Figure S1. Estimated mean\(^1\) (95\% confidence intervals) of total dietary cholesterol intake for the U.S. adults 20 years of age or older, in NHANES survey cycles: 2001-2002 to 2013-2014

\(^1\) Age and sex adjusted means of cholesterol intake by direct standardization to the 2000 US Census population
Table S1. Crude and adjusted* mean dietary cholesterol intake and cholesterol density (proportion of cholesterol of total calories) for the U.S. adults 20 years of age or older, NHANES survey cycles: 2001-2002 to 2013-2014

| NHANES survey cycle | Mean intake (mg/day) | Density (mg/1000 kcal) |
|---------------------|----------------------|------------------------|
|                     | Crude | Adjusted | Crude | Adjusted |
| Overall             | 287 (284-291) | 288 (283-292) | 134 (113-136) | 134 (133-136) |
| 2001-2002           | 283 (275-291) | 282 (275-289) | 130 (126-133) | 130 (126-133) |
| 2003-2004           | 289 (276-302) | 290 (277-302) | 135 (130-139) | 134 (129-139) |
| 2005-2006           | 295 (286-303) | 296 (288-304) | 136 (133-139) | 136 (133-139) |
| 2007-2008           | 292 (280-304) | 295 (283-307) | 138 (134-142) | 139 (135-142) |
| 2009-2010           | 276 (267-285) | 276 (268-285) | 130 (126-135) | 130 (125-134) |
| 2011-2012           | 282 (275-289) | 282 (276-289) | 132 (128-136) | 131 (127-136) |
| 2013-2014           | 293 (285-301) | 294 (285-303) | 139 (136-142) | 139 (136-142) |
| P-trend             | 0.895 | 0.977* | 0.072 | 0.340* |

* Adjusted mean intake was calculated by direct standardization to the 2000 US Census population, adjusted for age and sex.
+ Adjusted p-trend values were calculated from a survey weighted linear regression modeling survey cycle as ordinal variable, adjusted for race, age, and sex.
Table S2. Estimated means\(^1\) of total dietary cholesterol intake for the U.S. adults 20 years of age or older, NHANES survey cycles: 2001-2002 to 2013-2014

|                | Overall   | 2001-02 | 2003-04 | 2005-06 | 2007-08 | 2009-10 | 2011-12 | 2013-14 | p-trend* |
|----------------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|
| N (unweighted) | 34,741    | 4,744   | 4,448   | 4,520   | 5,419   | 5,762   | 4,801   | 5,047   |          |
| Overall        | 288       | 282     | 290     | 296     | 295     | 276     | 282     | 294     | 0.98     |
| **Sex**        |           |         |         |         |         |         |         |         |         |
| Male           | 348       | 339     | 349     | 361     | 364     | 334     | 340     | 350     | 0.91     |
| Female         | 232       | 229     | 235     | 236     | 231     | 223     | 228     | 242     | 0.72     |
| **Age group**  |           |         |         |         |         |         |         |         |         |
| 20-29          | 295       | 293     | 303     | 290     | 286     | 286     | 290     | 315     | 0.49     |
| 30-49          | 306       | 306     | 305     | 322     | 322     | 287     | 296     | 304     | 0.052    |
| 50-69          | 281       | 264     | 285     | 284     | 288     | 279     | 279     | 284     | 0.39     |
| 70+            | 232       | 219     | 228     | 245     | 229     | 219     | 229     | 250     | 0.13     |
| **Race**       |           |         |         |         |         |         |         |         |         |
| Non-Hispanic White | 282   | 278     | 282     | 292     | 292     | 268     | 274     | 284     | 0.56     |
| Non-Hispanic Black  | 310  | 304     | 307     | 304     | 311     | 316     | 306     | 323     | 0.13     |
| Mexican American  | 319   | 322     | 331     | 313     | 312     | 297     | 320     | 330     | 0.73     |
| Other           | 275       | 251     | 279     | 290     | 276     | 260     | 270     | 288     | 0.43     |

\(^1\) Age and sex adjusted means of cholesterol intake by direct standardization to the 2000 US Census population

\(^*\) p-trend values were calculated from a survey weighted linear regression modeling survey cycle as ordinal variable, adjusted for race, age, and sex.
|                  | Milk * | Eggs | Meat | Grain products | Other | All  |
|------------------|--------|------|------|----------------|-------|------|
|                  | All    | Red  | Poultry | Processed | Seafood | Mixed | All    | Cooked | Breads c | RTE | Other | products |       |
| **Overall**      | 33 (11.2) | 74 (25.4) | 123 (41.9) | 24 (8.3) | 34 (11.7) | 15 (5.1) | 15 (5.0) | 36 (12.2) | 51 (17.5) | 1 (0.0) | 14 (4.8) | 1 (0.0) | 36 (12.3) | 12 (4.0) | 293 (100) |
| **Sex**          |        |      |       |                |       |       |       |       |       |       |
| Male (ref.)      | 38 (11.0) | 89 (25.6) | 151 (43.3) | 32 (9.4) | 42 (12.2) | 19 (5.6) | 17 (4.9) | 40 (11.5) | 58 (16.7) | 1 (0.0) | 15 (4.3) | 0 (0.0) | 43 (12.4) | 12 (3.5) | 348 (100) |
| Female           | 28 (11.6)* | 61 (25.2) | 97 (40.1)* | 17 (6.9)* | 27 (11.0) | 11 (4.6)* | 12 (5.1) | 32 (13.2) | 45 (18.5) | 1 (0.0) | 14 (5.8)* | 0 (0.0) | 30 (12.4) | 11 (4.7)* | 242 (100) |
| **Age group**    |        |      |       |                |       |       |       |       |       |       |
| 20-29 (ref.)     | 34 (10.7) | 81 (25.6) | 131 (41.5) | 28 (8.8) | 42 (13.2) | 15 (4.6) | 13 (4.3) | 37 (11.8) | 59 (18.9) | 0 (0.0) | 12 (3.8) | 0 (0.0) | 47 (14.9) | 10 (3.3) | 315 (100) |
| 30-49            | 33 (10.8) | 71 (23.5) | 132 (43.5)* | 28 (9.2) | 37 (12.3) | 15 (5.1) | 16 (5.3) | 35 (11.7) | 56 (18.6)* | 1 (0.0) | 13 (4.3) | 0 (0.0) | 43 (14.2) | 11 (3.6) | 303 (100) |
| 50-69            | 32 (11.2) | 74 (26.3) | 117 (41.3) | 21 (7.3) | 31 (11.0) | 15 (5.4) | 14 (5.1) | 36 (12.7) | 48 (17.0)* | 1 (0.0) | 16 (5.7)* | 0 (0.0) | 31 (11.0) | 12 (4.2) | 283 (100) |
| 70+              | 35 (13.5) | 74 (28.9) | 100 (39.2) | 19 (7.3) | 22 (8.7) | 14 (5.7) | 13 (4.9) | 34 (12.3) | 32 (12.5)* | 1 (0.0)* | 16 (6.3)* | 0 (0.0) | 15 (5.9)* | 15 (5.8)* | 255 (100) |
| **Race**         |        |      |       |                |       |       |       |       |       |       |
| Non-Hispanic White (ref.) | 37 (13.2) | 69 (24.4) | 115 (40.8) | 23 (8.2) | 29 (10.2) | 17 (5.9) | 13 (4.5) | 35 (12.4) | 48 (17.1) | 1 (0.0) | 15 (5.3) | 0 (0.0) | 33 (11.7) | 13 (4.5) | 282 (100) |
| Non-Hispanic Black | 22 (6.7)* | 78 (24.4) | 166 (51.8)* | 28 (8.7) | 57 (17.8)* | 16 (5.1) | 27 (8.3)* | 45 (14.1) | 44 (13.8) | 1 (0.0) | 15 (4.7) | 0 (0.0) | 28 (8.8) | 11 (3.3)* | 320 (100) |
| Mexican American | 24 (7.2)* | 102 (30.1)* | 111 (32.8)* | 25 (7.3) | 33 (9.9) | 9 (2.7)* | 9 (2.6) | 31 (9.2) | 91 (27)* | 0 (0.0) | 14 (4.1) | 0 (0.0) | 77 (22.8)* | 10 (2.9) | 338 (100) |
| Other            | 27 (9.4)* | 79 (27.2) | 132 (45.3) | 26 (8.9) | 41 (14.2) | 10 (3.4)* | 18 (6.1)* | 35 (12.0) | 44 (15.1) | 1 (0.0) | 12 (4.1) | 0 (0.0) | 31 (10.6) | 9 (3.1) | 292 (100) |

* Milk refers to milk and milk products
b Cooked grains refer to cooked grains and cereals
c Breads refer to breads and bread products
d RTE cereals refer to ready-to-eat cereals
e Other grain products refer to not cooked cereals, grain mixtures, and meat substitutes

*p<0.05, *p<0.01 for percentage of dietary cholesterol intake comparison
Table S4. Food and nutrients intake of one-day dietary measures by dietary cholesterol intake quartiles for U.S. men aged ≥20 years in NHANES, 2013–2014.

| Nutrients intake, mean (SE), gm/day | Overall | Q1 | Q2 | Q3 | Q4 | P-trend† |
|------------------------------------|---------|----|----|----|----|----------|
| N (unweighted)                     | 2414    | 612| 596| 603| 603|          |
| Cholesterol intake, mean (SE), mg/day | 348 (7.7)| 101 (2.1)| 216 (1.4)| 368 (3.2)| 731 (18.1)|          |
| Cholesterol intake, range, mg/day  | (0, 2584)| (0, 160)| (161, 277)| (278, 476)| (477, 2584)|          |
| Food intake, mean (SE), mg/day     |         |    |    |    |    |          |
| Milk and milk products             | 226 (10.8)| 175 (12.5)| 223 (16.4)| 251 (20.7)| 253 (19.9)<0.001 |          |
| Meat, Poultry, Fish & Mixtures    | 248 (7.6)| 113 (6.2)| 226 (8.8)| 293 (13.0)| 365 (18.7)<0.001 |          |
| Eggs                               | 31 (1.4)| 2 (0.9)| 7 (2.1)| 20 (1.9)| 103 (5.0)<0.001 |          |
| Legumes, Nuts and Seeds            | 36 (2.1)| 45 (5.0)| 29 (3.9)| 32 (3.8)| 39 (4.1)0.53 |          |
| Grain products                     | 373 (7.4)| 307 (10.9)| 363 (18.3)| 396 (9.8)| 426 (14.7)<0.001 |          |
| Fruits                             | 147 (6.6)| 160 (14.8)| 128 (10.9)| 139 (11.1)| 165 (9.5)0.63 |          |
| Vegetables                         | 180 (9.2)| 137 (6.4)| 174 (11.6)| 179 (16.0)| 231 (18.9)<0.001 |          |
| Fats, Oils & Salad Dressings       | 13 (0.9)| 8 (1.0)| 14 (1.9)| 14 (1.6)| 15 (1.7)0.003 |          |

| Nutrients intake, mean (SE)        |         |    |    |    |    |          |
| Protein, mean (SE), gm/day         | 98 (1.25)| 58 (1.9)| 87 (1.3)| 108 (2.1)| 141 (3.3)<0.001 |          |
| Carbohydrate, mean (SE), gm/day    | 287 (3.2)| 240 (5.1)| 280 (7.0)| 302 (7.9)| 327 (8.8)<0.001 |          |
| Dietary fiber, mean (SE), gm/day   | 19 (0.4)| 17 (0.6)| 19 (0.5)| 19 (0.7)| 21 (0.9)0.004 |          |
| Total fat, mean (SE), gm/day       | 95 (1.3)| 59 (1.3)| 86 (2.1)| 103 (2.1)| 134 (3.1)<0.001 |          |
| Total saturated fatty acids, mean (SE), gm/day | 31 (0.5)| 18 (0.4)| 26 (0.8)| 35 (0.9)| 44 (1.0)<0.001 |          |
| Total monounsaturated fatty acids, mean (SE), gm/day | 33 (0.4)| 21 (0.5)| 30 (0.7)| 35 (0.7)| 48 (1.1)<0.001 |          |
| Total polyunsaturated fatty acids, mean (SE), gm/day | 22 (0.5)| 15 (0.5)| 20 (0.7)| 23 (0.7)| 30 (1.2)<0.001 |          |
| Vitamin C, mean (SE), mg/day       | 83 (2.4)| 71 (5.1)| 79 (4.1)| 80 (5.6)| 105 (6.9)0.008 |          |
| Vitamin D, mean (SE), mcg/day      | 6 (0.3)| 3 (0.3)| 5 (0.2)| 6 (0.3)| 8 (1.0)<0.001 |          |
| Calcium, mean (SE), mg/day         | 1086 (18.3)| 759 (22.9)| 1058 (28.3)| 1169 (35.9)| 1363 (33.8)<0.001 |          |
| Phosphorus, mean (SE), mg/day      | 1625 (17.9)| 1096 (33.7)| 1502 (28.4)| 1753 (33.8)| 2171 (48.4)<0.001 |          |
| Sodium, mean (SE), mg/day          | 4094 (53.3)| 2694 (48.1)| 3767 (76.0)| 4496 (95.6)| 5470 (123.8)<0.001 |          |
| Potassium, mean (SE), mg/day       | 3016 (36.0)| 2317 (59.7)| 2875 (64.4)| 3126 (71.4)| 3782 (64.1)<0.001 |          |

* P-trend values were calculated from a survey weighted linear regression modeling cholesterol intake quartiles as ordinal variable.
### Table S5. Food and nutrients intake of one-day dietary measures by dietary cholesterol intake quartiles for U.S. women aged ≥20 years in NHANES, 2013–2014.

| Nutrients intake, mean (SE)                         | Overall | Q1       | Q2       | Q3       | Q4       | P-trend* |
|---------------------------------------------------|---------|----------|----------|----------|----------|----------|
| N (unweighted)                                    | 2633    | 660      | 659      | 656      | 658      |          |
| Cholesterol intake, mean (SE), mg/day             | 242 (3.10) | 69 (1.3) | 149 (1.2) | 255 (1.7) | 519 (5.7) |          |
| Cholesterol intake, range, mg/day                 | (0.1944) | (0.111)  | (112, 191) | (192, 333) | (334, 1944) |          |
| Food intake, mean (SE), mg/day                    |         |          |          |          |          |          |
| Milk and milk products                            | 172 (6.1) | 139 (9.0) | 171 (5.9) | 197 (12.2) | 184 (10.8) | 0.002    |
| Meat, Poultry, Fish & Mixtures                    | 173 (5.3) | 86 (6.0)  | 152 (8.6) | 212 (10.2) | 251 (15.1) | <0.001   |
| Eggs                                              | 24 (1.5)  | 2 (0.7)   | 3 (0.7)   | 15 (1.6)  | 79 (4.9)  | <0.001   |
| Legumes, Nuts and Seeds                           | 26 (1.2)  | 29 (2.5)  | 21 (3.1)  | 27 (2.8)  | 28 (3.0)  | 0.80     |
| Grain products                                    | 284 (5.3) | 222 (8.5) | 300 (9.6) | 315 (7.7) | 302 (12.9) | <0.001   |
| Fruits                                            | 141 (6.0) | 136 (9.9) | 143 (11.0)| 139 (9.9) | 147 (15.4) | 0.65     |
| Vegetables                                        | 167 (4.4) | 141 (6.8) | 165 (10.4)| 165 (9.2) | 200 (10.3) | 0.001    |
| Fats, Oils & Salad Dressings                      | 11 (0.7)  | 9 (1.0)   | 10 (0.9)  | 14 (1.4)  | 13 (1.4)  | 0.002    |
| Protein, mean (SE), gm/day                        | 70 (0.8)  | 43 (1.1)  | 62 (1.1)  | 80 (0.8)  | 97 (2.6)  | <0.001   |
| Carbohydrate, mean (SE), gm/day                   | 220 (3.0) | 184 (5.1) | 217 (4.4) | 239 (3.8) | 244 (9.3) | <0.001   |
| Dietary fiber, mean (SE), gm/day                  | 99 (1.7)  | 83 (2.8)  | 96 (2.5)  | 107 (2.3) | 110 (5.4) | <0.001   |
| Total fat, mean (SE), gm/day                      | 15 (0.3)  | 14 (0.5)  | 15 (0.5)  | 16 (0.4)  | 16 (0.5)  | <0.001   |
| Total saturated fatty acids, mean (SE), gm/day    | 71 (0.7)  | 45 (1.6)  | 64 (1.8)  | 83 (2.1)  | 96 (2.9)  | <0.001   |
| Total monounsaturated fatty acids, mean (SE), gm/day | 23 (0.2)  | 13 (0.4)  | 21 (0.5)  | 28 (0.8)  | 31 (1.0)  | <0.001   |
| Total polyunsaturated fatty acids, mean (SE), gm/day | 25 (0.3)  | 16 (0.7)  | 21 (0.7)  | 28 (0.7)  | 34 (1.1)  | 0.007    |
| Vitamin C, mean (SE), mg/day                      | 17 (0.2)  | 12 (0.6)  | 15 (0.6)  | 19 (0.5)  | 22 (0.8)  | <0.001   |
| Vitamin D, mean (SE), mcg/day                     | 75 (2.2)  | 66 (3.6)  | 78 (4.3)  | 70 (3.8)  | 86 (3.9)  | <0.001   |
| Calcium, mean (SE), mg/day                        | 4 (0.1)   | 3 (0.2)   | 3 (0.2)   | 5 (0.3)   | 6 (0.3)   | 0.004    |
| Phosphorus, mean (SE), mg/day                     | 852 (10.9) | 642 (22.7) | 840 (20.1) | 971 (22.9) | 971 (34.1) | <0.001   |
| Sodium, mean (SE), mg/day                         | 1187 (12.2) | 820 (21.7) | 1101 (21.8) | 1339 (12.9) | 1526 (37.7) | <0.001   |
| Potassium, mean (SE), mg/day                      | 2997 (22.1) | 2003 (43.7) | 2818 (59.3) | 3393 (52.0) | 3869 (95.9) | <0.001   |

* P-trend values were calculated from a survey weighted linear regression modeling cholesterol intake quartiles as ordinal variable.