
| Plant-Based Protein Foods | 346 22 30 2.5 2.0 0.2 | 346 22 30 2.5 2.0 0.2 | 1 0 0 0 0 |
| Yogurt                | 231 23 27 3.1 1.8 0.2 | 278 23 28 3.1 1.9 0.2 | 60 1 0.4 0.1 0 |
| Eggs                  | 332 24 27 2.6 1.7 0.2 | 332 25 24 2.4 1.6 0.2 | 234 −3 0.5 −0.2 0 |
| Cooked Grains         | 299 25 26 2.8 1.7 0.2 | 299 24 26 2.8 1.7 0.2 | 0 0 0 0 0 |
| Mixed Dishes—M/P/F    | 189 26 22 2.9 1.4 0.2 | 189 26 21 2.8 1.4 0.2 | 69 −1 0.2 0 0 |
| Vegetables, excluding Potatoes | 560 27 19 1.9 1.2 0.1 | 560 27 18 1.9 1.2 0.1 | 22 0 0 0 0 |
| Fats and Oils         | 460 28 17 1.3 1.1 0.1 | 460 28 17 1.3 1.1 0.1 | 31 0 0 0 0 |
| Mixed Dishes—Soups    | 227 29 16 2.5 1.0 0.2 | 227 29 16 2.4 1.0 0.2 | 7 0 0 0 0 |
| Sugars                | 440 30 15 2.2 1.0 0.1 | 440 30 16 2.2 1.0 0.1 | 21 0 0 0 0 |
| Meats                 | 220 31 16 2.1 1.0 0.1 | 220 31 16 2.1 1.0 0.1 | 5 0 0 0 0 |
Table 1. Cont.

Mean Energy Intake (kcal) in Children 6–11 Years of Age (*n* = 2193)

| Sub Group Description        | Cons Rank Mean SE Pct | Cons Rank Mean SE Pct | Cons Mean SE Pct | Delta Intake Cons Mean SE Pct |
|------------------------------|------------------------|------------------------|------------------|--------------------------------|
| Sweet Bakery Products        | 1034 1 164 9.1 8.4 0.4| 1034 1 163 8.9 0.4   | 0.4 455 -2 0.2 0.01 |
| Mixed Dishes—Pizza           | 548 2 132 14.6 6.8 0.7 | 548 6 100 11.1 0.6 | 547 -32 3.6 -1.7 0.2 |
| Sweetened Beverages          | 1467 3 112 4.1 5.7 0.2 | 1467 3 110 4.1 0.7 | 2 45 -1 0.7 -0.1 0.04 |
| Breads, Rolls, Tortillas     | 1205 4 109 3.6 5.6 0.2 | 1205 4 109 3.5 0.2 | 2 85 0 0.1 -0.02 0.00 |
| Mixed Dishes—Grain-based     | 606 5 105 7.8 5.4 0.4 | 606 7 95 6.6 0.3 324 | -10 1.5 -0.5 0.1 |
| Mixed Dishes—Mexican         | 362 6 99 11.0 5.1 0.5 | 362 9 80 8.8 0.4 347 | -19 2.4 -1.0 0.1 |
| Milk                         | 1274 7 96 3.3 3.9 0.2 | 1274 2 117 3.4 0.2 | 1646 21 1.0 1.0 0.1 |
| Savory Snacks                | 1048 8 89 4.8 4.6 0.2 | 1048 8 89 4.8 0.2 | 232 0 0.04 -0.01 0.00 |
| Mixed Dishes—Sandwiches      | 436 9 79 7.0 4.1 0.3 | 436 11 74 6.6 0.3 | 170 -5 0.8 -0.3 0.04 |
| Poultry                      | 711 10 77 5.5 4.0 0.3 | 711 10 77 5.5 0.3 | 124 0 0.03 0.00 0.00 |
| Other Desserts               | 620 11 65 7.2 3.4 0.4 | 620 15 56 6.6 0.2 | 478 -10 1.0 -0.5 0.1 |
| Ready-to-Eat Cereals         | 861 12 61 3.7 3.1 0.2 | 861 12 61 3.7 0.2 | 24 0 0.03 0.00 0.00 |
| Quick Breads/Bread Products  | 475 13 59 4.0 3.0 0.2 | 475 14 57 3.9 0.2 | 445 -3 0.2 -0.1 0.01 |
| Candy                        | 764 14 58 7.4 3.0 0.4 | 764 13 57 7.3 0.4 | 306 -1 0.2 -0.1 0.01 |
| Flavored Milk                | 555 15 55 5.0 2.8 0.3 | 555 16 55 5.0 0.3 | 0 0 0.00 0.00 0.00 |
| Fruits                       | 1153 16 54 2.4 2.8 0.1 | 1153 17 54 2.4 0.1 | 6 0 0.01 0.00 0.00 |
| White Potatoes               | 610 17 46 3.3 2.3 0.2 | 610 18 44 3.2 0.2 | 105 -1 0.3 -0.1 0.02 |
| Mixed Dishes—M/F/P           | 281 18 44 7.4 2.3 0.4 | 281 19 43 7.2 0.4 | 123 -1 0.4 -0.1 0.02 |
| 100% Juice                   | 759 19 41 3.2 2.1 0.2 | 759 20 41 3.2 0.2 | 0 0 0.00 0.00 0.00 |
| Cured Meats/Poultry          | 687 20 38 2.7 1.9 0.1 | 687 21 38 2.7 0.1 | 0 0 0.00 0.00 0.00 |
| Cheese                       | 723 21 38 3.0 1.9 0.2 | 1643 5 106 4.4 0.2 | 1349 69 4.8 3.5 0.2 |
| Plant-Based Protein Foods    | 475 22 35 3.8 1.8 0.2 | 475 22 35 3.8 0.2 | 1 0 0.00 0.00 0.00 |
| Meats                        | 388 23 31 3.3 1.6 0.2 | 388 23 31 3.3 0.2 | 5 0 0.01 0.00 0.00 |
| Fats and Oils                | 740 24 29 2.2 1.5 0.1 | 740 24 29 2.1 0.1 | 62 0 0.03 0.00 0.00 |
| Cooked Grains                | 302 25 27 3.1 1.4 0.2 | 302 25 27 3.1 0.2 | 1 0 0.1 0.00 0.00 |
| Crackers                     | 325 26 25 2.5 1.3 0.1 | 325 26 25 2.5 0.1 | 96 0 0.1 -0.01 0.00 |
| Eggs                         | 324 27 23 2.2 1.2 0.1 | 324 28 21 2.0 0.1 | 217 -2 0.4 -0.1 0.02 |
| Sugars                       | 609 28 21 1.8 1.1 0.1 | 609 27 21 1.8 0.1 | 42 0 0.05 -0.01 0.00 |
| Mixed Dishes—Soups           | 253 29 20 2.3 1.0 0.1 | 253 29 19 2.1 0.1 | 6 -1 0.5 -0.03 0.02 |
Table 1. Cont.

| WWEIA Food Group Specific Food Group Intake | Adjusted Intake | Delta Intake |
|--------------------------------------------|-----------------|--------------|
| **Sub Group Description**                  | Cons Rank Mean SE | Cons Rank Mean SE | Cons Rank Mean SE |
| Sweetened Beverages                        | 1404 1 162 6.0 7.9 0.3 3 | 1404 1 160 5.9 0.3 40 | −1 0.4 −0.1 0.02 |
| Sweet Bakery Products                      | 833 2 139 10.2 6.8 0.5 7 | 833 2 137 10.1 0.5 344 | −1 0.2 −0.1 0.01 |
| Mixed Dishes—Pizza                         | 486 3 135 14.2 6.6 0.7 7 | 486 6 103 10.8 0.5 486 | −33 3.6 −1.6 0.2 |
| Breads, Rolls, Tortillas                   | 1119 4 118 5.2 5.7 0.2 9 | 1119 3 118 5.2 0.2 85 | 0 0.1 −0.02 0.0 |
| Mixed Dishes—Grain-based                   | 464 5 105 8.0 5.1 0.4 1 | 464 7 96 7.6 0.4 244 | −10 1.3 −0.5 0.1 |
| Mixed Dishes—Mexican                       | 329 6 103 11.3 5.0 0.6 2 | 329 10 84 9.0 0.4 313 | −19 2.6 −0.9 0.1 |
| Milk                                       | 973 7 96 4.8 4.7 0.2 1 | 1779 4 117 4.7 0.2 1453 | 21.5 1.1 1.0 0.1 |
| Savory Snacks                              | 942 8 93 6.1 4.5 0.3 1 | 942 9 92 6.1 0.3 233 | 0.1 −0.02 0.0 |
| Mixed Dishes—Sandwiches                    | 374 9 91 8.6 4.4 0.4 1 | 374 11 83 7.6 0.4 174 | −8 1.4 −0.4 0.1 |
| Poultry                                    | 652 10 87 8.1 4.2 0.4 1 | 652 9 87 8.1 0.4 130 | 0.0 −0.02 −0.01 0.0 |
| White Potatoes                             | 580 11 63 4.3 3.1 0.2 1 | 580 12 60 4.0 0.2 121 | −4 0.7 −0.2 0.03 |
| Ready-to-Eat Cereals                       | 582 12 57 4.0 2.8 0.2 1 | 582 13 57 4.0 0.2 18 | 0.0 0.01 0.0 |
| Meats                                      | 424 13 54 4.6 2.6 0.2 1 | 424 14 54 4.6 0.2 14 | 0.0 0.01 0.0 |
| Mixed Dishes—M/P/F                          | 288 14 49 4.9 2.4 0.2 1 | 288 15 46 4.8 0.2 100 | −2 0.6 −0.1 0.03 |
| Other Desserts                             | 377 15 48 5.8 2.3 0.3 1 | 377 22 39 4.0 0.2 339 | −9 2.1 −0.5 0.1 |
| Quick Breads/Bread Products                | 297 16 44 4.1 2.1 0.2 1 | 297 17 42 4.0 0.2 282 | −2 0.2 −0.1 0.01 |
| Candy                                      | 600 17 43 5.0 2.1 0.2 1 | 600 18 42 4.9 0.2 273 | −1 0.2 −0.1 0.01 |
| Cheese                                     | 687 18 42 3.1 2.1 0.2 1 | 687 19 37 4.1 0.2 1276| 74 4.9 3.6 0.2 |
| Fruits                                     | 834 19 42 3.1 2.1 0.2 1 | 834 16 39 3.1 0.2 3 | 0.0 0.01 0.0 |
| Cured Meats/Poultry                        | 585 20 42 4.1 2.0 0.2 1 | 585 19 41 4.1 0.2 2 | 0.0 0.02 −0.01 0.01 |
| Mixed Dishes—Asian                         | 174 21 41 8.4 2.0 0.4 1 | 174 20 41 8.4 0.4 11 | 0.0 0.0 0.0 |
| Plant-Based Protein Foods                  | 344 22 41 6.1 2.0 0.3 1 | 344 21 41 6.1 0.3 1 | 0.0 0.0 0.0 |
| Fats and Oils                              | 700 23 38 3.6 1.9 0.2 1 | 700 23 38 3.5 0.2 86 | 0.0 0.04 −0.01 0.0 |
| 100% Juice                                 | 487 24 36 4.4 1.8 0.2 1 | 487 24 36 4.4 0.2 0 | 0.0 0.0 |
| Coffee and Tea                             | 505 25 36 5.8 1.8 0.3 1 | 505 25 34 5.9 0.3 60 | −3 0.4 −0.1 0.02 |
| Cooked Grains                              | 325 26 31 3.0 1.5 0.2 1 | 325 26 31 3.0 0.2 2 | 0.0 0.0 |
| Eggs                                       | 333 27 28 2.3 1.3 0.1 1 | 333 28 25 2.1 0.2 211 | −2 0.3 −0.1 0.01 |
| Flavored Milk                              | 225 28 25 3.0 1.2 0.1 1 | 225 27 25 3.0 0.1 0 | 0.0 0.0 |
| Crackers                                   | 229 29 25 3.7 1.2 0.2 1 | 229 29 25 4.0 0.2 69 | 0.0 0.1 −0.01 0.0 |
| Mixed Dishes—Soups                         | 237 30 21 2.0 1.0 0.1 1 | 237 31 21 1.9 0.1 10 | −1 0.2 −0.03 0.01 |
| Sugars                                     | 446 31 21 3.3 1.0 0.2 1 | 446 30 21 3.3 0.2 16 | 0.0 0.01 0.0 |

1 To a 1% contribution of daily intake of energy; 2 Nutrients from milk, cheese, and yogurt for non-dairy foods are added to the nutrients in the milk, cheese, and yogurt food categories, respectively. For non-dairy foods the nutrients displayed are only for the milk, cheese, and yogurt in the non-dairy food. Abbreviations: Cons = consumers, M/P/F = meat/poultry/fish; SE = standard error; Pct = percent contribution to energy intake or specific nutrient intake, as appropriate.
Table 2. Food/food group sources of mean dietary fiber (g) intake among US children aged 2–18 years (N = 5876): National Health and Nutrition Examination Survey 2011–2014.

| Sub Group Description                        | Cons | Rank | Mean SE | Pct SE | Cons | Rank | Mean SE | Pct SE | Delta Intake |
|----------------------------------------------|------|------|---------|--------|------|------|---------|--------|-------------|
| Fruit                                        | 945  | 1    | 2.0     | 0.1    | 17.2 | 0.4  | 945     | 1      | 2.0         |
| Breads, Rolls, Tortillas                     | 818  | 2    | 1.2     | 0.7    | 10.0 | 0.7  | 818     | 2      | 1.2         |
| Vegetables, excluding Potatoes               | 695  | 3    | 0.9     | 0.5    | 7.4  | 0.5  | 695     | 3      | 0.9         |
| Ready-to-Eat Cereals                         | 560  | 4    | 0.9     | 0.5    | 7.3  | 0.5  | 560     | 4      | 0.9         |
| Ready-to-Eat Cereals—Grain based             | 466  | 5    | 0.8     | 0.7    | 7.0  | 0.7  | 466     | 5      | 0.8         |
| Vegetables, excluding Potatoes               | 346  | 6    | 0.6     | 0.5    | 5.2  | 0.5  | 346     | 6      | 0.6         |
| Savory Snacks                                | 688  | 7    | 0.6     | 0.4    | 4.9  | 0.4  | 688     | 7      | 0.6         |
| Plant-Based Protein Foods                    | 723  | 8    | 0.5     | 0.2    | 4.4  | 0.2  | 723     | 8      | 0.5         |
| Mixed Dishes—Mexican                         | 201  | 9    | 0.4     | 0.5    | 4.0  | 0.5  | 201     | 9      | 0.4         |
| Mixed Dishes—Pizza                           | 247  | 10   | 0.5     | 0.4    | 3.9  | 0.4  | 247     | 10     | 0.5         |
| White Potatoes                               | 401  | 11   | 0.5     | 0.4    | 3.8  | 0.4  | 401     | 11     | 0.5         |
| 100% Juice                                   | 755  | 12   | 0.3     | 0.6    | 2.6  | 0.6  | 755     | 12     | 0.3         |
| Quick Breads and Bread Products              | 293  | 13   | 0.3     | 0.6    | 2.5  | 0.6  | 293     | 13     | 0.3         |
| Mixed Dishes—Sandwiches                      | 253  | 14   | 0.3     | 0.4    | 2.2  | 0.4  | 253     | 14     | 0.3         |
| Mixed Dishes—M/P/F                           | 526  | 15   | 0.2     | 0.5    | 1.9  | 0.5  | 526     | 15     | 0.2         |
| Mixed Dishes—Soups                           | 125  | 16   | 0.2     | 0.3    | 1.5  | 0.3  | 125     | 16     | 0.2         |
| Mixed Dishes—M/P/F                           | 208  | 17   | 0.2     | 0.3    | 1.5  | 0.3  | 208     | 17     | 0.2         |
| Mixed Dishes—M/P/F                           | 227  | 18   | 0.2     | 0.3    | 1.5  | 0.3  | 227     | 18     | 0.2         |
| Mixed Dishes—M/P/F                           | 189  | 19   | 0.2     | 0.3    | 1.5  | 0.3  | 189     | 19     | 0.2         |
| Mixed Dishes—M/P/F                           | 299  | 20   | 0.2     | 0.3    | 1.5  | 0.3  | 299     | 20     | 0.2         |
| Snack/Meal Bars                              | 81   | 21   | 0.2     | 0.3    | 1.5  | 0.3  | 81      | 21     | 0.2         |
| Sub Group Description | Cons | Rank | Mean | SE  | Pct  | SE  | Cons | Rank | Mean | SE  | Pct  | SE  | Cons | Rank | Mean | SE  | Pct  | SE  |
|-----------------------|------|------|------|-----|------|-----|------|------|------|-----|------|-----|------|------|------|-----|------|-----|
| Fruit                 |    1 |  2.7 |  0.0 |  2.7 |   0  |  1.5 |  1.5 |  0.0 |  1.5 |   0  |  1.5 |   0  |  3.2 |  3.2 |  0.0 |  3.2 |   0  |  3.2 |
| Breads, Rolls, Tortillas |    1205 |  1.5 |  0.1 |  2.7 |  0.1 |  1.5 |  1.5 |  0.1 |  1.5 |  0.1 |  1.5 |  0.1 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| Mixed Dishes—Pizza    |     548 |  1.1 |  0.1 |  2.7 |  0.1 |  1.5 |  1.5 |  0.1 |  1.5 |  0.1 |  1.5 |  0.1 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| Mixed Dishes—Mexican  |     362 |  1.0 |  0.1 |  2.7 |  0.1 |  1.5 |  1.5 |  0.1 |  1.5 |  0.1 |  1.5 |  0.1 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| Ready-to-Eat Cereals  |     861 |  1.0 |  0.1 |  2.7 |  0.1 |  1.5 |  1.5 |  0.1 |  1.5 |  0.1 |  1.5 |  0.1 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| Mixed Dishes—Grain based |    606 |  1.0 |  0.1 |  2.7 |  0.1 |  1.5 |  1.5 |  0.1 |  1.5 |  0.1 |  1.5 |  0.1 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| Savory Snacks         |   1048 |  1.0 |  0.1 |  2.7 |  0.1 |  1.5 |  1.5 |  0.1 |  1.5 |  0.1 |  1.5 |  0.1 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| Vegetables, excluding Potatoes | 792 |  0.8 |  0.1 |  2.7 |  0.1 |  1.5 |  1.5 |  0.1 |  1.5 |  0.1 |  1.5 |  0.1 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| Plant-Based Protein Foods |    475 |  0.7 |  0.1 |  2.7 |  0.1 |  1.5 |  1.5 |  0.1 |  1.5 |  0.1 |  1.5 |  0.1 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| Sweet Bakery Products |   1034 |  0.7 |  0.0 |  2.7 |  0.0 |  1.5 |  1.5 |  0.0 |  1.5 |  0.0 |  1.5 |  0.0 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| White Potatoes        |     610 |  1.0 |  0.0 |  2.7 |  0.0 |  1.5 |  1.5 |  0.0 |  1.5 |  0.0 |  1.5 |  0.0 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| Quick Breads and Bread Products | 475 |  0.4 |  0.0 |  2.7 |  0.0 |  1.5 |  1.5 |  0.0 |  1.5 |  0.0 |  1.5 |  0.0 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| Mixed Dishes—Sandwiches |    436 |  0.3 |  0.1 |  2.7 |  0.1 |  1.5 |  1.5 |  0.1 |  1.5 |  0.1 |  1.5 |  0.1 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| Mixed Dishes—M/P/F    |     281 |  0.3 |  0.1 |  2.7 |  0.1 |  1.5 |  1.5 |  0.1 |  1.5 |  0.1 |  1.5 |  0.1 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| Flavored Milk         |     555 |  0.3 |  0.0 |  2.7 |  0.0 |  1.5 |  1.5 |  0.0 |  1.5 |  0.0 |  1.5 |  0.0 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| Poultry               |     711 |  0.2 |  0.0 |  2.7 |  0.0 |  1.5 |  1.5 |  0.0 |  1.5 |  0.0 |  1.5 |  0.0 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| Other Desserts        |     620 |  0.2 |  0.0 |  2.7 |  0.0 |  1.5 |  1.5 |  0.0 |  1.5 |  0.0 |  1.5 |  0.0 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| Snack/Meal Bars       |     124 |  0.2 |  0.0 |  2.7 |  0.0 |  1.5 |  1.5 |  0.0 |  1.5 |  0.0 |  1.5 |  0.0 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| 100% Juice            |     759 |  0.2 |  0.0 |  2.7 |  0.0 |  1.5 |  1.5 |  0.0 |  1.5 |  0.0 |  1.5 |  0.0 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| Mixed Dishes—Soups    |     253 |  0.2 |  0.0 |  2.7 |  0.0 |  1.5 |  1.5 |  0.0 |  1.5 |  0.0 |  1.5 |  0.0 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| Crackers              |     325 |  0.2 |  0.0 |  2.7 |  0.0 |  1.5 |  1.5 |  0.0 |  1.5 |  0.0 |  1.5 |  0.0 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
| Cooked Grains         |     302 |  0.2 |  0.0 |  2.7 |  0.0 |  1.5 |  1.5 |  0.0 |  1.5 |  0.0 |  1.5 |  0.0 |  3.2 |  3.2 |  0.0 |  3.2 |  0.0 |  3.2 |
Table 2. Cont.

Mean Dietary Fiber Intake (g) Children 12–18 Years of Age (*n* = 2172)

| Sub Group Description | Specific Food Group Intake | Adjusted Intake | Delta Intake |
|-----------------------|-----------------------------|-----------------|--------------|
|                       | Cons | Mean | SE | Pct | SE | Cons | Mean | SE | Pct | SE | Cons | Mean | SE | Pct | SE |
| Fruit                 | 834  | 1    | 1.5 | 0.1 | 10.0 | 0.8 | 834  | 1    | 1.5 | 0.1 | 10.0 | 0.8 | 3    | 0.0 | 0.0 | 0.0 |
| Bread, Rolls, Tortillas| 1119 | 2    | 1.5 | 0.1 | 10.0 | 0.6 | 1119 | 2    | 1.5 | 0.1 | 10.0 | 0.6 | 85   | 0.0 | 0.0 | 0.0 |
| Mixed Dishes—Mexican  | 329  | 3    | 1.1 | 0.2 | 7.7  | 1.0 | 329  | 3    | 1.1 | 0.2 | 7.7  | 1.0 | 313  | 0.0 | 0.0 | 0.0 |
| Mixed Dishes—Pizza    | 486  | 4    | 1.1 | 0.1 | 7.4  | 0.8 | 486  | 4    | 1.1 | 0.1 | 7.4  | 0.8 | 486  | 0.0 | 0.0 | 0.0 |
| Mixed Dishes—Grain based| 464  | 5    | 0.9 | 0.1 | 6.4  | 0.4 | 464  | 5    | 0.9 | 0.1 | 6.4  | 0.4 | 244  | 0.0 | 0.0 | 0.0 |
| Vegetables, excluding Potatoes | 803  | 6    | 0.9 | 0.1 | 6.4  | 0.5 | 803  | 6    | 0.9 | 0.1 | 6.4  | 0.5 | 28   | 0.0 | 0.0 | 0.0 |
| Savory Snacks         | 942  | 7    | 0.9 | 0.1 | 6.3  | 0.5 | 942  | 7    | 0.9 | 0.1 | 6.3  | 0.5 | 233  | 0.0 | 0.0 | 0.0 |
| Ready-to-Eat Cereals  | 582  | 8    | 0.9 | 0.1 | 6.2  | 0.6 | 582  | 8    | 0.9 | 0.1 | 6.2  | 0.6 | 18   | 0.0 | 0.0 | 0.0 |
| Plant-Based Protein Foods| 344  | 9    | 0.8 | 0.1 | 5.7  | 0.8 | 344  | 9    | 0.8 | 0.1 | 5.7  | 0.8 | 1    | 0.0 | 0.0 | 0.0 |
| White Potatoes        | 580  | 10   | 0.8 | 0.1 | 5.5  | 0.4 | 580  | 10   | 0.8 | 0.1 | 5.5  | 0.4 | 121  | 0.0 | 0.0 | 0.0 |
| Sweet Bakery Products | 833  | 11   | 0.6 | 0.1 | 4.3  | 0.3 | 833  | 11   | 0.6 | 0.1 | 4.3  | 0.3 | 344  | 0.0 | 0.0 | 0.0 |
| Mixed Dishes—Sandwiches| 374  | 12   | 0.4 | 0.0 | 2.8  | 0.3 | 374  | 12   | 0.4 | 0.0 | 2.8  | 0.3 | 174  | 0.0 | 0.0 | 0.0 |
| Mixed Dishes—M/P/F    | 288  | 13   | 0.3 | 0.0 | 2.2  | 0.2 | 288  | 13   | 0.3 | 0.0 | 2.2  | 0.2 | 100  | 0.0 | 0.0 | 0.0 |
| Condiments and Sauces | 889  | 14   | 0.28| 0.03| 1.87 | 0.20| 889  | 14   | 0.28| 0.03| 1.87 | 0.20| 41   | 0.0 | 0.0 | 0.0 |
| Quick Breads and Bread Products | 297 | 15   | 0.3 | 0.0 | 1.9  | 0.2 | 297  | 15   | 0.3 | 0.0 | 1.9  | 0.2 | 282  | 0.0 | 0.0 | 0.0 |
| Poultry               | 652  | 16   | 0.2 | 0.0 | 1.6  | 0.2 | 652  | 16   | 0.2 | 0.0 | 1.6  | 0.2 | 130  | 0.0 | 0.0 | 0.0 |
| Snack/Meal Bars       | 135  | 17   | 0.2 | 0.0 | 1.6  | 0.3 | 135  | 17   | 0.2 | 0.0 | 1.6  | 0.3 | 47   | 0.0 | 0.0 | 0.0 |
| Mixed Dishes—Soups    | 237  | 18   | 0.2 | 0.0 | 1.5  | 0.2 | 237  | 18   | 0.2 | 0.0 | 1.5  | 0.2 | 10   | 0.0 | 0.0 | 0.0 |
| Cooked Grains         | 325  | 19   | 0.2 | 0.0 | 1.3  | 0.1 | 325  | 19   | 0.2 | 0.0 | 1.3  | 0.1 | 0    | 0.0 | 0.0 | 0.0 |
| 100% Juice            | 487  | 20   | 0.2 | 0.0 | 1.3  | 0.1 | 487  | 20   | 0.2 | 0.0 | 1.3  | 0.1 | 0    | 0.0 | 0.0 | 0.0 |
| Mixed Dishes—Asian    | 174  | 21   | 0.2 | 0.0 | 1.2  | 0.2 | 174  | 21   | 0.2 | 0.0 | 1.2  | 0.2 | 11   | 0.0 | 0.0 | 0.0 |
| Crackers              | 229  | 22   | 0.2 | 0.0 | 1.0  | 0.2 | 229  | 22   | 0.2 | 0.0 | 1.0  | 0.2 | 69   | 0.0 | 0.0 | 0.0 |

1 To a 1% contribution of daily intake of dietary fiber; 2 Nutrients from milk, cheese, and yogurt for non-dairy foods are added to the nutrients in the milk, cheese, and yogurt food categories, respectively. For non-dairy foods the nutrients displayed are only for the milk, cheese, and yogurt in the non-dairy food. Abbreviations: Cons = consumers, M/P/F = meat/poultry/fish; SE = standard error; Pct = percent contribution to energy intake or specific nutrient intake, as appropriate.
3.3. Contribution of Foods to Percent Calcium Intake

Total mean daily calcium intake was 971.5 ± 23.8 mg; 1074.5 ± 19.1 mg; and 1056.9 ± 21.2 for children 2–5, 6–11, and 12–18 years, respectively. Table 3 shows the food sources contributing at least 1% of total calcium intake. There were 20, 19, and 21 food sources that contributed at least 1% of SFG calcium intake of children 2–5, 6–11, and 12–18 years, respectively. Using SFG intake data for children 2–5 years, milk (318 mg; 32.7% of calcium), cheese (99 mg; 10.2%), and flavored milk (74 mg; 7.6%) were ranked as the top food sources of calcium. Using adjusted data, the rank order in children 2–5 years remained the same; however the percentages changed for: milk (352 mg; 36.2%; +34 mg) and cheese (190 mg; 19.5%; +90.6 mg), but not for flavored milk (74 mg; 7.6%; 0.0 mg).

The top three SFG intake sources of calcium for children 6–11 years were milk (238 mg; 22.2%), cheese (107 mg; 10.0%), and pizza (89 mg; 5.7%). Using adjusted data, milk remained the top source of calcium (287; 26.7%; +49.1 mg), with cheese ranked second (282 mg; 26.2%; +174.6 mg); flavored milk ranked third (88 mg; 8.2%; 0.0 mg). Pizza dropped to the 20th source of calcium (10 mg; 0.9%; +175 mg).

Milk (240 mg; 22.7%), cheese (114 mg; 10.8%), and pizza (86 mg; 8.1%) were the SFG intake top food sources of calcium in children 12–18 years. Using adjusted data, cheese was the top ranked food (301 mg; 28.5%; +187 mg), followed by milk (290 mg; 27.4%; +50 mg); pizza, the third rank food in the SFG data, fell to 23rd (7 mg; 0.7%; −79 mg) and bread, rolls, and tortillas was the third most common source of calcium (56 mg; 5.3%; −1 mg).
Table 3. Food/food group sources \(^1\) of mean calcium (mg) intake among US children aged 2–18 years \((N = 5876)\): National Health and Nutrition Examination Survey 2011–2014.

| Sub Group Description            | Specific Food Group Intake | Adjusted Intake \(^2\) | Delta Intake |
|----------------------------------|-----------------------------|-------------------------|--------------|
|                                   | Cons | Rank | Mean | SE | Pct | SE | Cons | Rank | Mean | SE | Pct | SE | Cons | Mean | SE | Pct | SE |
| Milk                             | 1120 | 1    | 317.6| 12.0| 32.7| 0.8| 1415 | 1    | 351.6| 11.8| 36.2| 0.8| 1120 | 34.0| 1.7| 3.5 | 0.2|
| Cheese                           | 542  | 2    | 98.9 | 11.6| 10.2| 1.0| 1047 | 2    | 189.5| 13.2| 19.5| 1.1| 820  | 90.6| 4.5| 9.3 | 0.4|
| Flavored Milk                    | 253  | 3    | 74.0 | 8.9 | 7.6 | 0.9| 253  | 3    | 74.0 | 8.9 | 7.6 | 0.9| 0    | 0.0 | 0.0| 0.0 | 0.0|
| Breads, Rolls, Tortillas         | 818  | 4    | 43.2 | 3.2 | 4.5 | 0.3| 818  | 5    | 42.8 | 3.1 | 4.4 | 0.3| 30   | −0.4| 0.3| −0.0| 0.0|
| Yogurt                           | 231  | 5    | 41.7 | 4.7 | 4.3 | 0.5| 278  | 4    | 43.2 | 4.7 | 4.5 | 0.5| 60   | 1.5 | 0.6| 0.2 | 0.1|
| 100% Juice                       | 755  | 6    | 40.4 | 3.6 | 4.2 | 0.4| 755  | 6    | 40.4 | 3.6 | 4.2 | 0.4| 0    | 0.0 | 0.0| 0.0 | 0.0|
| Mixed Dishes—Mexican             | 201  | 7    | 39.7 | 4.8 | 4.1 | 0.5| 201  | 16   | 9.2  | 1.1 | 0.9 | 0.1| 189  | −30.6| 3.9| −3.1| 0.4|
| Mixed Dishes—Pizza               | 247  | 8    | 35.9 | 4.1 | 3.7 | 0.4| 247  | 33   | 2.3  | 0.4 | 0.2 | 0.0| 247  | −33.6| 4.0| −3.5| 0.4|
| Mixed Dishes—Grain-based         | 466  | 9    | 27.8 | 2.2 | 2.9 | 0.2| 466  | 14   | 10.3 | 3.3 | 1.1 | 0.1| 266  | −17.5| 1.7| −1.8| 0.2|
| Ready-to-Eat Cereals             | 695  | 10   | 25.5 | 1.9 | 2.6 | 0.2| 695  | 7    | 25.4 | 1.9 | 2.6 | 0.2| 12   | −0.0 | 0.0| 0.0 | 0.0|
| Plain Water                      | 1229 | 11   | 20.8 | 1.3 | 2.1 | 0.1| 1229 | 8    | 20.8 | 1.3 | 2.1 | 0.1| 0    | 0.0  | 0.0| 0.0 | 0.0|
| Other Desserts                   | 416  | 12   | 18.1 | 2.3 | 1.9 | 0.2| 416  | 18   | 8.0  | 1.1 | 0.8 | 0.1| 291  | −10.1| 1.3| −1.0| 0.1|
| Quick Breads and Bread Products  | 293  | 13   | 18.0 | 2.4 | 1.9 | 0.3| 293  | 10   | 13.7 | 1.9 | 1.4 | 0.2| 274  | −4.3 | 0.8| −0.4| 0.1|
| Dairy Drinks and Substitutes     | 70   | 14   | 16.5 | 3.4 | 1.7 | 0.4| 70   | 9    | 16.5 | 3.4 | 1.7 | 0.4| 0    | 0.0  | 0.0| 0.0 | 0.0|
| Mixed Dishes—Sandwiches          | 208  | 15   | 15.2 | 1.8 | 1.6 | 0.2| 208  | 12   | 10.5 | 1.3 | 1.2 | 0.1| 67   | −4.7 | 0.9| −0.5| 0.1|
| Eggs                             | 332  | 16   | 13.0 | 1.5 | 1.3 | 0.2| 332  | 20   | 6.3  | 0.6 | 0.7 | 0.1| 234  | −6.7 | 1.2| −0.7| 0.1|
| Sweet Bakery Products            | 723  | 17   | 12.7 | 1.2 | 1.3 | 0.1| 723  | 13   | 10.4 | 0.9 | 1.1 | 0.1| 262  | −2.3 | 0.3| −0.2| 0.0|
| Fruit                            | 945  | 18   | 10.8 | 0.5 | 1.1 | 0.1| 945  | 11   | 10.8 | 0.5 | 1.1 | 0.1| 2   | 0.0  | 0.0| 0.0 | 0.0|
| Vegetables, excluding Potatoes   | 560  | 19   | 10.6 | 1.0 | 1.1 | 0.1| 560  | 15   | 9.8  | 1.1 | 1.0 | 0.1| 22   | −0.8 | 0.5| −0.1| 0.1|
| Cooked Cereals                   | 125  | 20   | 10.4 | 1.5 | 1.1 | 0.2| 125  | 22   | 6.1  | 0.9 | 0.6 | 0.1| 69   | −4.3 | 1.0| −0.4| 0.1|
## Table 3. Cont.

Mean Calcium Intake (mg) of Children 6–11 Years of Age (n = 2193)

| Sub Group Description             | Cons | Rank | Mean  | SE   | Pct  | SE  | Cons | Mean  | SE   | Pct  | SE  | Cons | Mean  | SE   | Pct  | SE  |
|-----------------------------------|------|------|-------|------|------|-----|------|-------|------|------|-----|------|-------|------|------|-----|
| Milk                              | 1274 | 1    | 238.2 | 8.7  | 22.2 | 0.7 | 1987 | 1     | 287.3 | 8.9  | 26.7 | 0.8 | 1646 | 49.1  | 2.2  | 4.6  | 0.2 |
| Cheese                            | 723  | 2    | 107.1 | 9.5  | 10.0 | 0.9 | 1643 | 2     | 281.7 | 12.3 | 26.2 | 0.9 | 1349 | 174.6 | 12.3 | 16.3 | 1.0 |
| Mixed Dishes—Pizza                | 548  | 3    | 88.9  | 9.8  | 8.3  | 0.9 | 548  | 20    | 9.5   | 1.8  | 0.9  | 0.2 | 547  | −79.3 | 9.3  | −7.4 | 0.8 |
| Flavored Milk                     | 555  | 4    | 88.3  | 7.7  | 8.2  | 0.7 | 555  | 3     | 88.3  | 7.7  | 8.2  | 0.7 | 0    | 0     | 0    | 0    | 0   |
| Mixed Dishes—Mexican              | 362  | 5    | 67.9  | 8.1  | 6.3  | 0.8 | 362  | 11    | 16.2  | 2.0  | 1.5  | 0.2 | 347  | −51.7 | 6.5  | −4.8 | 0.6 |
| Breads, Rolls, Tortillas          | 1205 | 6    | 59.6  | 3.0  | 5.6  | 0.3 | 1205 | 4     | 58.6  | 2.9  | 5.5  | 0.3 | 85   | −1.1  | 0.2  | −0.1 | 0.0 |
| Mixed Dishes—Grain-based          | 606  | 7    | 39.0  | 4.5  | 3.6  | 0.4 | 606  | 14    | 13.6  | 1.4  | 1.3  | 0.1 | 324  | −25.4 | 3.7  | −2.4 | 0.3 |
| Other Desserts                    | 620  | 8    | 35.1  | 3.1  | 3.3  | 0.3 | 620  | 13    | 14.7  | 1.3  | 1.4  | 0.1 | 478  | −20.4 | 2.0  | −1.9 | 0.2 |
| 100% Juice                        | 759  | 9    | 34.8  | 5.1  | 3.2  | 0.5 | 759  | 5     | 34.8  | 5.1  | 3.2  | 0.5 | 0    | 0     | 0    | 0    | 0   |
| Mixed Dishes—Sandwiches           | 436  | 10   | 31.2  | 3.6  | 2.9  | 0.3 | 436  | 10    | 19.3  | 2.8  | 1.8  | 0.3 | 170  | −12.2 | 1.7  | −1.1 | 0.2 |
| Quick Breads and Bread Products   | 475  | 11   | 29.6  | 2.7  | 2.8  | 0.3 | 475  | 9     | 23.5  | 2.5  | 2.2  | 0.2 | 445  | −6.1  | 0.5  | −0.6 | 0.0 |
| Ready-to-Eat Cereals              | 861  | 12   | 28.2  | 2.4  | 2.6  | 0.2 | 861  | 6     | 28.1  | 2.4  | 2.6  | 0.2 | 24   | −0.1  | 0.1  | −0.0 | 0.0 |
| Plain Water                       | 1732 | 13   | 27.9  | 1.4  | 2.6  | 0.1 | 1732 | 7     | 27.9  | 1.4  | 2.6  | 0.1 | 0    | 0     | 0    | 0    | 0   |
| Yogurt                            | 206  | 14   | 22.7  | 2.6  | 2.1  | 0.2 | 281  | 8     | 26.9  | 2.8  | 2.5  | 0.3 | 93   | 4.3   | 1.1  | 0.4  | 0.1 |
| Sweet Bakery Products             | 1034 | 15   | 18.9  | 2.0  | 1.8  | 0.2 | 1034 | 12    | 15.3  | 1.5  | 1.4  | 0.2 | 455  | −3.6  | 0.5  | −0.3 | 0.1 |
| Sweetened Beverages               | 1467 | 16   | 15.3  | 2.1  | 1.4  | 0.2 | 1467 | 16    | 12.7  | 1.2  | 1.2  | 0.1 | 45   | −2.6  | 1.2  | −0.2 | 0.1 |
| Dairy Drinks and Substitutes      | 81   | 17   | 13.4  | 2.5  | 1.2  | 0.2 | 81   | 15    | 13.4  | 2.5  | 1.2  | 0.2 | 0    | 0     | 0    | 0    | 0   |
| Fruits                            | 1153 | 18   | 11.5  | 0.6  | 1.1  | 0.1 | 1153 | 17    | 11.5  | 0.5  | 1.1  | 0.1 | 6    | −0    | 0    | 0    | 0   |
| Vegetables, excluding Potatoes    | 792  | 19   | 10.9  | 1.0  | 1.0  | 0.1 | 792  | 18    | 9.9   | 1.0  | 0.9  | 0.1 | 40   | −1.0  | 0.3  | −0.1 | 0.0 |
Table 3. Cont.

Mean Calcium Intake (mg) of Children 12–18 Years of Age (n = 2172)

| Sub Group Description          | Specific Food Group Intake | Adjusted Intake | Delta Intake |
|--------------------------------|----------------------------|-----------------|--------------|
|                                | Cons | Rank | Mean | SE  | Pct | SE  | Cons | Rank | Mean | SE  | Pct | SE  |
| Milk                           | 973  | 1    | 239.8| 12.5| 22.7| 1.0 | 1779 | 2    | 289.9| 12.6| 27.4| 0.9 |
| Cheese                         | 687  | 2    | 113.6| 5.4 | 10.8| 0.6 | 1565 | 1    | 300.7| 12.1| 28.5| 0.9 |
| Mixed Dishes—Pizza             | 486  | 3    | 85.6 | 8.9 | 8.1 | 0.8 | 486  | 23   | 6.9 | 1.0 | 0.7 | 0.1 |
| Mixed Dishes—Mexican           | 329  | 4    | 68.1 | 8.7 | 6.4 | 0.8 | 329  | 10   | 16.9| 2.0 | 1.6 | 0.2 |
| Breads, Rolls, Tortillas       | 1119 | 5    | 57.3 | 3.2 | 5.4 | 0.3 | 1119 | 3    | 56.1 | 3.3 | 5.3 | 0.3 |
| Plain Water                    | 1673 | 6    | 53.1 | 3.1 | 5.0 | 0.3 | 1673 | 4    | 53.1 | 3.1 | 5.0 | 0.3 |
| Flavor Milk                    | 225  | 7    | 40.5 | 5.1 | 3.8 | 0.5 | 225  | 5    | 40.5 | 5.1 | 3.8 | 0.5 |
| Mixed Dishes—Sandwiches        | 374  | 8    | 40.1 | 4.9 | 3.8 | 0.5 | 374  | 8    | 21.5 | 2.4 | 2.0 | 0.2 |
| Mixed Dishes—Grain-based       | 464  | 9    | 37.1 | 3.9 | 3.5 | 0.4 | 464  | 15   | 12.1 | 1.3 | 1.2 | 0.1 |
| Other Desserts                 | 377  | 10   | 30.9 | 4.4 | 2.9 | 0.4 | 377  | 16   | 12.0 | 1.3 | 1.1 | 0.1 |
| 100% Juice                     | 487  | 11   | 28.1 | 4.0 | 2.7 | 0.4 | 487  | 6    | 28.1 | 4.0 | 2.7 | 0.4 |
| Ready-to-Eat Cereals           | 582  | 12   | 27.3 | 4.4 | 2.6 | 0.4 | 582  | 7    | 27.2 | 4.4 | 2.6 | 0.4 |
| Quick Breads and Bread Products| 297  | 13   | 21.3 | 2.6 | 2.0 | 0.2 | 297  | 9    | 17.0 | 2.3 | 1.6 | 0.2 |
| Sweet Bakery Products          | 833  | 14   | 16.6 | 1.4 | 1.6 | 0.1 | 833  | 13   | 13.3 | 1.1 | 1.3 | 0.1 |
| Sweetened Beverages            | 1404 | 15   | 15.3 | 1.4 | 1.5 | 0.1 | 1404 | 14   | 12.9 | 1.1 | 1.2 | 0.1 |
| White Potatoes                 | 580  | 16   | 14.6 | 2.1 | 1.4 | 0.2 | 580  | 28   | 4.9  | 0.4 | 0.5 | 0.0 |
| Dairy Drinks and Substitutes   | 79   | 17   | 14.5 | 1.8 | 1.4 | 0.2 | 79   | 11   | 14.5 | 1.8 | 1.4 | 0.2 |
| Savory Snacks                  | 942  | 18   | 12.5 | 0.9 | 1.2 | 0.1 | 942  | 17   | 11.2 | 0.8 | 1.1 | 0.1 |
| Eggs                           | 333  | 19   | 12.2 | 1.1 | 1.2 | 0.1 | 333  | 24   | 6.6  | 0.5 | 0.6 | 0.1 |
| Vegetables, excluding Potatoes | 803  | 20   | 12.2 | 1.2 | 1.2 | 0.1 | 803  | 18   | 11.2 | 1.2 | 1.1 | 0.1 |
| Mixed Dishes—Meat, Poultry, Fish| 288 | 21   | 12.1 | 1.5 | 1.2 | 0.1 | 288  | 25   | 6.5  | 0.7 | 0.6 | 0.1 |

1 To a 1% contribution of daily intake of calcium; 2 Nutrients from milk, cheese, and yogurt for non-dairy foods are added to the nutrients in the milk, cheese, and yogurt food categories, respectively. For non-dairy foods the nutrients displayed are only for the milk, cheese, and yogurt in the non-dairy food. Abbreviations: Cons = consumers, M/P/F = meat/poultry/fish; SE = standard error; Pct = percent contribution to energy intake or specific nutrient intake, as appropriate.
3.4. Contribution of Foods to Percent Vitamin D Intake

Total mean daily vitamin D intake was $6.2 \pm 0.2$ mcg; $5.7 \pm 0.1$ mcg; and $5.3 \pm 0.2$ mcg, respectively, for children 2–5, 6–11, and 12–18 years. Table 4 shows the food sources contributing at least 1% of vitamin D intake. There were 11, 14, and 14 different SFG sources that contributed at least 1% of the vitamin D intake of children 2–5, 6–11, and 12–18 years, respectively. Using SFG intake data for children 2–5 years, milk (3.3 mcg; 52.6%; 0.2 mcg), flavored milk (0.8 mcg; 12.0%; 0.0 mcg), and (0.5 mcg; 7.5%) were the top food sources of vitamin D. Using adjusted data, the rank order remained the same with milk (3.5 mcg; 55.7%; +0.2 mcg), flavored milk (12 mcg; 12%), and RTEC (7.5 mcg; 7.5%; 0.0 mcg). Eggs were the highest-ranking (fourth) non-fortified SFG food group consumed by this age group (0.3 mcg; 4.4%); however, after adjustment, eggs fell to fifth with a mean of 0.2 mcg; 3.8%.

For children 6–11 years, milk (2.7 mcg; 46.7%), flavored milk (0.9 mcg; 15.2%), and RTEC (0.6 mcg; 9.9%) were the top SFG sources of vitamin D, respectively. Using adjusted data, the rank order remained (2.7 mcg; 46.7%; +0.3 mcg), flavored milk (0.9 mcg; 15.2%; 0.0 mcg), and RTEC (0.6 mcg; 9.9%; 0.0 mcg). Eggs were the highest-ranking non-fortified SFG and adjusted food source of vitamin D (0.2 mcg; 4.1% and 0.2 mcg; 3.5%), respectively.

For children 12–18 years, milk (2.4 mcg; 45.6%), RTEC (0.5 mcg; 9.2%), and flavored milk (0.4 mcg; 7.6%), were the top three SFG food sources of vitamin D. Using adjusted data, milk (2.7 mcg; 51.3%; +0.3 mcg), cheese (0.5 mcg; 9.6%; +0.2 mcg), and RTEC (0.9 mcg; 9.1%; 0.0 mcg) were the top three food sources of vitamin D.

3.5. Contribution of Foods to Percent Potassium Intake

Total mean daily potassium intake was $1981.8 \pm 39.5$ mg; $2197.9 \pm 27.0$ mg; and $2308.2 \pm 44.9$ mg for children 2–5, 6–11, and 12–18 years, respectively. Table 5 shows the food sources contributing at least 1% of potassium intake. There were 25, 25, and 26 food sources that contributed at least 1% of potassium intake of children 2–5, 6–11, and 12–18 years, respectively. Using SFG intake data for children 2–5 years, milk (375 mg; 18.9%), fruit (190 mg; 9.6%), and 100% fruit juice (169 mg; 8.5%) were the top food sources of potassium. When the data were adjusted, the rank order of the top food sources of potassium remained the same: milk (417 mg; 21.1%; +41.8 mg), fruit (190 mg; 9.6%; delta 0 mg), and 100% fruit juice (169 mg; 8.5%; delta 0 mg).

In children 6–11 years, milk (283 mg; 12.9%), fruit (160 mg; 7.3%), and flavored milk (125 mg; 5.7%) were the three SFG top sources of potassium. Using adjusted data, the rank order remained the same with milk (344 mg; 15.6%; +60 mg), fruit (160 mg; 7.3%; −0.1), and flavored milk (125 mg; 5.7%; 0 g) as the top three sources of potassium intake.

In the oldest group of children, the top SFG food sources of potassium were milk (milk 286 mg; 12.4%), white potatoes (145 mg; 6.3%), and fruit (129 mg; 5.6%). The rank order remained the same for adjusted data, with milk (347 mg; 15%; +61 mg), white potatoes (141 mg; 6.1%; −4 mg), and fruit (129 mg; 5.6%; 0.0 mcg), respectively.
Table 4. Food/food group sources of mean vitamin D intake (mcg) among US children aged 2–18 years (N = 5876): National Health and Nutrition Examination Survey 2011–2014.

### Mean Vitamin D Intake (mcg) of Children 2–5 Years of Age (n = 1511)

| subgroup description | wweia food group | specific food group intake | adjusted intake | delta intake |
|----------------------|-----------------|---------------------------|-----------------|-------------|
|                      | Cons | rank | mean | se | pct | se | cons | rank | mean | se | pct | se | cons | mean | se | pct | se |
| Milk                 | 1120 | 1    | 3.3  | 0.1 | 52.6 | 1.5 | 1415 | 1    | 3.5  | 0.1 | 55.7 | 1.5 | 1120 | 0.2  | 0.0 | 3.0 | 0.2 |
| flavored milk        | 253  | 2    | 0.8  | 0.1 | 12.0 | 1.4 | 253  | 2    | 0.8  | 0.1 | 12.0 | 1.4 | 0    | 0.0  | 0.0 | 0.0 | 0.0 |
| ready-to-eat cereals | 695  | 3    | 0.5  | 0.0 | 7.5  | 0.5 | 695  | 3    | 0.5  | 0.0 | 7.5  | 0.5 | 12   | 0.0  | 0.0 | 0.0 | 0.0 |
| eggs                 | 332  | 4    | 0.3  | 0.0 | 4.4  | 0.5 | 332  | 5    | 0.2  | 0.0 | 3.8  | 0.4 | 234  | 0.0  | 0.0 | −0.7| 0.1 |
| cheese               | 542  | 5    | 0.3  | 0.0 | 4.2  | 0.4 | 1047 | 4    | 0.3  | 0.0 | 5.4  | 0.5 | 820  | 0.1  | 0.0 | 1.2 | 0.1 |
| seafood              | 96   | 6    | 0.2  | 0.1 | 3.2  | 1.3 | 96   | 6    | 0.2  | 0.1 | 3.2  | 1.3 | 26   | 0.0  | 0.0 | 0.0 | 0.0 |
| yogurt               | 231  | 7    | 0.2  | 0.0 | 2.4  | 0.3 | 278  | 7    | 0.2  | 0.0 | 2.4  | 0.3 | 60   | 0.0  | 0.0 | 0.0 | 0.0 |
| 100% Juice           | 755  | 8    | 0.1  | 0.0 | 1.8  | 0.3 | 755  | 8    | 0.1  | 0.0 | 1.8  | 0.3 | 0    | 0.0  | 0.0 | 0.0 | 0.0 |
| cured meats/poultry  | 459  | 9    | 0.1  | 0.0 | 1.7  | 0.2 | 459  | 9    | 0.1  | 0.0 | 1.7  | 0.2 | 2    | 0.0  | 0.0 | 0.0 | 0.0 |
| dairy drinks and substitutes | 70 | 10 | 0.1 | 0.0 | 1.7 | 0.4 | 70 | 10 | 0.1 | 0.0 | 1.7 | 0.4 | 0 | 0.0 | 0.0 | 0.0 | 0.0 |
| mixed dishes—grain-based | 466 | 11 | 0.1 | 0.0 | 1.3 | 0.1 | 466 | 15 | 0.0 | 0.0 | 0.4 | 0.1 | 266 | −0.1 | 0.0 | −1.0 | 0.1 |

### Mean Vitamin D Intake (mcg) of Children 6–11 Years of Age (n = 2193)

| subgroup description | wweia food group | specific food group intake | adjusted intake | delta intake |
|----------------------|-----------------|---------------------------|-----------------|-------------|
|                      | Cons | rank | mean | se | pct | se | cons | rank | mean | se | pct | se | cons | mean | se | pct | se |
| Milk                 | 1274 | 1    | 2.4  | 0.1 | 42.3 | 1.1 | 1987 | 1    | 2.7  | 0.1 | 46.7 | 1.1 | 1646 | 0.3  | 0.0 | 4.5 | 0.4 |
| flavored milk        | 555  | 2    | 0.9  | 0.1 | 15.2 | 1.2 | 555  | 2    | 0.9  | 0.1 | 15.2 | 1.2 | 0    | 0.0  | 0.0 | 0.0 | 0.0 |
| ready-to-eat cereals | 861  | 3    | 0.6  | 0.0 | 9.9  | 0.6 | 861  | 3    | 0.6  | 0.0 | 9.9  | 0.6 | 24   | 0.0  | 0.0 | 0.0 | 0.0 |
| cheese               | 723  | 4    | 0.4  | 0.0 | 6.0  | 0.7 | 1643 | 4    | 0.5  | 0.0 | 8.4  | 0.7 | 1349 | 0.1  | 0.0 | 2.4 | 0.2 |
| eggs                 | 324  | 5    | 0.2  | 0.0 | 4.1  | 0.4 | 324  | 5    | 0.2  | 0.0 | 3.5  | 0.4 | 217  | 0.0  | 0.0 | −0.6| 0.1 |
| seafood              | 151  | 6    | 0.2  | 0.0 | 2.6  | 0.5 | 151  | 6    | 0.2  | 0.0 | 2.6  | 0.5 | 47   | 0.0  | 0.0 | 0.0 | 0.0 |
| 100% Juice           | 759  | 7    | 0.1  | 0.0 | 2.1  | 0.4 | 759  | 7    | 0.1  | 0.0 | 2.1  | 0.4 | 0    | 0.0  | 0.0 | 0.0 | 0.0 |
| cured meats/poultry  | 687  | 8    | 0.1  | 0.0 | 1.9  | 0.2 | 687  | 8    | 0.1  | 0.0 | 1.9  | 0.2 | 1    | 0.0  | 0.0 | 0.0 | 0.0 |
| mixed dishes—sandwiches | 436 | 9    | 0.1  | 0.0 | 1.8  | 0.2 | 436  | 10   | 0.1  | 0.0 | 1.4  | 0.2 | 170  | 0.0  | 0.0 | 0.4 | 0.1 |
| mixed dishes—grain-based | 606 | 10   | 0.1  | 0.0 | 1.7  | 0.2 | 606  | 16   | 0.0  | 0.0 | 0.4  | 0.1 | 324  | −0.1 | 0.0 | 1.3 | 0.2 |
| yogurt               | 206  | 11   | 0.1  | 0.0 | 1.5  | 0.2 | 281  | 9    | 0.1  | 0.0 | 1.6  | 0.2 | 93   | 0.0  | 0.0 | 0.1 | 0.1 |
| dairy drinks and substitutes | 81 | 12 | 0.1 | 0.0 | 1.3  | 0.3 | 81  | 11 | 0.1 | 0.0 | 1.3  | 0.3 | 0    | 0.0  | 0.0 | 0.0 | 0.0 |
| mixed dishes—m/p/f    | 281  | 13   | 0.1  | 0.0 | 1.2  | 0.4 | 281  | 13   | 0.1  | 0.0 | 0.8  | 0.3 | 123  | 0.0  | 0.0 | −0.4| 0.1 |
| quick breads and bread products | 475 | 14 | 0.1 | 0.0 | 1.0  | 0.2 | 475 | 15 | 0.0 | 0.0 | 0.5  | 0.1 | 445  | 0.0  | 0.0 | −0.6| 0.1 |
Table 4. Cont.

Mean Vitamin D Intake (mcg) of Children 12–18 Years of Age (n = 2172)

| WWEIA Food Group          | Actual Intake |                      | Adjusted Intake |                      | Delta Intake |                      |
|---------------------------|---------------|----------------------|----------------|----------------------|--------------|----------------------|
|                           | Cons | Rank | Mean | SE  | Pct | SE  | Cons | Rank | Mean | SE  | Pct | SE  | Cons | Mean | SE  | Pct | SE  |
| Milk                      | 973  | 1    | 2.4  | 0.1 | 45.6| 1.6 | 1779 | 1    | 2.7  | 0.1 | 51.3| 1.5 | 1453 | 0.3  | 0.0 | 5.7 | 0.4 |
| Ready-to-Eat Cereals      | 582  | 2    | 0.5  | 0.0 | 9.2 | 0.7 | 582  | 3    | 0.5  | 0.0 | 9.1 | 0.7 | 18   | 0.0  | 0.0 | 0.0 | 0.0 |
| Flavored Milk             | 225  | 3    | 0.4  | 0.1 | 7.6 | 1.0 | 225  | 4    | 0.4  | 0.1 | 7.6 | 1.0 | 0    | 0.0  | 0.0 | 0.0 | 0.0 |
| Cheese                    | 687  | 4    | 0.3  | 0.0 | 6.4 | 0.4 | 1565 | 2    | 0.5  | 0.0 | 9.6 | 0.5 | 1276 | 0.2  | 0.0 | 3.1 | 0.2 |
| Eggs                      | 333  | 5    | 0.3  | 0.0 | 5.2 | 0.4 | 333  | 5    | 0.2  | 0.0 | 4.6 | 0.3 | 211  | 0.0  | 0.0 | -0.7| 0.2 |
| Seafood                   | 142  | 6    | 0.2  | 0.1 | 3.7 | 1.1 | 142  | 6    | 0.2  | 0.1 | 3.7 | 1.1 | 21   | 0.0  | 0.0 | 0.0 | 0.0 |
| Cured Meats/Poultry       | 585  | 7    | 0.1  | 0.0 | 2.3 | 0.3 | 585  | 7    | 0.1  | 0.0 | 2.3 | 0.3 | 2    | 0.0  | 0.0 | 0.0 | 0.0 |
| Mixed Dishes—Grain-based  | 464  | 8    | 0.1  | 0.0 | 2.0 | 0.3 | 464  | 16   | 0.0  | 0.0 | 0.6 | 0.1 | 244  | -0.1 | 0.0 | -1.5| 0.2 |
| Mixed Dishes—Sandwiches   | 374  | 9    | 0.1  | 0.0 | 2.0 | 0.3 | 374  | 9    | 0.1  | 0.0 | 1.4 | 0.2 | 174  | 0.0  | 0.0 | -0.6| 0.1 |
| 100% Juice                | 487  | 10   | 0.1  | 0.0 | 1.8 | 0.3 | 487  | 8    | 0.1  | 0.0 | 1.8 | 0.3 | 0    | 0.0  | 0.0 | 0.0 | 0.0 |
| Mixed Dishes—M/P/F        | 288  | 11   | 0.1  | 0.0 | 1.7 | 0.4 | 288  | 10   | 0.1  | 0.0 | 1.2 | 0.4 | 100  | 0.0  | 0.0 | -0.5| 0.1 |
| White Potatoes            | 580  | 12   | 0.1  | 0.0 | 1.2 | 0.2 | 580  | 17   | 0.0  | 0.0 | 0.5 | 0.1 | 121  | 0.0  | 0.0 | -0.7| 0.1 |
| Coffee and Tea            | 505  | 13   | 0.1  | 0.0 | 1.1 | 0.2 | 505  | 30   | 0.0  | 0.0 | 0.0 | 0.0 | 60   | -0.1 | 0.0 | -1.0| 0.2 |
| Poultry                   | 652  | 14   | 0.1  | 0.0 | 1.0 | 0.1 | 652  | 11   | 0.1  | 0.0 | 1.0 | 0.1 | 130  | 0.0  | 0.0 | -0.1| 0.0 |

1 To a 1% contribution of daily intake of vitamin D; 2 Nutrients from milk, cheese, and yogurt for non-dairy foods are added to the nutrients in the milk, cheese, and yogurt food categories, respectively. For non-dairy foods the nutrients displayed are only for the milk, cheese, and yogurt in the non-dairy food. Abbreviations: Cons = consumers, M/P/F = meat/poultry/fish; SE = standard error; Pct = percent contribution to energy intake or specific nutrient intake, as appropriate.
Table 5. Food/food group sources of mean potassium (mg) intake among US children aged 2–18 years (N = 5876): National Health and Nutrition Examination Survey 2011–2014.

| Sub Group Description | WWEIA Food Group | Specific Food Group Intake | Adjusted Intake | Delta Intake |
|-----------------------|------------------|----------------------------|-----------------|-------------|
|                       | Cons  Rank Mean SE Pct SE  | Cons  Rank Mean SE Pct SE  | Cons Mean SE Pct SE  |             |
| Milk                  | 1120 1 375.4 14.4 18.9 0.6 1415 1 417.1 13.9 21.1 0.6 | 1120 41.8 2.1 2.1 0.1 |             |
| Fruits                | 945 2 189.7 7.6 9.6 0.4 945 2 189.7 7.6 9.6 0.4 | 2 0.0 0.0 0.0 0.0 |             |
| 100% Juice            | 755 3 169.3 10.0 8.5 0.4 755 3 169.3 10.0 8.5 0.4 | 0 0.0 0.0 0.0 0.0 |             |
| Flavored Milk         | 253 4 100.6 13.1 5.1 0.6 253 4 100.6 13.1 5.1 0.6 | 0 0.0 0.0 0.0 0.0 |             |
| Mixed Dishes—Grain-based | 466 5 80.1 8.0 4.0 0.4 | 466 7 72.9 7.9 3.7 0.4 | 266 72.2 0.8 0.4 0.0 |             |
| Vegetables, excluding Potatoes | 560 6 78.5 7.2 4.0 0.4 | 560 5 78.0 7.3 3.9 0.4 | 22 0.0 0.0 0.0 0.0 |             |
| White Potatoes        | 401 7 78.3 7.6 4.0 0.4 | 401 6 76.7 7.5 3.9 0.4 | 78 1.6 0.5 0.1 0.0 |             |
| Poultry               | 526 8 69.9 6.6 3.5 0.3 | 526 8 69.7 6.6 3.5 0.3 | 71 0.1 0.0 0.0 0.0 |             |
| Savory Snacks         | 688 9 62.5 5.2 3.2 0.3 | 688 9 62.3 5.2 3.1 0.3 | 140 0.2 0.1 0.0 0.0 |             |
| Sweetened Beverages   | 787 10 60.9 5.5 3.1 0.3 | 787 10 59.8 5.4 3.0 0.3 | 23 1.1 0.4 0.1 0.0 |             |
| Cured Meats/Poultry   | 459 11 59.4 5.3 3.0 0.3 | 459 11 59.3 5.3 3.0 0.3 | 2 0.1 0.1 0.0 0.0 |             |
| Yogurt                | 231 12 53.6 6.0 2.7 0.3 | 231 12 55.6 5.9 2.8 0.3 | 60 2.0 0.7 0.1 0.0 |             |
| Breads, Rolls, Tortillas | 818 13 48.9 3.6 2.5 0.2 | 818 13 48.8 3.6 2.5 0.2 | 30 0.1 0.1 0.0 0.0 |             |
| Plant-Based Protein Foods | 346 14 46.8 4.6 2.4 0.2 | 346 14 46.8 4.6 2.4 0.2 | 1 0.0 0.0 0.0 0.0 |             |
| Mixed Dishes—Mexican  | 201 15 40.3 4.6 2.0 0.2 | 201 17 35.4 4.1 1.8 0.2 | 189 4.9 0.6 0.3 0.0 |             |
| Sweet Bakery Products | 723 16 39.6 1.6 0.5 0.3 | 723 15 37.0 1.5 1.9 0.1 | 262 2.6 0.4 0.1 0.0 |             |
| Mixed Dishes—Pizza    | 247 17 38.1 4.3 1.9 0.2 | 247 20 31.8 3.6 1.6 0.2 | 247 6.2 0.8 0.3 0.0 |             |
| Ready-to-Eat Cereals  | 695 18 37.0 2.6 1.9 0.1 | 695 16 36.9 2.6 1.9 0.1 | 12 0.1 0.1 0.0 0.0 |             |
| Mixed Dishes—M/P/F    | 189 19 33.1 5.6 1.7 0.3 | 189 19 32.1 5.5 1.6 0.3 | 69 1.1 0.3 0.1 0.0 |             |
| Other Desserts        | 416 20 31.3 3.8 1.6 0.2 | 416 25 18.9 2.4 1.0 0.1 | 291 12.4 1.6 0.6 0.1 |             |
| Mixed Dishes—Sandwiches | 208 21 29.6 3.4 1.5 0.2 | 208 22 28.6 3.3 1.4 0.2 | 67 1.0 0.2 0.1 0.0 |             |
| Mixed Dishes—Soups    | 227 22 29.4 5.9 1.5 0.3 | 227 21 29.2 5.8 1.5 0.3 | 7 0.2 0.1 0.0 0.0 |             |
| Eggs                  | 332 23 24.3 2.4 1.2 0.1 | 332 24 20.0 2.0 1.0 0.1 | 234 4.2 0.6 0.2 0.0 |             |
| Meats                 | 220 24 23.5 2.7 1.2 0.1 | 220 23 23.5 2.7 1.2 0.1 | 5 0.0 0.0 0.0 0.0 |             |
| Quick Bread and Bread Products | 293 25 20.5 3.2 1.0 0.2 | 293 28 15.4 2.4 0.8 0.1 | 274 5.1 0.9 0.3 0.1 |             |
Table 5. Cont.

Mean Potassium Intake (mg) of Children 6–11 Years of Age (n = 2193)

| Sub Group Description | Cons | Rank | Mean | SE  | Pct  | SE  | Cons | Rank | Mean | SE  | Pct  | SE  | Cons | Mean | SE  | Pct  | SE  |
|-----------------------|------|------|------|-----|------|-----|------|------|------|-----|------|-----|------|------|-----|------|-----|
| Milk                  | 1274 | 1    | 283.4| 10.5| 12.9 | 0.5 | 1987 | 1    | 343.5| 10.9| 15.6 | 0.5 | 1646 | 60.0 | 2.8 | 2.7  | 0.1 |
| Fruits                | 1153 | 2    | 160.3| 7.5 | 7.6  | 0.3 | 1153 | 2    | 160.3| 7.5 | 7.8  | 0.3 | 6    | 0.1  | 0.0 | 0.0  | 0.0 |
| Flavored Milk         | 555  | 3    | 124.9| 11.2| 11.2 | 0.5 | 555  | 3    | 124.9| 11.2| 5.7  | 0.5 | 0    | 0.0  | 0.0 | 0.0  | 0.0 |
| 100% Juice            | 759  | 4    | 107.5| 10.3| 10.4 | 0.4 | 759  | 4    | 117.5| 10.1| 15.6 | 0.4 | 0    | 0.0  | 0.0 | 0.0  | 0.0 |
| White Potatoes        | 610  | 5    | 101.3| 8.0 | 8.0  | 0.4 | 610  | 5    | 98.7 | 7.6 | 4.5  | 0.3 | 105  | 2.6  | 0.7 | 0.1  | 0.0 |
| Mixed Dishes—Pizza    | 548  | 6    | 96.1 | 9.5 | 9.6  | 0.4 | 548  | 6    | 82.1 | 8.1 | 3.7  | 0.4 | 547  | 14.0 | 1.6 | 0.6  | 0.1 |
| Mixed Dishes—Grain-based | 606  | 7    | 90.0 | 6.8 | 6.8  | 0.3 | 606  | 7    | 80.7 | 6.4 | 3.7  | 0.3 | 324  | 9.2  | 1.3 | 0.4  | 0.0 |
| Mixed Dishes—Mexican  | 362  | 8    | 88.0 | 9.9 | 9.9  | 0.4 | 362  | 8    | 79.6 | 9.1 | 3.6  | 0.4 | 347  | 8.4  | 1.0 | 0.4  | 0.0 |
| Savory Snacks         | 1048 | 9    | 88.0 | 5.8 | 5.8  | 0.3 | 1048 | 9    | 87.8 | 5.8 | 4.0  | 0.3 | 232  | 0.2  | 0.0 | 0.0  | 0.0 |
| Poultry               | 711  | 10   | 85.6 | 5.4 | 5.4  | 0.2 | 711  | 10   | 85.4 | 5.4 | 3.9  | 0.2 | 124  | 0.3  | 0.1 | 0.0  | 0.0 |
| Sweetened Beverages   | 1467 | 11   | 77.6 | 4.8 | 4.8  | 0.2 | 1467 | 12   | 74.4 | 4.0 | 3.4  | 0.2 | 45   | 3.2  | 1.5 | 0.2  | 0.1 |
| Vegetables, excluding Potatoes | 792  | 12   | 75.4 | 6.7 | 6.7  | 0.3 | 792  | 11   | 74.8 | 6.6 | 3.4  | 0.3 | 40   | 0.6  | 0.2 | 0.0  | 0.0 |
| Mixed Dishes—M/P/F    | 281  | 13   | 67.1 | 3.5 | 3.5  | 0.1 | 281  | 13   | 64.5 | 13.2| 2.9  | 0.6 | 123  | 2.6  | 0.7 | 0.1  | 0.0 |
| Cured Meats/Poultry   | 687  | 14   | 63.0 | 3.9 | 3.9  | 0.2 | 687  | 14   | 62.9 | 3.9 | 2.9  | 0.2 | 1    | 0.0  | 0.0 | 0.0  | 0.0 |
| Breads, Rolls, Tortillas | 1205 | 15   | 62.6 | 3.5 | 3.5  | 0.2 | 1205 | 15   | 62.0 | 3.4 | 2.8  | 0.2 | 85   | 0.6  | 0.2 | 0.0  | 0.0 |
| Mixed Dishes—Sandwiches | 436  | 16   | 62.3 | 6.9 | 6.9  | 0.3 | 436  | 16   | 59.7 | 6.8 | 2.7  | 0.3 | 170  | 2.6  | 0.4 | 0.1  | 0.0 |
| Other Desserts        | 620  | 17   | 58.5 | 4.9 | 4.9  | 0.2 | 620  | 23   | 35.1 | 3.6 | 1.6  | 0.2 | 478  | 23.4 | 1.7 | 1.1  | 0.1 |
| Sweet Bakery Products | 1034 | 18   | 56.8 | 3.0 | 3.0  | 0.1 | 1034 | 17   | 52.5 | 2.8 | 2.4  | 0.1 | 455  | 4.3  | 0.6 | 0.2  | 0.0 |
| Plant-Based Protein Foods | 475  | 19   | 52.0 | 5.0 | 5.0  | 0.2 | 475  | 18   | 52.0 | 5.0 | 2.4  | 0.2 | 1    | 0.0  | 0.0 | 0.0  | 0.0 |
| Meats                 | 388  | 20   | 47.1 | 4.7 | 4.7  | 0.2 | 388  | 20   | 47.0 | 4.7 | 2.1  | 0.2 | 5    | 0.0  | 0.0 | 0.0  | 0.0 |
| Ready-to-Eat Cereals  | 861  | 21   | 38.3 | 2.3 | 2.3  | 0.1 | 861  | 21   | 38.2 | 2.3 | 1.7  | 0.1 | 24   | 0.2  | 0.1 | 0.0  | 0.0 |
| Mixed Dishes—Soups    | 253  | 22   | 38.0 | 6.3 | 6.3  | 0.3 | 253  | 22   | 36.6 | 5.6 | 1.7  | 0.3 | 6    | 1.4  | 1.4 | 0.1  | 0.1 |
| Condiments and Sauces | 867  | 23   | 31.5 | 3.5 | 3.5  | 0.2 | 867  | 25   | 30.9 | 3.4 | 1.4  | 0.2 | 32   | 0.6  | 0.2 | 0.0  | 0.0 |
| Yogurt                | 206  | 24   | 29.2 | >3.4| >3.4 | 0.2 | 281  | 24   | 34.5 | 3.6 | 1.6  | 0.2 | 93   | 5.3  | 1.4 | 0.2  | 0.1 |
| Quick Breads and Bread Products | 475  | 25   | 27.9 | 1.5 | 1.5  | 0.1 | 475  | 26   | 20.7 | 1.2 | 0.9  | 0.1 | 445  | 7.3  | 0.6 | 0.3  | 0.0 |
| Sub Group Description | WWEIA Food Group | Specific Food Group Intake Adjusted Intake | Delta Intake |
|-----------------------|------------------|------------------------------------------|-------------|
|                       | Cons Rank Mean SE Pct | Cons Rank Mean SE Pct | Cons Mean SE Pct SE |
| Milk                  | 973 1 285.4 15.1 12.4 0.6 1779 1 346.7 15.3 15.0 0.7 1453 61.3 3.2 2.7 0.2 |
| White Potatoes        | 580 2 145.2 11.5 6.3 0.4 580 2 140.9 10.9 6.1 0.4 121 −4.3 0.8 −0.2 0.0 |
| Fruits                | 834 3 128.8 9.7 5.6 0.4 834 3 128.8 9.7 5.6 0.4 3 0.0 0.0 0.0 0.0 |
| 100% Juice            | 487 4 107.1 9.8 4.6 0.4 487 4 107.1 9.8 4.6 0.4 0 0.0 0.0 0.0 0.0 |
| Poultry               | 652 5 103.8 10.1 4.5 0.4 652 5 103.5 10.0 4.5 0.4 130 −0.3 0.1 0.0 0.00 |
| Mixed Dishes—Mexican  | 329 6 97.7 10.9 4.2 0.5 329 8 89.4 10.0 3.9 0.4 313 −8.3 1.1 0.4 0.1 |
| Mixed Dishes—Pizza    | 486 7 96.5 10.0 4.2 0.4 486 11 82.3 8.5 3.6 0.4 486 −14.2 1.5 −0.6 0.1 |
| Mixed Dishes—Grain-based | 464 8 96.1 7.9 4.2 0.3 464 9 86.4 7.5 3.7 0.3 244 −9.7 1. −0.4 0.1 |
| Vegetables, excluding Potatoes | 803 9 95.4 8.6 4.1 0.3 803 6 94.8 8.6 4.1 0.3 28 −0.6 0.23 0.0 0.0 |
| Savory Snacks         | 942 10 92.5 7.1 4.0 0.3 942 7 92.2 7.1 4.0 0.3 233 −0.3 0.1 0.0 0.0 |
| Meats                 | 424 11 85.8 7.7 3.7 0.3 424 10 85.7 7.7 3.7 0.3 14 −0.1 0.0 0.0 0.0 |
| Mixed Dishes—Sandwiches | 374 12 74.6 7.5 3.2 0.3 374 13 70.8 6.9 3.1 0.3 174 −3.9 0.6 −0.2 0.0 |
| Cured Meats/Poultry   | 585 13 72.1 5.7 3.1 0.2 585 12 72.0 5.7 3.1 0.2 2 −0.1 0.1 0.0 0.0 |
| Mixed Dishes—M/P/F    | 288 14 71.2 9.3 3.1 0.4 288 14 67.8 9.3 2.9 0.4 100 −3.4 0.7 −0.2 0.0 |
| Sweetened Beverages   | 1404 15 67.1 5.4 2.9 0.3 1404 15 64.0 4.8 2.8 0.2 40 −3.0 0.8 −0.1 0.0 |
| Breads, Rolls, Tortillas | 1119 16 63.7 3.4 2.8 0.1 1119 16 63.0 3.4 2.7 0.1 85 −0.7 0.1 0.0 0.0 |
| Plant-Based Protein Foods | 344 17 59.5 9.8 2.6 0.4 344 17 59.5 9.8 2.6 0.4 1 0.0 0.0 0.0 0.0 |
| Flavored Milk         | 225 18 58.3 7.1 2.5 0.3 225 18 58.3 7.1 2.5 0.3 0 0.0 0.0 0.0 0.0 |
| Coffee and Tea        | 505 19 52.2 3.4 2.3 0.2 505 23 44.9 3.6 1.9 0.2 60 −7.3 1.2 −0.3 0.1 |
| Sweet Bakery Products | 833 20 50.7 4.4 2.2 0.2 833 20 46.9 4.1 2.0 0.2 344 −3.8 0.5 −0.2 0.0 |
| Other Desserts        | 377 21 48.9 6.1 2.1 0.3 377 26 26.1 2.7 1.1 0.1 339 −22.7 3.8 −1.0 0.2 |
| Condiments and Sauces | 889 22 47.1 4.6 2.0 0.2 889 21 46.1 4.6 2.0 0.2 41 −1.0 0.4 0.0 0.0 |
| Mixed Dishes—Asian    | 174 23 45.0 10.8 2.0 0.5 174 22 45.0 10.8 2.0 0.5 11 0.0 0.0 0.0 0.0 |
| Ready-to-Eat Cereals  | 582 24 39.1 3.7 1.7 0.2 582 24 39.0 3.7 1.7 0.2 18 −0.1 0.04 0.00 0.0 |
| Mixed Dishes—Soups    | 237 25 30.6 4.2 1.3 0.2 237 25 29.7 4.0 1.3 0.2 10 −0.9 0.35 0.0 0.0 |
| Eggs                  | 333 26 24.9 2.0 1.1 0.1 333 27 21.2 1.7 0.9 0.1 211 −3.8 0.38 −0.2 0.0 |

1 To a 1% contribution of daily intake of potassium; 2 Nutrients from milk, cheese, and yogurt for non-dairy foods are added to the nutrients in the milk, cheese, and yogurt food categories, respectively. For non-dairy foods the nutrients displayed are only for the milk, cheese, and yogurt in the non-dairy food. Abbreviations: Cons = consumers, M/P/F = meat/poultry/fish; SE = standard error; Pct = percent contribution to energy intake or specific nutrient intake, as appropriate.
3.6. Contribution of Foods to Percent Added Sugars Intake

Total mean daily added sugars intake was 12.0 ± 0.3 teaspoon equivalents (tsp eq) (15.6% of total energy); 18.2 ± 0.4 tsp eq (18.6% energy); and 20.2 ± 0.5 tsp eq (19.6% energy) for children 2–5, 6–11, and 12–18 years, respectively. Table 6 shows the food sources contributing at least 1% of added sugars intake. For SFG intake, 15, 14, and 11 food groups contributed to at least 1% of added sugars intake for the three age groups, respectively. For the youngest group of children, the top three SFG and adjusted food intakes were sweetened beverages (3 tsp eq; 25.3%; 0.0 tsp eq), sweet bakery products (1.9 tsp eq; 16%; 0.0 tsp eq), and other desserts (0.9 tsp eq; 7.5%; 0.0 tsp eq). For children 6–11 years, the top three SFG and adjusted food intakes were sweetened beverages (5.8 tsp eq; 32.1%; 0.0 tsp eq (delta values)), sweet bakery products (2.8 tsp eq; 15.3%; 0.0 tsp eq), and candy (1.5 tsp eq; 8.2%; 0.0 tsp eq). For children 12–18 years, the top three food groups in the SFG and adjusted intakes were sweetened beverages (8.6 tsp eq; 42.5%; 0.0 tsp eq), sweet bakery products (2.4 tsp eq; 11.8%; 0.0 tsp eq), and coffee and tea (1.7 tsp eq; 1.7%; 0.0 tsp eq).

3.7. Contribution of Foods to Percent Saturated Fatty Acids (SFA) Intake

Total mean daily SFA intake was 20.1 ± 0.6 g (11.8% total energy); 26.0 ± 0.5 g (12% energy); and 26.0 ± 0.5 g (11.4% energy) for 2–5, 6–11, and 12–18 years, respectively. Table 7 shows the food sources contributing at least 1% of SFA intake. There were 23, 21, and 24 food sources that contributed at least 1% of SFA consumed by children 2–5, 6–11, and 12–18 years, respectively. Using SFG data for children 2–5 years, milk (3.4 g; 16.7%), sweet bakery products (1.8 g; 8.8%) and cheese (1.7 g; 8.2%) were the top sources of dietary SFA. Using adjusted data, the top ranked contributors to SFA intake in children 2–5 years were milk (3.7 g; 18.4%; +0.3 g (delta value)), cheese (3.3 g; 16.4%; 0.0 g), and sweet bakery products (1.8 g; 8.7%; +1.6 g).

For children 6–11 years, sweet bakery products (2.6 g; 10%), pizza (2.3 g; 9%), and milk (2.2 g; 8.3%) were the top three sources of SFA. Using adjusted data, cheese was the single highest contributor of SFA to the diet (4.7 g; 8.3%; +3.2 g), followed by milk (2.6 g; 10.1%; +0.5 g), and sweet bakery products (2.6 g; 9.9%; 0.0 g). Using these adjusted data, pizza dropped to 11th (0.8 g; 3.2%).

For children 12–18 years, pizza (2.4 g; 9.1%), sweet bakery products (2.2 g; 8.6%), and milk (2.1 g; 8.1%) were the top food sources contributing to SFA intake. Using adjusted data, cheese ranked first (5.1 g; 19.7%; +3.4 g), followed by milk (2.6 g; 10%; +0.5 g), and sweet bakery products (2.2 g; 8.5%; 0.0 g).
Table 6. Food/food group sources ¹ of mean added sugars (tsp eq) intake among US children aged 2–18 years (N = 5876): National Health and Nutrition Examination Survey 2011–2014.

### Mean Added Sugars Intake (tsp eq) of Children 2–5 Years of Age (n = 1511)

| Sub Group Description       | Cons | Rank | Mean  | SE  | Pct  | SE  | Cons | Rank | Mean  | SE  | Pct  | SE  | Cons | Mean  | SE  |
|-----------------------------|------|------|-------|-----|------|-----|------|------|-------|-----|------|-----|------|-------|-----|
| Sweetened Beverages         | 787  | 1    | 3.0   | 0.2 | 25.3 | 1.4 | 787  | 1    | 3.0   | 0.2 | 25.2 | 1.4 | 23   | 0.0   | 0.0 |
| Sweet Bakery Products       | 723  | 2    | 1.9   | 0.1 | 16.0 | 0.7 | 723  | 2    | 1.9   | 0.1 | 16.0 | 0.7 | 262  | 0.0   | 0.0 |
| Other Desserts              | 416  | 3    | 0.9   | 0.1 | 7.5  | 0.9 | 416  | 3    | 0.9   | 0.1 | 7.4  | 0.9 | 291  | 0.0   | 0.0 |
| Ready-to-Eat Cereals        | 695  | 4    | 0.9   | 0.1 | 7.2  | 0.5 | 695  | 4    | 0.9   | 0.1 | 7.2  | 0.5 | 12   | 0.0   | 0.0 |
| Candy                       | 507  | 5    | 0.8   | 0.1 | 6.9  | 0.4 | 507  | 5    | 0.8   | 0.1 | 6.9  | 0.4 | 181  | 0.0   | 0.0 |
| Flavored Milk               | 253  | 6    | 0.8   | 0.1 | 6.7  | 0.8 | 253  | 6    | 0.8   | 0.1 | 6.7  | 0.8 | 0    | 0.0   | 0.0 |
| Sugars                      | 440  | 7    | 0.7   | 0.1 | 6.2  | 1.0 | 440  | 7    | 0.7   | 0.1 | 6.2  | 1.0 | 21   | 0.0   | 0.0 |
| Yogurt                      | 231  | 8    | 0.6   | 0.1 | 5.1  | 0.7 | 278  | 8    | 0.6   | 0.1 | 5.3  | 0.7 | 60   | 0.0   | 0.0 |
| Quick Breads and Bread Products | 293 | 9 | 0.4 | 0.1 | 3.0 | 0.7 | 293 | 9 | 0.4 | 0.1 | 3.0 | 0.7 | 274 | 0.0 | 0.0 |
| Dairy Drinks and Substitutes| 70   | 11   | 0.2   | 0.0 | 1.5  | 0.3 | 70   | 11   | 0.2   | 0.0 | 1.5  | 0.3 | 0    | 0.0   | 0.0 |
| Coffee and Tea              | 945  | 12   | 0.2   | 0.0 | 1.5  | 0.2 | 945  | 12   | 0.2   | 0.0 | 1.5  | 0.2 | 2    | 0.0   | 0.0 |
| Snack/Meal Bars             | 764  | 14   | 0.2   | 0.0 | 1.5  | 0.2 | 764  | 14   | 0.2   | 0.0 | 1.5  | 0.2 | 6    | 0.0   | 0.0 |
| Condiments and Sauces       | 487  | 15   | 0.2   | 0.0 | 1.3  | 0.1 | 487  | 15   | 0.2   | 0.0 | 1.3  | 0.1 | 18   | 0.0   | 0.0 |

### Mean Added Sugars Intake (tsp eq) of Children 6–11 Years of Age (n = 2193)

| Sub Group Description       | Cons | Rank | Mean  | SE  | Pct  | SE  | Cons | Rank | Mean  | SE  | Pct  | SE  | Cons | Mean  | SE  |
|-----------------------------|------|------|-------|-----|------|-----|------|------|-------|-----|------|-----|------|-------|-----|
| Sweetened Beverages         | 1467 | 1    | 5.8   | 0.2 | 32.1 | 1.06 | 1467 | 1    | 5.8   | 0.2 | 31.7 | 1.1 | 45   | 0.0   | 0.0 |
| Sweet Bakery Products       | 1034 | 2    | 2.8   | 0.2 | 15.3 | 0.8  | 1034 | 2    | 2.8   | 0.2 | 15.3 | 0.8 | 455  | 0.0   | 0.0 |
| Candy                       | 764  | 3    | 1.5   | 0.2 | 8.2  | 0.9  | 764  | 3    | 1.5   | 0.2 | 8.2  | 0.9 | 306  | 0.0   | 0.0 |
| Other Desserts              | 620  | 4    | 1.4   | 0.2 | 7.8  | 0.8  | 620  | 4    | 1.4   | 0.2 | 7.6  | 0.8 | 478  | 0.0   | 0.0 |
| Ready-to-Eat Cereals        | 861  | 5    | 1.1   | 0.1 | 6.2  | 0.5  | 861  | 5    | 1.1   | 0.1 | 6.2  | 0.5 | 24   | 0.0   | 0.0 |
| Sugars                      | 609  | 6    | 0.9   | 0.1 | 5.1  | 0.4  | 609  | 6    | 0.9   | 0.1 | 5.1  | 0.4 | 42   | 0.0   | 0.0 |
| Flavored Milk               | 555  | 7    | 0.9   | 0.1 | 4.9  | 0.4  | 555  | 7    | 0.9   | 0.1 | 4.9  | 0.4 | 0    | 0.0   | 0.0 |
| Coffee and Tea              | 285  | 8    | 0.7   | 0.1 | 3.8  | 0.6  | 285  | 8    | 0.7   | 0.1 | 3.8  | 0.6 | 16   | 0.0   | 0.0 |
| Quick Breads and Bread Products | 475 | 9 | 0.5 | 0.0 | 2.6 | 0.2 | 475 | 9 | 0.5 | 0.0 | 2.6 | 0.2 | 445 | 0.0 | 0.0 |
| Dairy Drinks and Substitutes| 1205 | 10  | 0.4   | 0.0 | 2.0  | 0.1  | 1205 | 11   | 0.4   | 0.0 | 2.0  | 0.1 | 85   | 0.0   | 0.0 |
| Mixed Dishes Sandwiches     | 436  | 14   | 0.2   | 0.0 | 1.2  | 0.1  | 436  | 14   | 0.2   | 0.0 | 1.2  | 0.1 | 170  | 0.0   | 0.0 |

¹ Values are adjusted for age, sex, race/ethnicity, household income, and other factors.
Table 6. Cont.

Mean Added Sugars Intake (tsp eq) of Children 12–18 Years of Age (n = 2172)

| Sub Group Description       | Specific Food Group Intake | Adjusted Intake | Delta Intake |
|-----------------------------|----------------------------|-----------------|--------------|
|                             | Cons | Rank | Mean | SE | Pct | SE | Cons | Rank | Mean | SE | Pct | SE | Cons | Mean | SE | Pct | SE |
| Sweetened Beverages         | 1404 | 1    | 8.6  | 0.3 | 42.5 | 1.3 | 1404 | 1    | 8.6  | 0.3 | 42.4 | 1.3 | 40   | 0.0  | 0.0 | −0.1 | 0.0 |
| Sweet Bakery Products       | 833  | 2    | 2.4  | 0.2 | 11.8 | 0.8 | 833  | 2    | 2.4  | 0.2 | 11.8 | 0.8 | 344  | 0.0  | 0.0 | 0.0  | 0.0 |
| Coffee and Tea              | 505  | 3    | 1.7  | 0.3 | 8.3  | 1.4 | 505  | 3    | 1.7  | 0.3 | 8.3  | 1.4 | 60   | 0.0  | 0.0 | 0.0  | 0.0 |
| Candy                       | 600  | 4    | 1.1  | 0.2 | 5.6  | 0.7 | 600  | 4    | 1.1  | 0.2 | 5.6  | 0.7 | 273  | 0.0  | 0.0 | 0.0  | 0.0 |
| Ready-to-Eat Cereals        | 582  | 5    | 1.0  | 0.1 | 5.0  | 0.4 | 582  | 5    | 1.0  | 0.1 | 5.0  | 0.4 | 18   | 0.0  | 0.0 | 0.0  | 0.0 |
| Sugars                      | 446  | 6    | 1.0  | 0.1 | 5.0  | 0.7 | 446  | 6    | 1.0  | 0.1 | 4.9  | 0.7 | 16   | 0.0  | 0.0 | 0.0  | 0.0 |
| Other Desserts              | 377  | 7    | 1.0  | 0.1 | 4.9  | 0.5 | 377  | 7    | 0.9  | 0.1 | 4.6  | 0.4 | 339  | −0.1 | 0.0 | −0.3 | 0.2 |
| Flavored Milk               | 225  | 8    | 0.5  | 0.1 | 2.2  | 0.3 | 225  | 8    | 0.5  | 0.1 | 2.2  | 0.3 | 0    | 0.0  | 0.0 | 0.0  | 0.0 |
| Breads, Rolls, Tortillas    | 1119 | 9    | 0.4  | 0.0 | 1.8  | 0.1 | 1119 | 9    | 0.4  | 0.0 | 1.8  | 0.1 | 85   | 0.0  | 0.0 | 0.0  | 0.0 |
| Quick Breads and Bread Products | 297  | 10   | 0.4  | 0.1 | 1.7  | 0.2 | 297  | 10   | 0.4  | 0.1 | 1.7  | 0.2 | 282  | 0.0  | 0.0 | 0.0  | 0.0 |
| Dairy Drinks and Substitutes| 79   | 11   | 0.3  | 0.1 | 1.4  | 0.3 | 79   | 11   | 0.3  | 0.1 | 1.4  | 0.3 | 0    | 0.0  | 0.0 | 0.0  | 0.0 |
| Snack/Meal Bars             | 135  | 12   | 0.3  | 0.1 | 1.3  | 0.3 | 135  | 12   | 0.3  | 0.1 | 1.3  | 0.3 | 47   | 0.0  | 0.0 | 0.0  | 0.0 |
| Condiments and Sauces       | 889  | 13   | 0.2  | 0.0 | 1.2  | 0.1 | 889  | 13   | 0.2  | 0.0 | 1.2  | 0.1 | 41   | 0.0  | 0.0 | 0.0  | 0.0 |

1 To a 1% contribution of daily intake of added sugars; 2 Nutrients from milk, cheese, and yogurt for non-dairy foods are added to the nutrients in the milk, cheese, and yogurt food categories, respectively. For non-dairy foods the nutrients displayed are only for the milk, cheese, and yogurt in the non-dairy food. Abbreviations: Cons = consumers, M/P/F = meat/poultry/fish; SE = standard error; Pct = percent contribution to energy intake or specific nutrient intake, as appropriate.
Table 7. Food/food group sources of mean saturated fatty acids (g) intake among US children aged 2–18 years ($N = 5876$): National Health and Nutrition Examination Survey 2011–2014.

| Sub Group Description | WWEIA Food Group | Specific Food Group Intake | Adjusted Intake | Delta Intake |
|-----------------------|------------------|---------------------------|-----------------|-------------|
|                       | Cons | Rank | Mean SE | Pct SE | Cons | Rank | Mean SE | Pct SE | Cons | Mean SE | Pct SE |
| Milk                  | 1120 | 1    | 3.4 0.2 | 16.7 0.6 | 1415 | 1    | 3.7 0.2 | 18.4 0.6 | 1120 | 0.3 0.0 | 1.6 0.1 |
| Sweet Bakery Products | 723  | 2    | 1.8 0.1 | 8.8 0.5 | 723  | 3    | 1.8 0.1 | 8.7 0.5 | 262  | 0.0 0.0 | –0.1 0.0 |
| Cheese                | 542  | 3    | 1.7 0.2 | 8.2 1.0 | 1047 | 2    | 3.3 0.3 | 16.4 1.0 | 820  | 1.6 0.1 | 8.1 0.4 |
| Mixed Dishes—Grain-based | 466 | 4    | 1.2 0.1 | 5.7 0.5 | 466  | 5    | 0.9 0.1 | 4.3 0.4 | 266  | –0.3 0.0 | –1.4 0.1 |
| Mixed Dishes—Mexican  | 201  | 5    | 1.1 0.1 | 5.7 0.6 | 201  | 10   | 0.6 0.1 | 3.1 0.3 | 189  | –0.5 0.1 | –2.6 0.3 |
| Cured Meats/Poultry   | 459  | 6    | 1.0 0.1 | 4.8 0.5 | 459  | 4    | 1.0 0.1 | 4.8 0.5 | 2    | 0.0 0.0 | 0.0 0.0 |
| Mixed Dishes—Pizza    | 247  | 7    | 0.9 0.1 | 4.7 0.6 | 247  | 21   | 0.3 0.0 | 1.4 0.2 | 247  | –0.7 0.1 | –3.3 0.4 |
| Mixed Dishes—Sandwiches | 208 | 10   | 0.7 0.1 | 3.4 0.3 | 208  | 11   | 0.6 0.1 | 3.1 0.3 | 67   | –0.1 0.0 | –0.4 0.1 |
| Eggs                  | 332  | 11   | 0.7 0.1 | 3.3 0.4 | 332  | 12   | 0.6 0.1 | 2.8 0.3 | 234  | –0.1 0.0 | –0.5 0.1 |
| Fats and Oils         | 460  | 12   | 0.7 0.1 | 3.2 0.3 | 460  | 8    | 0.7 0.1 | 3.2 0.3 | 31   | 0.0 0.0 | 0.0 0.0 |
| Poultry               | 526  | 13   | 0.7 0.1 | 3.2 0.3 | 526  | 9    | 0.7 0.1 | 3.2 0.3 | 71   | 0.0 0.0 | 0.0 0.0 |
| Savory Snacks         | 688  | 14   | 0.5 0.0 | 2.6 0.2 | 688  | 13   | 0.5 0.0 | 2.6 0.2 | 140  | 0.0 0.0 | –0.1 0.0 |
| Candy                 | 507  | 15   | 0.5 0.1 | 2.4 0.3 | 507  | 14   | 0.5 0.1 | 2.3 0.3 | 181  | 0.0 0.0 | –0.1 0.0 |
| Crackers              | 353  | 16   | 0.4 0.2 | 1.9 0.2 | 353  | 16   | 0.4 0.2 | 1.8 0.2 | 86   | 0.0 0.0 | –0.1 0.0 |
| Plant-Based Protein Foods | 346 | 17   | 0.4 0.1 | 1.9 0.2 | 346  | 15   | 0.4 0.1 | 1.9 0.2 | 1    | 0.0 0.0 | 0.0 0.0 |
| Quick Breads and Bread Products | 293 | 18   | 0.4 0.1 | 1.8 0.3 | 293  | 18   | 0.3 0.0 | 1.6 0.2 | 274  | 0.0 0.0 | –0.2 0.0 |
| Breads, Rolls, Tortillas | 818 | 19   | 0.4 0.1 | 1.7 0.2 | 818  | 17   | 0.3 0.1 | 1.7 0.2 | 30   | 0.0 0.0 | 0.0 0.0 |
| Meats                 | 220  | 20   | 0.3 0.1 | 1.5 0.3 | 220  | 19   | 0.3 0.1 | 1.5 0.3 | 5    | 0.0 0.0 | 0.0 0.0 |
| White Potatoes        | 401  | 21   | 0.3 0.0 | 1.4 0.2 | 401  | 22   | 0.3 0.0 | 1.3 0.2 | 78   | 0.0 0.0 | –0.1 0.0 |
| Mixed Dishes—M/P/F    | 189  | 22   | 0.3 0.0 | 1.4 0.2 | 189  | 23   | 0.3 0.0 | 1.3 0.1 | 69   | 0.0 0.0 | –0.1 0.0 |
| Yogurt               | 231  | 23   | 0.3 0.0 | 1.3 0.2 | 278  | 20   | 0.3 0.0 | 1.4 0.2 | 60   | 0.0 0.0 | 0.1 0.0 |
Table 7. Cont.

| WWEIA Food Group | Specific Food Group Intake | Adjusted Intake | Delta Intake |
|------------------|---------------------------|----------------|-------------|
|                  | Cons | Rank | Mean | SE  | Pct | SE | Cons | Mean | SE  | Pct | SE  | Cons | Mean | SE  | Pct | SE  |
| Sweet Bakery Products | 1034 | 1    | 2.6  | 0.2 | 10.0 | 0.7 | 1034 | 3    | 2.6 | 0.2 | 9.9 | 0.7 | 455  | 0.0  | 0.0  | −0.1 | 0.0 |
| Mixed Dishes—Pizza   | 548  | 2    | 2.3  | 0.3 | 9.0  | 1.0 | 548  | 11   | 0.8 | 0.1 | 3.2 | 0.4 | 547  | −1.5 | 0.2  | −5.7 | 0.6 |
| Milk               | 1274 | 3    | 2.2  | 0.1 | 8.3  | 0.4 | 1987 | 2    | 2.6 | 0.1 | 10.1 | 0.4 | 1646 | 0.5  | 0.0  | 1.8  | 0.1 |
| Mixed Dishes—Mexican| 362  | 4    | 2.0  | 0.2 | 7.9  | 0.9 | 362  | 6    | 1.2 | 0.1 | 4.5 | 0.5 | 347  | −0.9 | 0.1  | −3.4 | 0.4 |
| Cheese             | 723  | 5    | 1.6  | 0.1 | 6.1  | 0.5 | 1643 | 1    | 4.7 | 0.2 | 18.3 | 0.7 | 1349 | 3.2  | 0.2  | 12.1 | 0.7 |
| Other Desserts     | 620  | 6    | 1.5  | 0.1 | 5.9  | 0.5 | 620  | 4    | 1.4 | 0.1 | 5.2 | 0.5 | 478  | −0.2 | 0.0  | −0.7 | 0.1 |
| Mixed Dishes—Grain-based | 606  | 7    | 1.5  | 0.2 | 5.7  | 0.8 | 606  | 7    | 1.1 | 0.2 | 4.1 | 0.6 | 324  | −0.4 | 0.1  | −1.6 | 0.2 |
| Mixed Dishes—Sandwiches | 436  | 8    | 1.4  | 0.1 | 5.5  | 0.5 | 436  | 5    | 1.2 | 0.1 | 4.6 | 0.4 | 170  | −0.2 | 0.0  | −0.9 | 0.1 |
| Fats and Oils       | 740  | 9    | 1.0  | 0.1 | 4.0  | 0.4 | 740  | 8    | 1.0 | 0.1 | 4.0 | 0.4 | 62   | 0.0  | 0.0  | 0.0  | 0.0 |
| Poultry            | 711  | 10   | 0.9  | 0.1 | 3.4  | 0.3 | 711  | 9    | 0.9 | 0.1 | 3.4 | 0.3 | 124  | 0.0  | 0.0  | 0.0  | 0.0 |
| Cured Meats/Poultry| 687  | 11   | 0.9  | 0.1 | 3.3  | 0.3 | 687  | 10   | 0.9 | 0.1 | 3.3 | 0.3 | 1    | 0.0  | 0.0  | 0.0  | 0.0 |
| Savory Snacks      | 1048 | 12   | 0.8  | 0.1 | 3.3  | 0.2 | 1048 | 12   | 0.8 | 0.1 | 3.2 | 0.2 | 232  | 0.0  | 0.0  | −0.1 | 0.0 |
| Candy              | 764  | 13   | 0.8  | 0.2 | 3.2  | 0.8 | 764  | 13   | 0.8 | 0.2 | 3.1 | 0.8 | 306  | 0.0  | 0.0  | −0.1 | 0.0 |
| Flavored Milk      | 555  | 14   | 0.8  | 0.1 | 2.9  | 0.3 | 555  | 14   | 0.8 | 0.1 | 2.9 | 0.3 | 0    | 0.0  | 0.0  | 0.0  | 0.0 |
| Meats              | 388  | 15   | 0.6  | 0.1 | 2.4  | 0.3 | 388  | 15   | 0.6 | 0.1 | 2.4 | 0.3 | 5    | 0.0  | 0.0  | 0.0  | 0.0 |
| Mixed Dishes—M/P/F | 281  | 16   | 0.6  | 0.1 | 2.3  | 0.4 | 281  | 16   | 0.6 | 0.1 | 2.1 | 0.4 | 123  | −0.1 | 0.0  | −0.2 | 0.1 |
| Eggs               | 324  | 17   | 0.6  | 0.1 | 2.2  | 0.2 | 324  | 17   | 0.5 | 0.1 | 1.9 | 0.2 | 217  | −0.1 | 0.0  | −0.3 | 0.1 |
| Quick Breads and Bread Products | 475  | 18   | 0.5  | 0.1 | 2.0  | 0.2 | 475  | 18   | 0.5 | 0.1 | 1.8 | 0.2 | 445  | −0.1 | 0.0  | −0.2 | 0.0 |
| White Potatoes     | 610  | 19   | 0.4  | 0.1 | 1.6  | 0.1 | 610  | 21   | 0.4 | 0.0 | 1.5 | 0.1 | 105  | 0.0  | 0.0  | −0.1 | 0.0 |
| Plant-Based Protein Foods | 475  | 20   | 0.4  | 0.1 | 1.6  | 0.2 | 475  | 19   | 0.4 | 0.1 | 1.6 | 0.2 | 1    | 0.0  | 0.0  | 0.0  | 0.0 |
| Breads, Rolls, Tortillas | 1205 | 21   | 0.4  | 0.0 | 1.6  | 0.1 | 1205 | 20   | 0.4 | 0.0 | 1.5 | 0.1 | 85   | 0.0  | 0.0  | −0.1 | 0.0 |
Table 7. Cont.

| Sub Group Description | Specific Food Group Intake | Adjusted Intake | Delta Intake |
|-----------------------|---------------------------|-----------------|--------------|
|                       | WWEIA Food Group           | Cons Rank | Mean | SE | Pct | Cons Rank | Mean | SE | Pct | Cons Rank | Mean | SE | Pct | Cons Rank | Mean | SE | Pct | Cons Rank | Mean | SE | Pct |
| **Mixed Dishes—Pizza** |                           | 486 | 1 | 2.4 | 0.2 | 9.1 | 0.9 | 486 | 12 | 0.9 | 0.1 | 3.3 | 0.3 | 486 | −1.5 | 0.2 | −5.8 | 0.6 |
| **Sweet Bakery Products** |                           | 833 | 2 | 2.2 | 0.2 | 8.6 | 0.6 | 833 | 3 | 2.2 | 0.2 | 8.5 | 0.6 | 344 | 0.0 | 0.0 | −0.1 | 0.0 |
| **Milk** |                           | 973 | 3 | 2.1 | 0.1 | 8.1 | 0.5 | 1779 | 2 | 2.6 | 0.1 | 10.0 | 0.4 | 1453 | 0.5 | 0.0 | 1.9 | 0.1 |
| **Mixed Dishes—Mexican** |                           | 329 | 4 | 2.1 | 0.2 | 7.9 | 0.9 | 329 | 5 | 1.2 | 0.1 | 4.5 | 0.5 | 313 | −0.9 | 0.1 | −3.4 | 0.5 |
| **Cheese** |                           | 687 | 5 | 1.7 | 0.1 | 6.7 | 0.4 | 1565 | 1 | 5.1 | 0.2 | 19.7 | 0.7 | 1276 | 3.4 | 0.2 | 13.1 | 0.7 |
| **Mixed Dishes—Sandwiches** |                           | 374 | 6 | 1.6 | 0.2 | 6.1 | 0.7 | 374 | 4 | 1.3 | 0.1 | 4.8 | 0.5 | 174 | −0.3 | 0.1 | −1.3 | 0.2 |
| **Mixed Dishes—Grain-based** |                           | 464 | 7 | 1.4 | 0.1 | 5.5 | 0.5 | 464 | 8 | 1.0 | 0.1 | 3.9 | 0.4 | 244 | −0.4 | 0.1 | −1.6 | 0.2 |
| **Other Desserts** |                           | 377 | 8 | 1.2 | 0.1 | 4.6 | 0.5 | 377 | 7 | 1.0 | 0.1 | 3.9 | 0.4 | 339 | −0.2 | 0.0 | −0.6 | 0.1 |
| **Meats** |                           | 424 | 9 | 1.0 | 0.1 | 4.0 | 0.4 | 424 | 6 | 1.0 | 0.1 | 4.0 | 0.4 | 14 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Poultry** |                           | 652 | 10 | 1.0 | 0.1 | 3.8 | 0.4 | 652 | 9 | 1.0 | 0.1 | 3.8 | 0.4 | 130 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Fats and Oils** |                           | 700 | 11 | 1.0 | 0.1 | 3.8 | 0.4 | 700 | 10 | 1.0 | 0.1 | 3.8 | 0.4 | 86 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Cured Meats/Poultry** |                           | 585 | 12 | 0.9 | 0.1 | 3.6 | 0.4 | 585 | 11 | 0.9 | 0.1 | 3.5 | 0.4 | 2 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Savory Snacks** |                           | 942 | 13 | 0.8 | 0.1 | 3.2 | 0.4 | 942 | 13 | 0.8 | 0.1 | 3.1 | 0.4 | 233 | 0.0 | 0.0 | −0.1 | 0.0 |
| **Candy** |                           | 600 | 14 | 0.7 | 0.1 | 2.6 | 0.3 | 600 | 14 | 0.6 | 0.1 | 2.5 | 0.3 | 273 | 0.0 | 0.0 | −0.1 | 0.0 |
| **Mixed Dishes—M/P/F** |                           | 288 | 15 | 0.7 | 0.1 | 2.6 | 0.3 | 288 | 16 | 0.6 | 0.1 | 2.2 | 0.3 | 100 | −0.1 | 0.0 | −0.4 | 0.1 |
| **Eggs** |                           | 333 | 16 | 0.7 | 0.1 | 2.5 | 0.2 | 333 | 15 | 0.6 | 0.1 | 2.2 | 0.2 | 211 | −0.1 | 0.0 | −0.3 | 0.0 |
| **White Potatoes** |                           | 580 | 17 | 0.6 | 0.1 | 2.2 | 0.2 | 580 | 19 | 0.5 | 0.0 | 1.7 | 0.2 | 121 | −0.1 | 0.0 | −0.5 | 0.1 |
| **Breads, Rolls, Tortillas** |                           | 1119 | 18 | 0.5 | 0.0 | 2.0 | 0.1 | 1119 | 17 | 0.5 | 0.0 | 1.9 | 0.1 | 85 | 0.0 | 0.0 | −0.1 | 0.0 |
| **Plant-Based Protein Foods** |                           | 344 | 19 | 0.5 | 0.1 | 1.8 | 0.3 | 344 | 18 | 0.5 | 0.1 | 1.8 | 0.3 | 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Quick Breads and Bread Products** |                           | 297 | 20 | 0.4 | 0.1 | 1.6 | 0.2 | 297 | 20 | 0.4 | 0.0 | 1.4 | 0.2 | 282 | 0.0 | 0.0 | −0.2 | 0.0 |
| **Dairy Drinks and Substitutes** |                           | 79 | 21 | 0.4 | 0.1 | 1.3 | 0.2 | 79 | 21 | 0.4 | 0.1 | 1.3 | 0.2 | 0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Flavored Milk** |                           | 225 | 22 | 0.3 | 0.1 | 1.3 | 0.2 | 225 | 22 | 0.3 | 0.1 | 1.3 | 0.2 | 0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Mixed Dishes—Asian** |                           | 174 | 23 | 0.3 | 0.1 | 1.2 | 0.3 | 174 | 23 | 0.3 | 0.1 | 1.2 | 0.3 | 11 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Mixed Dishes—Soups** |                           | 237 | 24 | 0.3 | 0.1 | 1.1 | 0.1 | 237 | 24 | 0.3 | 0.0 | 1.0 | 0.1 | 10 | 0.0 | 0.0 | −0.1 | 0.0 |

1 To a 1% contribution of daily intake of SFA; 2 Nutrients from milk, cheese, and yogurt for non-dairy foods are added to the nutrients in the milk, cheese, and yogurt food categories, respectively. For non-dairy foods the nutrients displayed are only for the milk, cheese, and yogurt in the non-dairy food. Abbreviations: Cons = consumers, M/P/F = meat/poultry/fish; SE = standard error; Pct = percent contribution to energy intake or specific nutrient intake, as appropriate.
3.8. Contribution of Foods to Percent Sodium Intake

Total daily mean intake of sodium was 2267.4 ± 37.3 mg; 3036 ± 40.1 mg; and 3394.8 ± 66.6 mg for children 2–5, 6–11, and 12–18 years, respectively. Table 8 shows the food sources contributing at least 1% of sodium intake. There were 28, 28, and 26 food sources that contributed at least 1% of sodium consumed by children 2–5, 6–11, and 12–18 years, respectively. Using SFG data for children 2–5 years, cured meats/poultry (183 mg; 8.1%); grain-based mixed dishes (155 mg; 6.8%); and bread, rolls, and tortillas (144 mg; 6.4%) were the top ranked contributors of sodium to the diet. Using adjusted data, cheese was the top contributor to sodium intake (188 mg; 8.3%; +88 mg); followed by cured meats/poultry (182 mg; 8%; −0.3 mg); and breads, rolls, and tortillas (144 mg; 6.4%; −0.4 mg).

For children 6–11 years, pizza was the top SFG contributor of sodium to the diet (286 mg; 9.4%), followed by Mexican foods (215 mg; 7.1%), and cured meats/poultry (197 mg; 6.5%). Using adjusted data, cheese was the top contributor of sodium to the diet (277 mg; 9.1%; +169 mg), followed by pizza (207 mg; 6.8%; −79 mg), and cured meats/poultry (197 mg; 6.5%).

Using SFG data, pizza was the top contributor of sodium to the diet (297 mg; 8.7%), followed by Mexican foods (224 mg; 6.6%), and cured meats/poultry (223 mg; 6.6%) in children 12–18 years. Using adjusted data, cheese was the top contributor of sodium to the diet (300 mg; 8.8%; +182 mg), followed by cured meats/poultry (221 mg; 6.5%; −0.6 mg), and pizza (216 mg; 6.4%; −80 mg).
Table 8. Food/food group sources \(^1\) of mean sodium (mg) intake among US children aged 2–18 years (\(N = 5876\)): National Health and Nutrition Examination Survey 2011–2014.

| Sub Group Description | WWEIA Food Group | Actual Intake | Adjusted Intake \(^2\) | Delta Intake |
|-----------------------|-----------------|---------------|-------------------------|-------------|
|                       | Cons | Rank | Mean | SE | Pct | SE | Cons | Rank | Mean | SE | Pct | SE | Cons | Mean | SE | Pct | SE | Cons | Mean | SE | Pct | SE |
| Cured Meats/Poultry   | 459  | 1    | 182.7 | 20.3 | 8.1 | 0.8 | 459  | 2    | 182.4 | 20.2 | 8.0 | 0.8 | 2   | −0.3 | 0.3 | 0.0 | 0.0 |
| Mixed Dishes—Grain-based | 466  | 2    | 155.1 | 12.3 | 6.8 | 0.5 | 466  | 4    | 140.3 | 11.8 | 6.2 | 0.5 | 2   | 14.9 | 1.4 | −0.7 | 0.1 |
| Breads, Rolls, Tortillas | 818  | 3    | 144.4 | 10.6 | 6.4 | 0.5 | 818  | 3    | 144.0 | 10.5 | 6.4 | 0.5 | 3   | 0.4 | 0.2 | 0.0 | 0.0 |
| Poultry               | 526  | 4    | 131.3 | 11.4 | 5.8 | 0.5 | 526  | 6    | 131.2 | 11.4 | 5.8 | 0.5 | 7   | 0.0 | 0.0 | 0.0 | 0.0 |
| Milk                  | 1120 | 5    | 120.7 | 4.4  | 5.3 | 0.2 | 1120 | 5    | 133.8 | 4.2  | 5.9 | 0.2 | 1120| 13.2 | 0.7 | 0.6 | 0.0 |
| Mixed Dishes—Pizza    | 247  | 6    | 118.4 | 13.4 | 5.2 | 0.6 | 247  | 11   | 83.1  | 9.4  | 3.7 | 0.4 | 247 | −35.3 | 4.3 | −1.6 | 0.2 |
| Mixed Dishes—Mexican  | 201  | 7    | 116.4 | 13.3 | 5.1 | 0.6 | 201  | 9    | 88.7  | 10.2 | 3.9 | 0.5 | 201 | −27.7 | 3.5 | −1.2 | 0.2 |
| Cheese                | 542  | 8    | 99.5  | 11.6 | 4.4 | 0.5 | 1047 | 1    | 187.5 | 13.1 | 8.3 | 0.5 | 1047| 82.0 | 4.4 | 3.9 | 0.2 |
| Mixed Dishes—Sandwiches | 208  | 9    | 97.2  | 10.1 | 4.3 | 0.4 | 208  | 7    | 92.9  | 9.7  | 4.1 | 0.4 | 208 | −4.9  | 0.9 | −0.2 | 0.0 |
| Quick Breads and Bread Products | 293  | 10   | 90.6  | 3.8  | 4.0 | 0.2 | 723  | 8    | 89.7  | 3.8  | 4.0 | 0.2 | 723 | 262  | 0.9 | 0.0 | 0.0 |
| Mixed Dishes—Soups    | 227  | 11   | 72.9  | 10.9 | 3.2 | 0.5 | 227  | 12   | 72.7  | 10.8 | 3.2 | 0.5 | 7   | −0.2 | 0.1 | 0.0 | 0.0 |
| Ready-to-Eat Cereals  | 695  | 12   | 67.5  | 3.8  | 3.0 | 0.2 | 695  | 14   | 67.7  | 3.7  | 3.0 | 0.2 | 695 | 10  | −14.3 | 0.2 | 0.0 | 0.0 |
| Crackers              | 353  | 13   | 65.3  | 6.2  | 2.9 | 0.3 | 353  | 15   | 64.3  | 6.1  | 2.8 | 0.3 | 353 | 86.0 | 1.0 | 0.2 | 0.0 |
| Mixed Dishes—M/P/F    | 189  | 14   | 63.2  | 10.7 | 2.8 | 0.5 | 189  | 16   | 62.5  | 10.8 | 2.8 | 0.5 | 189 | −0.9 | 0.3 | 0.0 | 0.0 |
| Eggs                  | 332  | 15   | 62.9  | 6.4  | 2.8 | 0.3 | 332  | 18   | 58.5  | 5.8  | 2.6 | 0.3 | 332 | 234  | −4.4 | 0.9 | −0.2 |
| Condiments and Sauces | 487  | 16   | 61.0  | 5.8  | 2.7 | 0.3 | 487  | 17   | 60.7  | 5.7  | 2.7 | 0.3 | 487 | −3.2 | 0.1 | 0.0 | 0.0 |
| Vegetables, excluding Potatoes | 560  | 17   | 55.7  | 4.5  | 2.5 | 0.2 | 560  | 19   | 55.1  | 4.6  | 2.4 | 0.2 | 560 | 22  | −0.6 | 0.4 | 0.0 |
| White Potatoes        | 401  | 18   | 45.7  | 4.1  | 2.0 | 0.2 | 401  | 20   | 44.9  | 4.1  | 2.0 | 0.2 | 401 | 78.0 | 0.8 | 0.2 | 0.0 |
| Cooked Grains         | 299  | 19   | 44.5  | 4.9  | 2.0 | 0.2 | 299  | 21   | 44.5  | 4.9  | 2.0 | 0.2 | 299 | 0.0  | 0.0 | 0.0 | 0.0 |
| Flavored Milk         | 253  | 20   | 38.1  | 4.8  | 1.7 | 0.2 | 253  | 22   | 38.1  | 4.8  | 1.7 | 0.2 | 253 | 0.0  | 0.0 | 0.0 | 0.0 |
| Plant-Based Protein Foods | 346  | 21   | 31.9  | 3.5  | 1.4 | 0.3 | 346  | 23   | 31.9  | 3.5  | 1.4 | 0.3 | 346 | 0.0  | 0.0 | 0.0 | 0.0 |
| Mixed Dishes—Asian    | 89   | 22   | 30.0  | 7.0  | 1.3 | 0.3 | 89   | 24   | 30.0  | 7.0  | 1.3 | 0.3 | 89  | 1.0  | 0.1 | 0.0 | 0.0 |
| Meats                 | 220  | 23   | 29.9  | 3.7  | 1.2 | 0.2 | 220  | 25   | 29.9  | 3.7  | 1.2 | 0.2 | 220 | 0.0  | 0.0 | 0.0 | 0.0 |
| Seafood               | 96   | 24   | 26.7  | 7.3  | 1.2 | 0.3 | 96   | 26   | 26.6  | 7.3  | 1.2 | 0.3 | 96  | −0.1 | 0.0 | 0.0 | 0.0 |
| Fats and Oils         | 460  | 25   | 24.0  | 1.6  | 1.1 | 0.1 | 460  | 27   | 24.0  | 1.6  | 1.1 | 0.1 | 460 | 0.1  | 0.0 | 0.0 | 0.0 |
| Sweetened Beverages   | 787  | 26   | 22.9  | 2.4  | 1.0 | 0.1 | 787  | 28   | 22.6  | 2.3  | 1.0 | 0.1 | 787 | −0.3 | 0.1 | 0.0 | 0.0 |
Table 8. Cont.

| WWEIA Food Group | Actual Intake | Adjusted Intake | Delta Intake |
|------------------|---------------|-----------------|--------------|
|                  | Cons | Rank | Mean | SE  | Pct | SE | Cons | Rank | Mean | SE  | Pct | SE |
| Mixed Dishes—Pizza | 548  | 1  | 286.2 | 29.5 | 9.4 | 1.0 | 548  | 2  | 206.7 | 21.3 | 6.8 | 0.7 |
| Mixed Dishes—Mexican | 362  | 2  | 214.7 | 25.0 | 7.1 | 0.8 | 362  | 7  | 168.1 | 19.9 | 5.5 | 0.6 |
| Cured Meats/Poultry | 687  | 3  | 197.0 | 13.0 | 6.5 | 0.4 | 687  | 3  | 197.0 | 13.0 | 6.5 | 0.4 |
| Mixed Dishes—Sandwiches | 436  | 4  | 193.6 | 17.9 | 6.4 | 0.6 | 436  | 5  | 181.1 | 17.2 | 6.0 | 0.5 |
| Breads, Rolls, Tortillas | 1205 | 5  | 193.5 | 6.7  | 6.4 | 0.3 | 1205 | 4  | 192.74 | 6.6  | 6.4 | 0.3 |
| Mixed Dishes—Grain-based | 606  | 6  | 185.5 | 13.0 | 6.1 | 0.4 | 606  | 8  | 163.0 | 10.6 | 5.4 | 0.3 |
| Poultry | 711  | 7  | 169.0 | 11.5 | 5.6 | 0.4 | 711  | 6  | 168.1 | 11.5 | 5.6 | 0.4 |
| Sweet Bakery Products | 1034 | 8  | 129.8 | 6.8  | 4.3 | 0.2 | 1034 | 9  | 128.5 | 6.7  | 4.2 | 0.2 |
| Mixed Dishes—M/P/F | 281  | 9  | 109.2 | 19.1 | 3.6 | 0.6 | 281  | 11 | 106.9 | 18.8 | 3.5 | 0.6 |
| Cheese | 723  | 10 | 108.3 | 9.7  | 3.6 | 0.3 | 1643 | 1  | 277.2 | 12.2 | 9.1 | 0.4 |
| Quick Breads and Bread Products | 475  | 11 | 105.0 | 7.8  | 3.5 | 0.3 | 475  | 13 | 102.7 | 7.7  | 3.4 | 0.3 |
| Condiments and Sauces | 1048 | 12 | 103.5 | 5.3  | 3.4 | 0.2 | 1048 | 12 | 102.9 | 5.2  | 3.4 | 0.2 |
| Mixed Dishes—Soups | 867  | 13 | 98.4  | 9.9  | 3.2 | 0.3 | 867  | 14 | 97.5  | 9.9  | 3.2 | 0.3 |
| Milk | 253  | 14 | 95.7  | 12.5 | 3.2 | 0.2 | 253  | 15 | 95.2  | 12.3 | 3.1 | 0.4 |
| Ready-to-Eat Cereals | 1274 | 15 | 89.2  | 3.2  | 2.9 | 0.1 | 1987 | 10 | 108.1 | 3.4  | 3.6 | 0.1 |
| White Potatoes | 861  | 16 | 82.6  | 5.2  | 2.7 | 0.2 | 861  | 16 | 82.6  | 5.2  | 2.7 | 0.2 |
| Meats | 610  | 17 | 67.5  | 5.4  | 2.2 | 0.2 | 610  | 17 | 65.7  | 5.2  | 2.2 | 0.2 |
| Eggs | 388  | 18 | 59.2  | 6.3  | 2.0 | 0.2 | 388  | 18 | 59.2  | 6.3  | 2.0 | 0.2 |
| Vegetables, excluding Potatoes | 792  | 19 | 50.4  | 4.9  | 1.7 | 0.2 | 792  | 21 | 49.7  | 4.8  | 1.6 | 0.2 |
| Flavored Milk | 555  | 20 | 50.3  | 4.3  | 1.7 | 0.1 | 555  | 20 | 50.3  | 4.3  | 1.7 | 0.1 |
| Cooked Grains | 302  | 21 | 46.2  | 5.0  | 1.5 | 0.2 | 302  | 22 | 46.1  | 5.0  | 1.5 | 0.2 |
| Crackers | 325  | 22 | 42.2  | 4.0  | 1.4 | 0.1 | 325  | 24 | 41.5  | 4.0  | 1.4 | 0.1 |
| Fats and Oils | 740  | 23 | 42.1  | 3.5  | 1.4 | 0.1 | 740  | 23 | 42.1  | 3.5  | 1.4 | 0.1 |
| Sweetened Beverages | 1467 | 24 | 42.0  | 2.0  | 1.4 | 0.1 | 1467 | 25 | 41.0  | 1.9  | 1.4 | 0.1 |
| Mixed Dishes—Asian | 142  | 25 | 38.4  | 6.6  | 1.3 | 0.2 | 142  | 26 | 38.4  | 6.6  | 1.3 | 0.2 |
| Other Desserts | 620  | 26 | 30.2  | 5.4  | 1.0 | 0.2 | 620  | 29 | 22.0  | 4.4  | 0.7 | 0.2 |
Table 8. Cont.

| WWEIA Food Group | Actual Intake | Adjusted Intake | Delta Intake |
|------------------|---------------|-----------------|--------------|
|                  | Cons | Rank | Mean | SE  | Pct | SE  | Cons | Rank | Mean | SE  | Pct | SE  |
| Mixed Dishes—Pizza | 486 | 1    | 296.5 | 31.1 | 8.7 | 0.9 | 486 | 3    | 216.3 | 22.8 | 6.4 | 0.7 |
| Mixed Dishes—Mexican | 329 | 2    | 224.4 | 26.3 | 6.6 | 0.8 | 329 | 8    | 178.3 | 20.7 | 5.3 | 0.6 |
| Cured Meats/Poultry | 585 | 3    | 227.2 | 19.3 | 6.6 | 0.5 | 585 | 2    | 222.1 | 19.3 | 6.5 | 0.5 |
| Mixed Dishes—Sandwiches | 374 | 4    | 210.6 | 20.2 | 6.2 | 0.6 | 374 | 6    | 191.9 | 18.2 | 5.7 | 0.5 |
| Breads, Rolls, Tortillas | 1119 | 5   | 209.8 | 8.8  | 6.2 | 0.2 | 1119 | 4    | 209.0 | 8.7  | 6.2 | 0.2 |
| Mixed Dishes—Grain-based | 451 | 6    | 200.5 | 14.8 | 5.9 | 0.4 | 464 | 7    | 179.7 | 14.1 | 5.3 | 0.4 |
| Poultry | 652 | 7    | 193.2 | 18.4 | 5.7 | 0.5 | 652 | 5    | 193.2 | 18.4 | 5.7 | 0.5 |
| Condiments and Sauces | 889 | 8    | 146.7 | 13.5 | 4.3 | 0.4 | 889 | 9    | 145.5 | 13.4 | 4.3 | 0.4 |
| Mixed Dishes—M/P/F | 288 | 9    | 133.4 | 19.7 | 3.9 | 0.6 | 288 | 10   | 128.8 | 19.6 | 3.8 | 0.6 |
| Cheese | 699 | 10   | 117.9 | 7.8  | 3.5 | 0.3 | 1565 | 1    | 300.1 | 12.1 | 8.8 | 0.4 |
| Savory Snacks | 942 | 11   | 113.8 | 9.1  | 3.4 | 0.3 | 942 | 11   | 112.7 | 9.0  | 3.3 | 0.3 |
| Mixed Dishes—Soups | 237 | 12   | 111.1 | 11.0 | 3.3 | 0.3 | 237 | 12   | 110.2 | 11.0 | 3.3 | 0.3 |
| Sweet Bakery Products | 833 | 13   | 108.1 | 8.4  | 3.2 | 0.2 | 833 | 15   | 106.7 | 8.3  | 3.14 | 0.2 |
| Meats | 424 | 14   | 107.7 | 9.8  | 3.2 | 0.3 | 424 | 14   | 107.7 | 9.8  | 3.2 | 0.3 |
| White Potatoes | 580 | 15   | 103.1 | 9.9  | 3.0 | 0.3 | 580 | 16   | 95.6  | 9.5  | 2.8 | 0.3 |
| Mixed Dishes—Asian | 174 | 16   | 94.4  | 20.1 | 2.8 | 0.6 | 174 | 17   | 94.4  | 20.1 | 2.8 | 0.6 |
| Milk | 973 | 17   | 90.0  | 4.7  | 2.7 | 0.2 | 1779 | 13   | 109.2 | 4.7  | 3.2 | 0.2 |
| Quick Breads and Bread Products | 297 | 18   | 81.8  | 7.4  | 2.4 | 0.2 | 297 | 18   | 80.2  | 7.3  | 2.4 | 0.2 |
| Ready-to-Eat Cereals | 582 | 19   | 75.2  | 5.2  | 2.2 | 0.2 | 582 | 19   | 75.2  | 5.2  | 2.2 | 0.2 |
| Eggs | 333 | 20   | 66.2  | 5.7  | 2.0 | 0.2 | 333 | 21   | 62.6  | 5.3  | 1.9 | 0.2 |
| Fats and Oils | 700 | 21   | 63.2  | 7.4  | 1.9 | 0.2 | 700 | 20   | 63.0  | 7.4  | 1.9 | 0.2 |
| Sweetened Beverages | 1404 | 22  | 59.4  | 4.7  | 1.8 | 0.1 | 1404 | 22  | 58.5  | 4.8  | 1.7 | 0.1 |
| Vegetables, excluding Potatoes | 803 | 23 | 57.6  | 7.1  | 1.7 | 0.2 | 803 | 23 | 56.9  | 7.1  | 1.7 | 0.2 |
| Cooked Grains | 325 | 24 | 51.8  | 5.2  | 1.5 | 0.2 | 325 | 24 | 51.8  | 5.2  | 1.5 | 0.2 |
| Crackers | 229 | 25 | 43.1  | 6.4  | 1.3 | 0.2 | 229 | 25 | 42.6  | 6.3  | 1.3 | 0.2 |
| Plant-Based Protein Foods | 344 | 26 | 35.7  | 5.0  | 1.1 | 0.1 | 344 | 26 | 35.7  | 5.0  | 1.1 | 0.1 |

1 To a 1% contribution of daily intake of sodium; 2 Nutrients from milk, cheese, and yogurt for non-dairy foods are added to the nutrients in the milk, cheese, and yogurt food categories, respectively. For non-dairy foods the nutrients displayed are only for the milk, cheese, and yogurt in the non-dairy food. Abbreviations: Cons = consumers, M/P/F = meat/poultry/fish; SE = standard error; Pct = percent contribution to energy intake or specific nutrient intake, as appropriate.
4. Discussion

This study showed that top food sources contributing to intake of energy, fiber, calcium, vitamin D, potassium, SFA, added sugars, and sodium varied by age group. In addition, food groups providing some of the major sources of nutrients of public health concern also contributed nutrients to limit in the diet. Mixed dishes, especially pizza and Mexican dishes, contributed to the intake of short fall nutrients in the diets of children.

Nutrients of public health concern [2] have been identified as the shortfall nutrients that pose a substantial risk to the health of our nation. In adults, fiber intake has been associated with a protective effect against gastrointestinal diseases, obesity, CVD, and type 2 diabetes [35]. Fewer studies have been conducted in children; thus, the full impact of dietary fiber intake by children is not clear [36]. Calcium has long been associated with bone and tooth health, but it has also been associated with reduction in the risk of CVD and hypertension; cancers of the colon, rectum, and prostate; kidney stones; and weight management [37]. Potassium is perhaps best recognized for its effect on lowering/controlling blood pressure [38], but other health effects of low potassium intake include a higher risk of stroke [39], insulin resistance, and diabetes [40]. For vitamin D consumption, this study assessed vitamin D3, a prohormone produced in skin through ultraviolet irradiation of 7-dehydrocholesterol, and vitamin D2, found principally in plants [41]. Vitamin D increases intestinal calcium and phosphate absorption, bone calcium mobilization, and the renal reabsorption of calcium, thereby supporting bone mineralization and preventing nutritional rickets in children and osteomalacia in adults [41]. Vitamin D also has other physiologic function, including modulating cell growth, neuromuscular and immune functions, and reducing inflammation [37].

For the nutrients of public health concern [2], dairy products, particularly, milk, provided the top source of calcium, vitamin D, and potassium for all age groups. Although dairy foods provided the top sources of most of these nutrients for most age groups in the SFG data, when the data were adjusted, mixed dishes that included dairy products contributed substantially to intake of these nutrients. This suggested that these foods were no longer important sources of calcium, vitamin D, and potassium. For example, in children 6–11 years, the SFG data showed that mixed dishes—pizza was the 3rd top source of calcium; however, after adjustment, mixed dishes—pizza fell to the 20th source as the nutrients from cheese on pizza were reassigned to the cheese food group. In children 12–18 years, mixed dishes—pizza went from the 3rd top source of calcium to the 23rd top source after adjustment. Thus, it is important to recognize that, food groups that contribute nutrients to limit to the diet can also contribute significantly to the intake of nutrients of public health concern.

Although other foods including most dairy foods provide calcium, milk is well established as the principal source of calcium intake by children [3]. The present study, which used disaggregated data, however, clearly showed that dairy foods in mixed dishes and other dishes contributed many of the nutrients of public health concern found in milk. When examining food sources of nutrients in children these other foods should be considered. Milk and other dairy foods are commonly considered to be an important source of dietary potassium and the recommendation changed to 3 CE/day for most age groups in 2005, in part to increase potassium intake [42].

These data clearly demonstrated the importance of fortification of foods with vitamin D. Using adjusted data, fortified foods contributed 75, 72, and 68% of vitamin D intake by the three age groups; with milk/flavored milk contributing the highest amount of dietary vitamin D. These data contrast sharply with a recent study of children in Ireland [43], where milk/yogurt contributed only 13% of dietary vitamin D since most milk in that country is not fortified [43,44]. Since vitamin D increases calcium absorption, the combination of vitamin D and calcium is especially important for bone health. Fortification of milk has been recently reviewed [45]. The 2015–2020 DGAC [2] reconfirmed that vitamin D is a nutrient of public health concern. Data from WWEIA 2013–2014, showed that the intake of vitamin D by children 2–19 years was only 244 IU [13], which is less than half of the 600 IU dietary reference intake recommendation for this age group [37]. Fortification of foods, especially milk and RTEC, is an important way to increase dietary intake of vitamin D. These foods, as well as other foods
high in vitamin D, including egg yolks and salmon, should be encouraged. The importance of milk and other dairy foods to potassium intake was clear, as it provided the top source of the nutrient in all three age groups. Potassium intake is very low, with average intakes slightly over half the requirements of most children [13,24]. Thus, high potassium foods including milk and other dairy foods should continue to be encouraged, along with other high potassium foods, notably fruit and vegetables.

Despite the contribution of dairy foods to the intake of shortfall nutrients, including in mixed dishes, there is concern that they contribute high amounts of SFA and sodium to the diet. Using adjusted data, for children 2–5 years, milk, flavored milk, and cheese contributed 39% of SFA (yogurt and dairy drinks/substitutes contributed minimally to SFA in the diet); for children 6–11 milk, flavored milk, and cheese contributed 31% of SFA to the diet; and for children 12–18 years 32% of SFA came from these dairy foods. The DGAC [2] recommends that no more than 10% of energy come from SFA. In this study, the amount of energy from SFA consumed by children varied by age; for children 2–5, 6–11, and 12–18 years the percent energy from SFA was 11.8, 12.0, and 11.4, respectively.

The rationale for the current recommendation is that by reducing SFA, low-density lipoprotein cholesterol levels are reduced and, in turn, the risk for CVD is lowered. Cardiovascular disease, which is the principal cause of death in the world, has its roots in childhood [46]. Recently, however, the relationship between SFA and CVD have been questioned [47–50], in part due to the nutrients that would replace SFA in the diet [51] and in part because not all food sources of SFA are associated with an unfavorable risk of CVD [52]. A number of studies, including several meta-analyses have shown that consumption of dairy products is associated with a neutral or inverse risk of CVD [53–55].

One of the easiest ways to reduce the amount of SFA in the diets of children two years and older is to encourage the consumption of low fat milk or flavored milk. When the category description of the milk sub-group was examined, low fat milk contributed only 0.25 g of SFA to the overall intake (data not shown). However, other sources of SFA in the diet also need to be addressed, notably sweet bakery products, such as cookies, brownies, and doughnuts. These foods are also among the principal sources of added sugars to the diet. Reducing the SFA and added sugars content of these foods is more difficult than for milk, since some of the structural integrity and sensory properties of these products are linked to solid fat [56,57]. Thus, consumer education may be the best way to reduce the intake of SFA in the diet.

Cheese was the principal contributor of sodium to the diet in the two older groups of children. Analysis of the contributions of disaggregated food mixtures showed this more clearly than examining the foods “as consumed”. In addition to cheese consumed directly, cheese was an important ingredient in mixed dishes widely consumed by children, including pizza and Mexican dishes. Thus, reducing the sodium in the diet by reducing the amount of cheese consumed may prove difficult. Reformulating cheeses as reduced-sodium products may also be challenging. Not only does salt help prevent microbial growth in cheese [58], low sodium cheeses may not be well received by consumers [59]. A gradual reduction in the amount of salt used in cheese manufacture may help introduce consumers to a lower sodium product [59] or replacement of part of the sodium chloride with potassium chloride [60]. Reduction of cheese in the diet may be an option; however, this would limit the intake of other shortfall nutrients found in cheese.

This study had a number of strengths. The first is was that it used a large, nationally representative sample. The study also demonstrated the differences in food sources of nutrients in three age groups of children. The third is was that disaggregated energy and nutrients from milk, cheese, yogurt, and non-dairy food groups were also considered which gives further insight into the relative contribution of milk, cheese, and yogurt to both nutrients to encourage and to limit. In addition, this approach can help individuals make more informed food choices [61].

The study also had a number of limitations. A limitation is was the use of 24-h dietary recalls to assess intake in NHANES. Participants or proxies relied on memory to self-report dietary intakes; therefore, data were subject to non-sampling errors, including under or over-reporting of energy and foods. The proxies reporting for or assisting children 2–11 years may not know what their children
consumed outside of the home [62], which could also result in reporting errors [63]. Concerns about the validity of self-reported dietary intakes in NHANES has led to an ongoing debate about the validity of these data. Some believe strongly that the data are virtually useless [64–66] given issues with misreporting, whereas others, including the prestigious National Cancer Center, [2,67,68] use the data recognizing any potential limitations and allow conclusions to be drawn accordingly. According to Ahluwalia [68], the Nutrition Monitoring Advisor for the Division of Health and Nutrition Examination Surveys, NCHS, Centers for Disease Control and Prevention, and coworkers “NHANES collects dietary data in the context of its broad, multipurpose goals”. Their recent review discusses further strengths and limitations of these data. Finally, it should be remembered that cross-sectional studies are used to generate hypotheses, not to test them.

The question may arise as to why “added sugars”, as defined by the Dietary Guidelines for Americans [42] were used in this study rather than the “free sugars” designation used by the World Health Organization [69]. These two terms differ significantly since “free sugars” include those sugars naturally occurring in “…fruit juice”. The authors do not believe that 100% fruit juice, which by definition, as no sugar added should not be considered in the category of free sugars. When evidence-based studies were examined, 100% fruit juice has consistently been shown not to contribute to overweight or obesity in children [70–72] or adults [73], instead contributing to nutrient intake and nutrient adequacy, and higher diet quality [71,73–75]. Furthermore, since we worked with an American population, it was felt that using the definitions provided by the nutrition policy statement of the US government was more appropriate.

Due to the technical difficulties involved, dairy was disaggregated from mixed dishes only; further insights might be obtained if it had been possible to disaggregate other food groups. Lastly, for this study, the assumption was made that the milk, cheese, and yogurt components of a mixed food follow the nutrient profiles of milk, NFS; cheese, NFS; and yogurt, NFS, but this approach may not provide the best approximation for some foods. For example, some types of cheese in a mix dishes may deviate from having a nutrient content similar to ‘cheese, NFS’ for one or more nutrients.

5. Conclusions

This study showed that for children in all three age groups studied, mixed dishes containing dairy foods contributed to calcium, vitamin D, and potassium intake—three of the nutrients of public concern. A caveat of dairy food consumption is that full fat dairy can contribute saturated fatty acids to the diet and cheese, a major component of many of the mixed dishes, such as pizza and Mexican foods, contributes not only saturated fatty acids, but sodium to the diet. The study also showed that fortifying foods with vitamin D was important since few foods contain naturally occurring vitamin D. The study also showed that children, especially those 6–11 and 12–18 years consumed a large proportion of total energy from energy-dense low-nutrient food groups, such as sugar sweetened beverages and sweet bakery products. Those foods contributed little to the nutrients of public health concern, but did contribute to the nutrients to limit, notably added saturated fatty acids and added sugars. Awareness of food and beverage sources of nutrients can help health professionals design and promote effective age-appropriate strategies to increase the nutrient density of the diet. In addition, this awareness can help the food industry to design and market foods frequently consumed by children that are acceptable and lower in energy and nutrients to limit.

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**References**

1. United States Department of Agriculture, Agricultural Research Service. USDA Food Composition Databases. Release 28, Revised May 2016. Available online: [https://ndb.nal.usda.gov/ndb](https://ndb.nal.usda.gov/ndb) (accessed on 19 February 2018).

2. Scientific Report of the 2015 Dietary Guidelines Advisory Committee. Available online: [https://health.gov/dietaryguidelines/2015-scientific-report/PDFs/Scientific-Report-of-the-2015-Dietary-Guidelines-Advisory-Committee.pdf](https://health.gov/dietaryguidelines/2015-scientific-report/PDFs/Scientific-Report-of-the-2015-Dietary-Guidelines-Advisory-Committee.pdf) (accessed on 13 March 2018).

3. Keast, D.R.; Fulgoni, V.L., 3rd; Nicklas, T.A.; O’Neil, C.E. Food sources of energy and nutrients among children in the United States: National Health and Nutrition Examination Survey 2003–2006. *Nutrients* 2013, 5, 283–301. [CrossRef] [PubMed]

4. Nicklas, T.A.; O’Neil, C.E.; Fulgoni, V.L., 3rd. The role of dairy in meeting the recommendations for shortfall nutrients in the American diet. *J. Am. Coll. Nutr.* 2009, 28, 73S–81S. [CrossRef] [PubMed]

5. Quann, E.E.; Fulgoni, V.L., 3rd; Auestad, N. Consuming the daily recommended amounts of dairy products would reduce the prevalence of inadequate micronutrient intakes in the United States: Diet modeling study based on NHANES 2007–2010. *Nutr. J.* 2015, 14, 90. [CrossRef] [PubMed]

6. United States Department of Agriculture. Economic Research Service. Dairy Data. Available online: [https://www.ers.usda.gov/data-products/dairy-data.aspx](https://www.ers.usda.gov/data-products/dairy-data.aspx) (accessed on 13 March 2018).

7. Thorning, T.K.; Bertram, H.C.; Bonjour, J.P.; de Groot, L.; Dupont, D.; Feeney, E.; Ipsen, R.; Lecerf, J.M.; Mackie, A.; McKinley, M.C.; et al. Whole dairy matrix or single nutrients in assessment of health effects: Current evidence and knowledge gaps. *Am. J. Clin. Nutr.* 2017, 105, 1033–1045. [CrossRef] [PubMed]

8. Thorning, T.K.; Raben, A.; Tholstrup, T.; Soedamah-Muthu, S.S.; Givens, I.; Astrup, A. Milk and dairy products: Good or bad for human health? An assessment of the totality of scientific evidence. *Food. Nutr. Res.* 2016, 60, 32527. [CrossRef] [PubMed]

9. Cifelli, C.J.; Houchins, J.A.; Demmer, E.; Fulgoni, V.L., III. Increasing Plant Based Foods or Dairy Foods Differentially Affects Nutrient Intakes: Dietary Scenarios Using NHANES 2007–2010. *Nutrients* 2016, 8, 422. [CrossRef] [PubMed]

10. United States Department of Agriculture. Choose MyPlate. Available online: [https://www.choosemyplate.gov](https://www.choosemyplate.gov) (accessed on 19 February 2018).

11. U. S. Department of Agricultural Service. Food Patterns Equivalents Intakes from Food: Mean Amounts Consumed per Individual, by Gender and Age, What We Eat in America, NHANES 2013–2014. Available online: [https://www.ars.usda.gov/ARSUserFiles/80400530/pdf/1314/Table_1_FPED_GEN_1314.pdf](https://www.ars.usda.gov/ARSUserFiles/80400530/pdf/1314/Table_1_FPED_GEN_1314.pdf) (accessed on 19 February 2018).

12. National Institutes of Health, National Heart, Lung, and Blood Institute. Available online: [https://www.nhlbi.nih.gov/health/educational/weCAN/downloads/calreqtips.pdf](https://www.nhlbi.nih.gov/health/educational/weCAN/downloads/calreqtips.pdf) (accessed on 19 February 2018).

13. What We Eat in America. Nutrient Intakes from Food and Beverages. Available online: [https://www.ars.usda.gov/ARSUserFiles/80400530/pdf/1314/Table_1_NIN_GEN_1314.pdf](https://www.ars.usda.gov/ARSUserFiles/80400530/pdf/1314/Table_1_NIN_GEN_1314.pdf) (accessed on 19 February 2018).

14. Savage, J.S.; Fisher, J.O.; Birch, L.L. Parental Influence on Eating Behavior. Conception to Adolescence. *J. Law Med. Ethics* 2007, 35, 22–34. [CrossRef] [PubMed]

15. Kelleher, C.C.; Viljoen, K.; Khalil, H.; Somerville, R.; O’Brien, J.; Shrivastava, A.; Murrin, C. Lifeways Cross-Generation Cohort Study Steering Group. Longitudinal follow-up of the relationship between dietary intake and growth and development in the Lifeways cross-generation cohort study 2001–2013. *Proc. Nutr. Soc.* 2014, 73, 118–131. [CrossRef] [PubMed]

16. Movassagh, E.Z.; Baxter-Jones, A.D.G.; Kontulainen, S.; Whiting, S.J.; Vatanparast, H. Tracking Dietary Patterns over 20 Years from Childhood through Adolescence into Young Adulthood: The Saskatchewan Pediatric Bone Mineral Accrual Study. *Nutrients* 2017, 9, 990. [CrossRef] [PubMed]

17. Moreno, L.A.; Bel-Serrat, S.; Santaliestra-Pasías, A.; Bueno, G. Dairy products, yogurt consumption, and cardiometabolic risk in children and adolescents. *Nutr. Rev.* 2015, 73, 8–14. [CrossRef] [PubMed]
18. Falkner, B. Does potassium deficiency contribute to hypertension in children and adolescents. *Curr. Hypertens. Rep.* **2017**, *19*, 37. [CrossRef] [PubMed]

19. Hirschler, V.; Oestreich, K.; Beccaria, M.; Hidalgo, M.; Maccallini, G. Inverse association between insulin resistance and frequency of milk consumption in low-income Argentinean school children. *J. Pediatr.* **2009**, *154*, 101–105. [CrossRef] [PubMed]

20. Nezami, M.; Segovia-Siapco, G.; Beeson, W.L.; Joan Sabaté, J. Associations between Consumption of Dairy Foods and Anthropometric Indicators of Health in Adolescents. *Nutrients* **2016**, *8*, 427. [CrossRef] [PubMed]

21. Suhett, L.G.; Silveira, B.K.S.; Filgueiras, M.S.; Peluzio, M.D.C.G.; Hermsdorff, H.H.M.; Novaes, J.F. Inverse association of calcium intake with abdominal adiposity and C-reactive protein in Brazilian children. *Public Health Nutr.* **2018**, *1*, 9. [CrossRef] [PubMed]

22. De Assunção Bezerra, M.K.; Freese de Carvalho, E.; Souza Oliveira, J.; Pessoa Cesse, E.Á.; Cabral de Lira, P.L.; Galvão Tenório Cavalcante, J.; Sá Leal, V. Health promotion initiatives at school related to overweight, insulin resistance, hypertension and dyslipidemia in adolescents: A cross-sectional study in Recife, Brazil. *BMC Public Health* **2018**, *18*, 223. [CrossRef] [PubMed]

23. Harrison, S.E.; Greenhouse, D. Dietary and Nutrition Recommendations in Pediatric Primary Care: A Call to Action. *South Med. J.* **2018**, *111*, 12–17. [CrossRef] [PubMed]

24. The National Academies of Sciences, Engineering, and Medicine. Dietary Reference Intakes Tables and Application. Available online: http://www.nationalacademies.org/hmd/Activities/Nutrition/SummaryDRIs/DRI-Tables.aspx (accessed on 13 March 2018).

25. Centers for Disease Control and Prevention, National Center for Health Statistics. About the National Health and Nutrition Examination Survey. Available online: https://www.cdc.gov/nchs/nhanes/about_nhanes.htm (accessed on 13 March 2018).

26. Centers for Disease Control and Prevention, National Center for Health Statistics. Survey Methods and Analytic Guidelines. Available online: https://wwwn.cdc.gov/Nchs/Nhanes/AnalyticGuidelines.aspx (accessed on 13 March 2018).

27. Centers for Disease Control and Prevention, National Center for Health Statistics. Questionnaires, Datasets, and Related Documentation. Response Rates. Available online: https://wwwn.cdc.gov/nchs/nhanes/ResponseRates.aspx (accessed on 13 March 2018).

28. Moshfegh, A.J.; Rhodes, D.G.; Baer, D.J.; Murayi, T.; Clemens, J.C.; Rumberger, W.V.; Paul, D.R.; Sebastian, R.S.; Kuczynski, K.J.; Ingwersen, L.A.; et al. The US Department of Agriculture Automated Multiple-Pass Method reduces bias in the collection of energy intakes. *Am. J. Clin. Nutr.* **2008**, *88*, 324–332. [CrossRef] [PubMed]

30. Naska, A.; Lagiou, A.; Lagiou, P. Dietary assessment methods in epidemiological research: Current state of the art and future prospects. *F1000Research* **2017**, *6*, 926. [CrossRef] [PubMed]

33. United States Department of Agriculture, Agricultural Research Service. What We Eat in America Food Categories. Available online: https://www.ars.usda.gov/northeast-area/beltsville-md-bhnrc/beltsville-human-nutrition-research-center/food-surveys-research-group/docs/dmr-food-categories (accessed on 13 March 2018).

34. United States Department of Agriculture, Agricultural Research Service. Food Patterns Equivalents Database. Available online: https://www.ars.usda.gov/northeast-area/beltsville-md-bhnrc/beltsville-human-nutrition-research-center/food-surveys-research-group/docs/fped-databases (accessed on 13 March 2018).

35. United States Department of Agriculture, Agricultural Research Service. Food and Nutrient Database for Dietary Studies. Available online: https://www.ars.usda.gov/northeast-area/beltsville-md-bhnrc/beltsville-human-nutrition-research-center/food-surveys-research-group/docs/fndds-download-databases (accessed on 13 March 2018).

36. Otles, S.; Ozgoz, S. Health effects of dietary fiber. *Acta Sci. Pol. Technol. Aliment.* **2014**, *13*, 191–202. [CrossRef] [PubMed]
37. Institute of Medicine, Food and Nutrition Board. Dietary Reference Intakes for Calcium and Vitamin D; National Academy Press: Washington, DC, USA, 2010.

38. Appel, L.J. The Effects of Dietary Factors on Blood Pressure. Cardiol. Clin. 2017, 35, 197–212. [CrossRef] [PubMed]

39. Vinceti, M.; Filippini, T.; Crippa, A.; de Sesmaisons, A.; Wise, L.A.; Orsini, N. Meta-Analysis of Potassium Intake and the Risk of Stroke. J. Am. Heart Assoc. 2016, 5, e004210. [CrossRef] [PubMed]

40. Ekmeckioglou, C.; Elmadfa, I.; Meyer, A.L.; Moeslinger, T. The role of dietary potassium in hypertension and diabetes. J. Physiol. Biochem. 2016, 72, 93–106. [CrossRef] [PubMed]

41. DeLuca, H.F. Vitamin D: Historical Overview. Vitam. Horm. 2016, 100, 1–20. [CrossRef] [PubMed]

42. The Report of the Dietary Guidelines Advisory Committee on Dietary Guidelines for Americans. 2005. Available online: https://health.gov/dietaryguidelines/dga2005/report (accessed on 9 February 2018).

43. Black, L.J.; Walton, J.; Flynn, A.; Kiely, M. Adequacy of vitamin D intakes in children and teenagers from the base diet, fortified foods and supplements. Public Health Nutr. 2014, 17, 721–731. [CrossRef] [PubMed]

44. Kehoe, L.; Walton, J.; McNulty, B.A.; Nugent, A.P.; Flynn, A. Dietary strategies for achieving adequate vitamin D and iron intakes in young children in Ireland. J. Hum. Nutr. Diet. 2017, 30, 405–416. [CrossRef] [PubMed]

45. Yeh, E.B.; Barbano, D.M.; Drake, M. Vitamin Fortification of Fluid Milk. J. Food. Sci. 2017, 82, 856–864. [CrossRef] [PubMed]

46. Barr, D.A. The Childhood Roots of Cardiovascular Disease Disparities. Mayo Clin. Proc. 2017, 92, 1415–1421. [CrossRef] [PubMed]

47. Chowdhury, R.; Warnakula, S.; Kunutsor, S.; Crowe, F.; Ward, H.A.; Johnson, L.; Franco, O.H.; Butterworth, A.S.; Forouhi, N.G.; Thompson, S.G.; et al. Association of dietary, circulating, and supplement fatty acids with coronary risk: A systematic review and meta-analysis. Ann. Intern. Med. 2014, 160, 398–406. [CrossRef] [PubMed]

48. Siri-Tarino, P.W.; Sun, Q.; Hu, F.B.; Krauss, R.M. Meta-analysis of prospective cohort studies evaluating the association of saturated fat with cardiovascular disease. Am. J. Clin. Nutr. 2010, 91, 535–546. [CrossRef] [PubMed]

49. Skeaff, C.M.; Miller, J. Dietary fat and coronary heart disease: Summary of evidence from prospective cohort and randomised controlled trials. Ann. Nutr. Metab. 2009, 55, 173–201. [CrossRef] [PubMed]

50. Bier, D.M. Saturated Fats and Cardiovascular Disease: Interpretations Not as Simple as They Once Were. Crit. Rev. Food Sci. Nutr. 2016, 56, 1943–1946. [CrossRef] [PubMed]

51. Siri-Tarino, P.W.; Sun, Q.; Hu, F.B.; Krauss, R.M. Saturated fatty acids and risk of coronary heart disease: Modulation by replacement nutrients. Curr. Atheroscler. Rep. 2010, 12, 384–390. [CrossRef] [PubMed]

52. Astrup, A.; Dyerberg, J.; Elwood, P.; Hermansen, K.; Hu, F.B.; Jakobsen, M.U.; Kok, F.J.; Krauss, R.M.; Leerf, J.M.; LeGrand, P.; et al. The role of reducing intakes of saturated fat in the prevention of cardiovascular disease: J.M. Where does the evidence stand in 2010? Am. J. Clin. Nutr. 2011, 93, 684–688. [CrossRef] [PubMed]

53. De Oliveira Otto, M.C.; Mozaffarian, D.; Kromhout, D.; Bertoni, A.G.; Sibley, C.T.; Jacobs, D.R., Jr.; Nettleton, J.A. Dietary intake of saturated fat by food source and incident cardiovascular disease: The Multi-Ethnic Study of Atherosclerosis. Am. J. Clin. Nutr. 2012, 96, 397–404. [CrossRef] [PubMed]

54. Elwood, P.C.; Pickering, J.E.; Givens, D.I.; Gallagher, J.E. The consumption of milk and dairy foods and the incidence of vascular disease and diabetes: An overview of the evidence. Lipids 2010, 45, 925–939. [CrossRef] [PubMed]

55. Soedamah-Muthu, S.S.; Ding, E.L.; Al-Delaimy, W.K.; Hu, F.B.; Engberink, M.F.; Willett, W.C.; Geleijnse, J.M. Milk and dairy consumption and incidence of cardiovascular diseases and all-cause mortality: Dose-response meta-analysis of prospective cohort studies. Am. J. Clin. Nutr. 2011, 93, 158–171. [CrossRef] [PubMed]

56. Mert, B.; Demirkesen, I. Reducing saturated fat with oleogel/shortening blends in a baked product. Food Chem. 2016, 199, 809–816. [CrossRef] [PubMed]

57. Rodríguez-García, J.; Salvador, A.; Hernando, I. Replacing Fat and Sugar with Inulin in Cakes: Bubble Size Distribution, Physical and Sensory Properties. Food Bioprocess Technol. 2014, 7, 964–974. [CrossRef] [PubMed]

58. Taormina, P.J. Implications of salt and sodium reduction on microbial food safety. Crit. Rev. Food Sci. Nutr. 2010, 50, 209–227. [CrossRef] [PubMed]
59. Ganesan, B.; Brown, K.; Irish, D.A.; Brothersen, C.; McMahon, D.J. Manufacture and sensory analysis of reduced-and low-sodium Cheddar and Mozzarella cheeses. *J. Dairy Sci.* 2014, 97, 1970–1982. [CrossRef] [PubMed]

60. Gomes, A.P.; Cruz, A.G.; Cadena, R.S.; Celeghini, R.M.S.; Faria, J.A.F.; Bolini, H.M.A.; Pollonio, M.A.R.; Granato, D. Manufacture of low-sodium Minas fresh cheese: Effect of the partial replacement of sodium chloride with potassium chloride. *J. Dairy Sci.* 2011, 94, 2701–2706. [CrossRef] [PubMed]

61. Huth, P.J.; Park, K.M. Influence of dairy product and milk fat consumption on cardiovascular disease risk: A review of the evidence. *Adv. Nutr.* 2012, 3, 266–285. [CrossRef] [PubMed]

62. Baranowski, T.; Sprague, D.; Baranowski, J.H.; Harrison, J.A. Accuracy of maternal dietary recall for preschool children. *J. Am. Diet Assoc.* 1991, 91, 669–674. [PubMed]

63. Börnhorst, C.; Huybrechts, I.; Ahrens, W.; Eiben, G.; Michels, N.; Pala, V.; Molnár, D.; Russo, P.; Barba, G.; Bel-Serrat, S.; et al. Prevalence and determinants of misreporting among European children in proxy-reported 24 h dietary recalls. *Br. J. Nutr.* 2013, 109, 1257–1265. [CrossRef] [PubMed]

64. Archer, E. The use of implausible data without caveats is misleading. *Am. J. Clin. Nutr.* 2017, 106, 949–950. [PubMed]

65. Archer, E. The NHANES dietary data are physiologically implausible and inadmissible as scientific evidence. *Am. J. Clin. Nutr.* 2017, 106, 951–952. [PubMed]

66. Archer, E.; Pavela, G.; Lavie, C.J. The Inadmissibility of What We Eat in America and NHANES Dietary Data in Nutrition and Obesity Research and the Scientific Formulation of National Dietary Guidelines. *Mayo Clin. Proc.* 2015, 90, 911–926. [CrossRef] [PubMed]

67. National Cancer Institute. Available online: https://www.cancer.gov/search/results?swKeyword=NHANES&page=1&pageunit=10&Offset=0 (accessed on 5 June 2018).

68. Ahluwalia, N.; Dwyer, J.; Terry, A.; Moshfegh, A.; Johnson, C. Update on NHANES Dietary Data: Focus on Collection, Release, Analytical Considerations, and Uses to Inform Public Policy. *Adv. Nutr.* 2016, 7, 121–134. [CrossRef] [PubMed]

69. World Health Organization. *Diet, Nutrition and the Prevention of Chronic Diseases: Report of a Joint WHO/FAO Expert Consultation*; WHO Technical Report Series, No. 916; World Health Organization: Geneva, Switzerland, 2003; Available online: http://whqlibdoc.who.int/trs/WHO_TRS_916.pdf (accessed on 30 July 2018).

70. O’Neil, C.E.; Nicklas, T.A.; Kleinman, R. Relationship between 100% juice consumption and nutrient intake and weight of adolescents. *Am. J. Health Promot.* 2010, 4, 231–237, Erratum in 2010, 5, 368. [CrossRef] [PubMed]

71. O’Neil, C.E.; Nicklas, T.A.; Rampersaud, G.C.; Fulgoni, V.L., 3rd. One hundred percent orange juice consumption is associated with better diet quality, improved nutrient adequacy, and no increased risk for overweight/obesity in children. *Nutr. Res.* 2011, 9, 673–682. [CrossRef]

72. Crowe-White, K.; O’Neil, C.E.; Parrott, J.S.; Benson-Davies, S.; Droke, E.; Gutschall, M.; Stote, K.S.; Wolfram, T.; Ziegler, P. Impact of 100% Fruit Juice Consumption on Diet and Weight Status of Children: An Evidence-based Review. *Crit. Rev. Food Sci. Nutr.* 2016, 5, 871–884. [CrossRef] [PubMed]

73. O’Neil, C.E.; Nicklas, T.A.; Rampersaud, G.C.; Fulgoni, V.L., 3rd. 100% orange juice consumption is associated with better diet quality, improved nutrient adequacy, decreased risk for obesity, and improved biomarkers of health in adults: National Health and Nutrition Examination Survey, 2003–2006. *Nutr. J.* 2012, 11, 107. [CrossRef]

74. O’Neil, C.E.; Nicklas, T.A.; Zanovec, M.; Kleiman, R.E.; Fulgoni, V.L. Fruit juice consumption is associated with improved nutrient adequacy in children and adolescents: The National Health and Nutrition Examination Survey (NHANES) 2003–2006. *Public Health Nutr.* 2012, 15, 1871–1878. [CrossRef] [PubMed]

75. O’Neil, C.E.; Nicklas, T.A.; Zanovec, M.; Fulgoni, V.L., 3rd. Diet quality is positively associated with 100% fruit juice consumption in children and adults in the United States: NHANES 2003–2006. *Nutr. J.* 2011, 10, 17. [CrossRef]