**Supplemental Table 1**: Geometric mean (95%CI) of plasma trans-fatty acid concentrations (mol/L) in fasting adults 20 y and older, NHANES 1999–2000 and 2009–20101

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Palmitelaidic acid (95%CI) *n*** | | **trans, Vaccenic acid (95%CI) *n*** | | **Elaidic acid (95%CI) *n*** | | **Linoelaidic acid (95%CI) *n*** | | **SumTFA (95%CI) *n*** | |
|  | **1999–2000** | **2009–2010** | **1999–2000** | **2009–2010** | **1999–2000** | **2009–2010** | **1999–2000** | **2009–2010** | **1999–2000** | **2009–2010** |
| All | 6.79  (6.39, 7.22)  1678 | 3.85  (3.76, 3.94)  2574 | 37.7  (35.4, 40.2)  1675 | 17.9  (17.3, 18.5)  2575 | 33.1  (30.5, 35.9)  1646 | 13.4  (12.8, 14.0)  2578 | 2.80  (2.58, 3.04)  1650 | 1.58  (1.52, 1.65)  2467 | 80.9  (75.7, 86.5)  1613 | 37.4  (36.1, 38.8)  2462 |
| Sex |  |  |  |  |  |  |  |  |  |  |
| Male | 6.65  (6.13, 7.21)  796 | 3.76  (3.63, 3.89)  1196 | 37.7  (34.7, 41.0)  793 | 18.0  (17.2, 18.8)  1198 | 31.9  (28.9, 35.3)  787 | 12.9  (12.3, 13.5)  1199 | 2.71  (2.45, 3.00)  781 | 1.55  (1.49, 1.61)  1146 | 79.1  (72.6, 86.3)  768 | 36.8  (35.2, 38.5)  1144 |
| Female | 6.93  (6.52, 7.37)  882 | 3.92  (3.80, 4.04)  1378 | 37.6  (35.1, 40.3)  882 | 17.8  (17.0, 18.6)  1377 | 34.2  (31.5, 37.1)  859 | 13.8  (13.1, 14.6)  1379 | 2.87  (2.65, 3.12)  869 | 1.60  (1.51, 1.70)  1321 | 82.4  (76.7, 88.6)  845 | 37.8  (36.2, 39.5)  1318 |
| Age group, y | |  |  |  |  |  |  |  |  |  |
| 20–29 | 6.55  (6.12, 7.02)  284 | 3.46  (3.34, 3.58)  428 | 35.7  (33.6, 38.0)  282 | 16.4  (15.4, 17.4)  428 | 30.6  (28.6, 32.7)  274 | 11.5  (10.8, 12.2)  428 | 2.55  (2.33, 2.79)  280 | 1.43  (1.35, 1.51)  409 | 76.4  (71.8, 81.3)  268 | 33.2  (31.4, 35.2)  407 |
| 30–39 | 6.35  (5.70, 7.07)  295 | 3.82  (3.64, 4.02)  415 | 37.7  (33.9, 42.0)  296 | 17.8  (16.7, 18.9)  414 | 31.1  (27.4, 35.3)  291 | 12.8  (12.0, 13.6)  415 | 2.62  (2.36, 2.92)  291 | 1.52  (1.44, 1.59)  397 | 78.1  (69.8, 87.3)  285 | 36.2  (33.9, 38.6)  396 |
| 40–49 | 6.65  (5.76, 7.67)  262 | 3.81  (3.60, 4.03)  474 | 38.3  (32.8, 44.7)  261 | 18.3  (16.9, 19.8)  474 | 32.7  (27.0, 39.5)  256 | 13.3  (12.3, 14.4)  475 | 2.72  (2.34, 3.15)  258 | 1.61  (1.52, 1.71)  449 | 79.6  (68.7, 92.3)  252 | 38.3  (35.3, 41.5)  448 |
| 50–59 | 7.10  (6.45, 7.82)  228 | 3.86  (3.57, 4.16)  415 | 39.6  (35.6, 44.0)  227 | 17.9  (16.4, 19.6)  414 | 37.3  (33.1, 41.9)  223 | 13.9  (12.8, 15.1)  415 | 3.28  (2.91, 3.68)  223 | 1.66  (1.54, 1.80)  402 | 88.7  (79.4, 99.1)  217 | 38.2  (35.3, 41.4)  401 |
| 60–69 | 7.03  (6.52, 7.59)  303 | 4.05  (3.83, 4.29)  396 | 36.3  (33.9, 38.8)  303 | 18.3  (17.0, 19.6)  399 | 33.4  (30.4, 36.8)  299 | 14.0  (12.8, 15.3)  399 | 2.95  (2.63, 3.31)  295 | 1.63  (1.50, 1.78)  380 | 80.4  (73.8, 87.5)  289 | 38.6  (35.8, 41.6)  380 |
| ≥70 | 7.40  (6.95, 7.87)  306 | 4.37  (4.16, 4.59)  446 | 38.2  (36.1, 40.3)  306 | 19.3  (18.3, 20.5)  446 | 34.3  (32.0, 36.9)  303 | 16.2  (15.3, 17.0)  446 | 2.73  (2.54, 2.94)  303 | 1.67  (1.56, 1.79)  430 | 82.9  (78.3, 87.7)  302 | 42.3  (40.2, 44.4)  430 |
| Race/Ethnicity | |  |  |  |  |  |  |  |  |  |
| NHW | 7.33  (6.88, 7.82)  789 | 4.01  (3.91, 4.10)  1219 | 40.0  (36.8, 43.4)  788 | 18.7  (17.9, 19.5)  1222 | 35.0  (31.7, 38.7)  785 | 13.7  (13.1, 14.4)  1224 | 3.00  (2.69, 3.33)  767 | 1.63  (1.55, 1.72)  1168 | 85.7  (78.8, 93.2)  762 | 38.8  (37.1, 40.6)  1165 |
| NHB | 5.32  (4.77, 5.95)  271 | 3.24  (3.01, 3.48)  427 | 32.9  (30.1, 36.0)  271 | 15.7  (14.7, 16.7)  427 | 28.4  (26.9, 30.0)  262 | 12.1  (11.1, 13.2)  427 | 2.20  (2.10, 2.31)  266 | 1.42  (1.33, 1.51)  405 | 69.5  (65.5, 73.7)  257 | 33.3  (31.6, 35.1)  405 |
| MA | 6.75  (6.31, 7.23)  464 | 4.13  (3.83, 4.45)  498 | 37.6  (34.2, 41.2)  463 | 20.2  (18.6, 21.9)  498 | 33.3  (30.3, 36.6)  464 | 16  (14.5, 17.6)  498 | 2.73  (2.50, 3.00)  462 | 1.71  (1.59, 1.85)  489 | 81.1  (74.0, 88.8)  462 | 42.7  (39.3, 46.4)  489 |

1 Values are weighted geometric means (95% CI) standardized to the 2010 census; *n* is also provided for each cell. MA, Mexican-American; NHB, non-Hispanic Black; NHW, non-Hispanic White. Fasting: no meals in the past 8 or more hours.

**Supplemental Table 2.** Percentile distribution of the sum of 4 plasma trans-fatty acids (mol/L) in fasted adults 20 y and older, NHANES 1999–2000 and 2009–20101.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1999–2000** | | | | | | | | | | | | | | **2009–2010** | | | | | | | | | | | | | | | | | | | |
| Category | ***n*** | **5th** | | **10th** | | **25th** | | **50th** | | **75th** | | **90th** | | **95th** | | ***n*** | | **5th** | | **10th** | | | **25th** | | | **50th** | | | **75th** | | | **90th** | | **95th** | |
| All | 1613 | 38.2  (33.3, 43.1) | | 45.5  (41.6, 48.8) | | 60.3  (55.8, 64.0) | | 79.8  (74.1, 86.8) | | 106  (97.4, 117) | | 140  (130, 155) | | 176  (153, 200) | | 2462 | | 17.6  (16.8, 19.1) | | 21.1  (20.2, 22.0) | | | 27.2  (26.3, 28.6) | | | 36.7  (35.1, 38.4) | | | 49.8  (47.8, 51.7) | | | 67.9  (63.3, 73.2) | | 84.0  (76.5, 91.4) | |
| Sex |  |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | | |  | | |  | | |  | |  | | |
| Male | 768 | 34.4  (29.2, 43.1) | | 44.2  (40.1, 47.7) | | 55.5  (53.2, 60.7) | | 77.0  (68.8, 85.6) | | 109  (95.5, 120) | | 145  (129, 173) | | 190  (155, 233) | | 1144 | | 17.0  (15.8, 18.1) | | 19.6  (18.4, 20.6) | | | 26.6  (25.2, 28.2) | | | 35.8  (34.4, 37.8) | | | 49.7  (47.4, 51.7) | | | 67.7  (61.8, 74.8) | | 84.3  (75.3, 98.9) | |
| Female | 845 | 40.2  (34.0, 45.9) | | 47.4  (41.4, 54.1) | | 63.7  (57.2, 69.3) | | 81.8  (75.6, 89.7) | | 105  (97.4, 115) | | 136  (126, 148) | | 165  (146, 191) | | 1318 | | 19.8  (17.5, 21.0) | | 22.1  (21.1, 23.2) | | | 27.9  (26.7, 29.4) | | | 37.4  (35.5, 39.4) | | | 50.2  (47.0, 53.8) | | | 67.9 (63.8, 74.2) | | 83.5  (75.6, 91.9) | |
| Age group, y | | |  | |  | |  | |  | |  | |  | | | |  | |  | |  | | |  | | |  | | |  | | |  | | | |
| 20–29 | 268 | 41.4  (34.0, 44.6) | | 45.8  (41.4, 48.8) | | 56.7  (53.2, 63.4) | | 76.7  (71.7, 84.3) | | 98.1  (91.2, 107) | | 131  (111, 140) | | 149  (131, 157) | | 407 | | 16.9  (15.3, 19.3) | | 20.2  (17.5, 21.2) | | | 24.8  (23.8, 26.2) | | | 31.5  (29.5, 34.4) | | | 43.6  (39.5, 47.8) | | | 60.6  (50.8, 69.6) | | 75.0  (63.3, 84.3) | |
| 30–39 | 285 | 35.3  (28.6, 41.3) | | 43.3  (35.4, 52.3) | | 60.3  (52.0, 66.5) | | 77.9  (67.2, 90.0) | | 104  (90.6, 118) | | 136  (120, 165) | | 186  (128, 233) | | 396 | | 17.3  (15.3, 20.0) | | 21.5  (19.3, 22.7) | | | 27.6  (24.6, 30.3) | | | 36.3  (33.5, 40.0) | | | 47.3  (43.7, 49.0) | | | 61.3  (52.0, 72.5) | | 75.0  (61.3, 82.0) | |
| 40–49 | 252 | 34.0  (19.8, 47.3) | | 47.3  (36.7, 50.2) | | 54.9  (49.9, 68.3) | | 78.0  (69.3, 88.1) | | 103  (88.9, 119) | | 137  (109, 203) | | 191  (124, 298) | | 448 | | 18.4  (16.2, 21.4) | | 22.0  (19.9, 23.0) | | | 28.7  (26.3, 31.2) | | | 36.9  (35.0, 40.0) | | | 50.4  (45.8, 56.9) | | | 69.2  (58.8, 82.1) | | 88.0  (65.4, 119) | |
| 50–59 | 217 | 39.7  (28.8, 47.6) | | 45.0  (36.3, 53.5) | | 65.7  (54.5, 77.1) | | 89.7  (81.1, 97.4) | | 120  (107, 132) | | 161  (129, 202) | | 200  (143, 317) | | 401 | | 17.0  (15.1, 19.9) | | 20.3  (18.3, 22.0) | | | 26.9  (24.5, 31.0) | | | 37.9  (35.0, 41.2) | | | 53.8  (47.8, 60.9) | | | 68.2  (63.8, 75.6) | | 88.3  (71.1, 100) | |
| 60–69 | 289 | 38.5  (32.5, 44.3) | | 44.3  (40.2, 48.3) | | 60.3  (53.8, 66.2) | | 76.7  (70.0, 88.5) | | 106  (95.5, 119) | | 156  (126, 179) | | 183  (147, 231) | | 380 | | 18.1  (14.5, 22.0) | | 21.6  (18.6, 24.9) | | | 27.7  (26.1, 29.2) | | | 37.6  (33.2, 42.6) | | | 53.9  (46.0, 58.1) | | | 71.9  (59.6, 89.5) | | 100  (72.4, 117) | |
| ≥70 | 302 | 41.6  (39.5, 47.4) | | 50.9  (43.5, 57.5) | | 64.2  (58.7, 71.9) | | 82.6  (76.0, 90.9) | | 109  (96.8, 124) | | 146  (127, 157) | | 166  (146, 191) | | 430 | | 20.2  (18.0, 22.1) | | 23.9  (21.8, 26.0) | | | 31.7  (29.1, 33.9) | | | 42.2  (40.0, 44.3) | | | 57.8  (53.3, 62.8) | | | 77.4  (69.9, 87.0) | | 93.0  (83.1, 106) | |
| Race/Ethnicity | | |  | |  | |  | |  | |  | |  | | | |  | |  | |  | | |  | | |  | | |  | | |  | | | |
| NHW | 762 | 41.6  (34.0, 48.3) | | 50.1  (44.9, 54.9) | | 64.8  (57.5, 71.7) | | 84.5  (76.7, 93.3) | | 112  (100, 122) | | 146  (131, 165) | | 185  (156, 209) | | 1165 | | 18.9  (17.0, 20.6) | | 22.1  (20.6, 23.2) | | | 28.9  (27.3, 30.3) | | | 38.2  (36.4, 40.3) | | | 51.8  (49.8, 55.6) | | | 69.6  (64.6, 75.6) | | 88.1  (80.1, 98.9) | |
| NHB | 257 | 33.9  (31.0, 39.5) | | 39.5  (33.9, 44.8) | | 51.4  (46.5, 56.3) | | 70.6  (66.2, 75.7) | | 90.9  (83.4, 101) | | 122  (107, 138) | | 149  (127, 160) | | 405 | | 16.7  (13.9, 18.5) | | 20.0  (17.2, 21.6) | | | 24.9  (22.3, 27.1) | | | 33.0  (31.4, 35.0) | | | 43.2  (40.1, 46.4) | | | 56.6  (48.6, 63.3) | | 66.2  (57.4, 75.4) | |
| MA | 462 | 35.5  (28.5, 42.5) | | 43.2  (34.0, 51.2) | | 55.6  (48.1, 62.2) | | 76.4  (67.8, 84.1) | | 101  (91.2, 112) | | 147  (111, 189) | | 188  (155, 220) | | 489 | | 20.5  (17.7, 23.9) | | 23.7  (20.7, 27.1) | | | 30.6  (27.1, 33.8) | | | 40.8  (35.9, 44.9) | | | 55.2  (48.5, 60.9) | | | 74.6  (69.0, 80.5) | | 91.9  (78.2, 104) | |

1 Values are weighted concentrations (95% CI) at selected percentiles; same *n* as in Table 2. MA, Mexican-American; NHB, non-Hispanic Black; NHW, non-Hispanic White. Trans fatty acids: palmitelaidic acid, trans-vaccenic acid, elaidic acid, linoelaidic acid. Fasting: no meals in the past 8 or more hours.

**Supplemental Table 3.** Proportion of individual trans-fatty acids in percent relative to the sum of 4 trans-fatty acids in fasted adults 20 y and older, NHANES 1999–2000 and 2009–20101.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1999–2000** | | | | | | | | **2009–2010** | | | | | | |
|  | **Palmitelaidic acid** | | **trans-Vaccenic acid** | | **Elaidic acid** | | **Linoelaidic acid** | | **Palmitelaidic acid** | | **trans-Vaccenic acid** | | **Elaidic acid** | | **Linoelaidic acid** |
| All | 8.4  (8.2, 8.7)  1613 | | 46.7  (46.2, 47.2)  1613 | | 40.5  (39.9, 41.2)  1613 | | 3.4  (3.4, 3.5)  1613 | | 10.3  (10.1, 10.5)  2462 | | 48.0  (47.7, 48.4)  2462 | | 36.0  (35.5, 36.5)  2462 | | 4.2  (4.1, 4.4)  2462 |
| Sex |  | |  | |  | |  | |  | |  | |  | |  |
| Male | 8.3  (8.0, 8.6)  768 | | 47.6  (46.9, 48.3)  768 | | 39.8  (39.1, 40.5)  768 | | 3.4  (3.3, 3.5)  768 | | 10.2  (10.0, 10.5)  1144 | | 49.1  (48.7, 49.5)  1144 | | 35.1  (34.6, 35.7)  1144 | | 4.2  (4.1, 4.4)  1144 |
| Female | 8.6  (8.2, 8.9)  845 | | 45.8  (45.3, 46.3)  845 | | 41.2  (40.6, 41.9)  845 | | 3.5  (3.4, 3.6)  845 | | 10.4  (10.2, 10.6)  1318 | | 47.1  (46.6, 47.5)  1318 | | 36.8  (36.3, 37.4)  1318 | | 4.2  (4.1, 4.4)  1318 |
| Age group, y | |  | |  | |  | |  | |  | |  | |  | |
| 20–29 | 8.7  (8.4, 9.1)  268 | | 47.0  (46.4, 47.6)  268 | | 40.0  (39.2, 40.8)  268 | | 3.4  (3.2, 3.6)  268 | | 10.4  (10.0, 10.9)  407 | | 49.5  (48.7, 50.3)  407 | | 34.5  (33.6, 35.3)  407 | | 4.3  (4.1, 4.5)  407 |
| 30–39 | 8.2  (7.7, 8.8)  285 | | 48.1  (47.4, 48.9)  285 | | 39.5  (38.6, 40.4)  285 | | 3.3  (3.2, 3.5)  285 | | 10.5  (10.2, 10.8)  396 | | 48.7  (47.9, 49.6)  396 | | 35.3  (34.5, 36.0)  396 | | 4.2  (4.0, 4.4)  396 |
| 40–49 | 8.2  (7.7, 8.8)  252 | | 47.4  (46.2, 48.6)  252 | | 40.1  (38.9, 41.3)  252 | | 3.4  (3.2, 3.6)  252 | | 10.1  (9.80, 10.4)  448 | | 48.7  (47.8, 49.6)  448 | | 35.6  (34.7, 36.5)  448 | | 4.2  (3.9, 4.5)  448 |
| 50–59 | 8.1  (7.8, 8.4)  217 | | 45.0  (43.9, 46.1)  217 | | 42.2  (41.1, 43.3)  217 | | 3.7  (3.5, 3.9)  217 | | 10.2  (9.90, 10.5)  401 | | 47.1  (46.1, 48.1)  401 | | 36.9  (36.0, 37.7)  401 | | 4.4  (4.2, 4.6)  401 |
| 60–69 | 8.8  (8.4, 9.3)  289 | | 45.1  (44.4, 45.9)  289 | | 41.3  (40.5, 42.2)  289 | | 3.7  (3.5, 3.9)  289 | | 10.5  (10.1, 10.8)  380 | | 47.4  (46.7, 48.2)  380 | | 36.3  (35.3, 37.3)  380 | | 4.2  (4.0, 4.5)  380 |
| ≥70 | 8.8  (8.3, 9.3)  302 | | 45.6  (44.9, 46.2)  302 | | 41.6  (40.8, 42.4)  302 | | 3.3  (3.2, 3.5)  302 | | 10.3  (10.1, 10.6)  430 | | 45.8  (45.0, 46.6)  430 | | 38.7  (37.6, 39.8)  430 | | 4.0  (3.7, 4.2)  430 |
| Race/Ethnicity | |  | |  | |  | |  | |  | |  | |  | |
| NHW | 8.5  (8.2, 8.8)  762 | | 46.6  (46.0, 47.2)  762 | | 40.6  (39.9, 41.3)  762 | | 3.5  (3.4, 3.6)  762 | | 10.4  (10.1, 10.6)  1165 | | 48.2  (47.7, 48.7)  1165 | | 35.8  (35.2, 36.5)  1165 | | 4.2  (4.0, 4.4)  1165 |
| NHB | 7.7  (7.2, 8.4)  257 | | 47.6  (46.1, 49.0)  257 | | 40.5  (39.2, 41.9)  257 | | 3.2  (3.0, 3.3)  257 | | 9.9  (9.7, 10.2)  405 | | 47.9  (46.7, 49.2)  405 | | 36.4  (35.3, 37.6)  405 | | 4.3  (4.1, 4.5)  405 |
| MA | 8.4  (8.0, 8.7)  462 | | 46.6  (45.8, 47.4)  462 | | 40.9  (40.2, 41.5)  462 | | 3.4  (3.2, 3.6)  462 | | 9.7  (9.4, 10.0)  489 | | 47.9  (47.3, 48.4)  489 | | 37.3  (36.5, 38.1)  489 | | 4.0  (3.9, 4.2)  489 |

1 Values are proportion in percent (95%CI) and n. MA, Mexican-American; NHB, non-Hispanic Black; NHW, non-Hispanic White. Trans fatty acids: palmitelaidic acid, trans-vaccenic acid, elaidic acid, linoelaidic acid. Fasting: no meals in the past 8 or more hours.

**Supplemental Table 4.** Correlation of plasma trans-fatty acid concentrations (mol/L) in fasting adults 20 y and older, by NHANES survey1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | trans-Vaccenic acid | | Elaidic acid | | Linoelaidic acid | | SumTFA | |
|  | 1999-2000 | 2009-2010 | 1999-2000 | 2009-2010 | 1999-2000 | 2009-2010 | 1999-2000 | 2009-2010 |
| Palmitelaidic acid | 0.81  (1671) | 0.80  (2571) | 0.81  (1643) | 0.76  (2573) | 0.67 (1648) | 0.65 (2465) | 0.84 (1613) | 0.84 (2462) |
| trans-Vaccenic acid |  |  | 0.92  (1641) | 0.87  (2575) | 0.73 (1646) | 0.68 (2463) | 0.98 (1613) | 0.97 (2462) |
| Elaidic acid |  |  |  |  | 0.82 (1618) | 0.77 (2466) | 0.98 (1613) | 0.96 (2462) |
| Linoelaidic acid |  |  |  |  |  |  | 0.80 (1613) | 0.76 (2462) |

1 Values are weighted Pearson correlation coefficients of the trans-fatty acid concentrations, followed by number of subjects (*n)* with results for both trans-fatty acids indicated by the row and column headings.

**Supplemental Table 5.** Characteristics of fasting adults 20 y and older for tertiles of the sum of 4 trans-fatty acids for NHANES 1999–2000 and 2009–20101

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **NHANES 1999-2000** | | | **NHANES 2009-2010** | | |
| **Parameter** | Tertile 1 | Tertile 2 | Tertile 3 | Tertile 1 | Tertile 2 | Tertile 3 |
| Number of participants, n  (range), µmol/L | 532  (11.0 - 65.5) | 533  (65.6 - 95.0) | 548  (95.1 - 596) | 812  (7.33 - 30.9) | 813  (31.0 - 45.3) | 837  (45.4 - 307) |
| Body mass index, median (interquartile range), kg/m2 | 25.3  (22.6 - 28.9) | 26.2  (23.4 - 30.3) | 28.5  (24.6 - 33.3) | 25.7  (22.4 - 29.8) | 28.5  (24.4 - 33.0) | 29.4  (26.0 - 33.9) |
| Cholesterol, median (interquartile range), mg/dL | 189  (162 - 214) | 199  (177 - 226) | 214  (188 - 238) | 178  (155 - 202) | 194  (171 - 222) | 203  (180 - 237) |
| Low-density lipoprotein cholesterol, median (interquartile range), mg/dL | 116  (93 - 137) | 123 (103 - 148) | 130  (108 - 155) | 101  (81 - 124) | 118  (95 - 139) | 122  (98 - 148) |
| High-density lipoprotein cholesterol, median (interquartile range), mg/dL | 51  (43 - 62) | 48  (41 - 59) | 43  (34 - 52) | 57  (46 - 68) | 52  (43 - 64) | 46  (39 - 56) |
| Triglycerides, median (interquartile range), mg/dL | 85  (64 - 120) | 113  (85 - 148) | 173  (126 - 233) | 77  (60 - 100) | 106  (81 - 137) | 153  (111 - 213) |
| HbA1c, median (interquartile range), % | 5.1  (4.9 - 5.4) | 5.1  (4.9 - 5.4) | 5.3  (5.0 - 5.6) | 5.4  (5.2 - 5.7) | 5.4  (5.2 - 5.7) | 5.6  (5.3 - 5.9) |
| Total kilo calories, median (interquartile range) | 2086  (1528 - 2686) | 2027  (1485 - 2645) | 2228  (1578 - 2957) | 1972  (1493 - 2610) | 1943  (1515 - 2634) | 2023  (1484 - 2733) |
| Healthy Eating Index, median (interquartile range) | 49.2  (37.8 - 59.4) | 46.4  (35.9 - 55.6) | 40.8  (32.3 - 50.7) | 51.9  (41.4 - 63.9) | 45.9  (36.9 - 57.6) | 44.6  (36.1 - 54.6) |

1 Values are weighted means (95% CI). Fasting: no meals in the past 8 or more hours. Trans-fatty acids: palmitelaidic acid, trans-vaccenic acid, elaidic acid, and linoelaidic acid.

**Supplemental Table 6.** Percentile distribution of palmitelaidic acid (mol/L) in fasted adults 20 y and older, NHANES 1999–2000 and 2009–20101.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1999–2000** | | | | | | | | | | | | | | | | | **2009–2010** | | | | | | | | | | | | | | | | | | | | | | | |
| Category | ***n*** | | **5th** | | **10th** | | **25th** | | **50th** | | **75th** | | **90th** | | **95th** | | ***n*** | | **5th** | | | **10th** | | | **25th** | | | **50th** | | | **75th** | | | **90th** | | | **95th** | | |
| All | 1678 | | 3.14  (2.78, 3.49) | | 3.78  (3.44, 4.16) | | 5.00  (4.67, 5.38) | | 6.73  (6.32, 7.20) | | 9.05  (8.48, 9.64) | | 12.0  (11.2, 12.7) | | 14.1  (12.8, 15.4) | | 2574 | | 1.97  (1.85, 2.08) | | | 2.22  (2.16, 2.30) | | | 2.89  (2.81, 2.96) | | | 3.83  (3.76, 3.89) | | | 5.12  (4.91, 5.36) | | | 6.68  (6.44, 6.95) | | | 7.70  (7.32, 8.04) | | |
| Sex |  | |  | |  | |  | |  | |  | |  | |  | |  | | | |  | | |  | |  | | |  | | |  | | |  | | |  | | |
| Male | 796 | | 2.90  (2.54, 3.26) | | 3.63  (3.12, 3.97) | | 4.77  (4.45, 5.14) | | 6.39  (5.95, 7.21) | | 8.97  (7.99, 10.1) | | 12.5  (10.9, 13.7) | | 14.8  (12.7, 17.8) | | 1196 | | 1.90  (1.74, 2.01) | | | 2.14  (2.10, 2.21) | | | 2.78  (2.62, 2.93) | | | 3.75  (3.64, 3.91) | | | 5.01  (4.77, 5.25) | | | 6.43  (6.02, 6.82) | | | 7.68  (7.02, 8.27) | | |
| Female | 882 | | 3.44  (2.94, 3.75) | | 3.93  (3.47, 4.55) | | 5.23  (4.80, 5.61) | | 6.91  (6.45, 7.41) | | 9.20  (8.56, 9.77) | | 11.6  (11.1, 12.4) | | 13.6  (12.5, 14.3) | | 1378 | | 2.03  (1.83, 2.21) | | | 2.33  (2.21, 2.50) | | | 2.97  (2.87, 3.07) | | | 3.87  (3.78, 3.99) | | | 5.25  (4.92, 5.57) | | | 6.82  (6.56, 7.14) | | | 7.71  (7.32, 8.40) | | |
| Age group, y | |  | |  | |  | |  | |  | |  | |  | |  | | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |
| 20–29 | 284 | | 3.23  (2.64, 3.97) | | 3.97  (3.21, 4.45) | | 4.97  (4.47, 5.37) | | 6.44  (5.95, 7.36) | | 8.93  (7.84, 9.39) | | 11.6  (10.1, 13.0) | | 13.6  (11.6, 14.8) | | 428 | | 1.95  (1.78, 2.10) | | | 2.13  (2.03, 2.22) | | | 2.61  (2.46, 2.78) | | | 3.39  (3.24, 3.60) | | | 4.36  (4.10, 4.72) | | | 5.76  (5.12, 6.64) | | | 6.88  (5.97, 7.87) | | |
| 30–39 | 295 | | 2.94  (2.54, 3.49) | | 3.59  (2.94, 3.95) | | 4.79  (3.95, 5.36) | | 6.49  (5.36, 7.18) | | 8.36  (7.12, 10.0) | | 12.2  (10.2, 13.0) | | 13.9  (12.6, 15.4) | | 415 | | 1.91  (1.59, 2.21) | | | 2.28  (2.12, 2.45) | | | 2.93  (2.69, 3.10) | | | 3.76  (3.65, 3.91) | | | 5.14  (4.66, 5.57) | | | 6.56  (5.88, 6.98) | | | 7.38  (6.62, 8.32) | | |
| 40–49 | 262 | | 2.82  (2.47, 3.56) | | 3.80  (3.43, 4.29) | | 4.96  (4.64, 5.24) | | 6.34  (5.53, 7.47) | | 8.66  (7.24, 10.5) | | 11.2  (9.28, 18.8) | | 16.8  (10.2, 25.9) | | 474 | | 1.99  (1.76, 2.15) | | | 2.23  (2.12, 2.34) | | | 2.93  (2.70, 3.11) | | | 3.82  (3.56, 4.00) | | | 5.01  (4.44, 5.36) | | | 6.14  (5.53, 7.14) | | | 7.69  (6.20, 8.92) | | |
| 50–59 | 228 | | 2.96  (2.26, 3.84) | | 3.75  (2.99, 4.41) | | 5.24  (4.19, 6.35) | | 7.37  (6.37, 8.41) | | 9.77  (8.99, 10.7) | | 12.4  (11.3, 13.0) | | 13.5  (12.3, 17.5) | | 415 | | 1.74  (1.58, 2.07) | | | 2.16  (1.95, 2.32) | | | 2.88  (2.62, 3.12) | | | 4.00  (3.66, 4.21) | | | 5.32  (4.48, 6.06) | | | 6.82  (6.20, 7.01) | | | 7.65  (6.91, 8.72) | | |
| 60–69 | 303 | | 3.40  (2.76, 3.71) | | 3.81  (3.45, 4.38) | | 5.36  (4.40, 5.78) | | 6.92  (6.28, 7.62) | | 9.68  (8.44, 10.5) | | 12.8  (11.2, 15.1) | | 15.6  (12.7, 18.7) | | 396 | | 2.12  (1.73, 2.28) | | | 2.34  (2.08, 2.69) | | | 3.07  (2.82, 3.30) | | | 3.99  (3.71, 4.25) | | | 5.40  (4.91, 6.04) | | | 7.18  (6.43, 7.87) | | | 8.13  (7.27, 9.13) | | |
| ≥70 | 306 | | 3.62  (3.05, 4.16) | | 4.45  (3.65, 5.03) | | 6.05  (5.19, 6.39) | | 7.52  (6.87, 7.90) | | 9.61  (9.06, 10.6) | | 12.3  (10.9, 12.7) | | 14.0  (12.6, 14.7) | | 446 | | 2.19  (1.92, 2.44) | | | 2.49  (2.28, 2.77) | | | 3.28  (3.08, 3.53) | | | 4.45  (4.16, 4.71) | | | 5.88  (5.40, 6.42) | | | 7.55  (7.02, 8.37) | | | 8.84  (7.79, 10.3) | | |
| Race/Ethnicity | | | |  | |  | |  | |  | |  | |  | |  | | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |
| NHW | 789 | | 3.69  (3.44, 3.95) | | 4.37  (3.84, 4.71) | | 5.54  (5.14, 5.94) | | 7.24  (6.79, 7.61) | | 9.57  (8.87, 10.4) | | 12.5  (11.5, 13.5) | | 14.7  (13.1, 16.8) | | 1219 | | 2.10  (1.98, 2.17) | | | 2.33  (2.22, 2.53) | | | 3.09  (2.95, 3.20) | | | 4.01  (3.90, 4.11) | | | 5.33  (5.06, 5.55) | | | 6.90  (6.64, 7.18) | | | 7.99  (7.55, 8.72) | | |
| NHB | 271 | | 2.67  (2.26, 3.06) | | 3.06  (2.42, 3.40) | | 3.75  (3.28, 4.50) | | 5.47  (4.50, 6.27) | | 7.28  (6.35, 7.85) | | 9.19  (7.87, 10.9) | | 11.2  (9.42, 13.2) | | 427 | | 1.58  (1.36, 1.88) | | | 1.89  (1.55, 2.22) | | | 2.50  (2.24, 2.74) | | | 3.25  (3.05, 3.52) | | | 4.23  (3.88, 4.67) | | | 5.25  (4.77, 6.03) | | | 6.04  (5.28, 6.86) | | |
| MA | 464 | | 3.19  (2.69, 3.38) | | 3.44  (3.22, 4.09) | | 4.73  (4.39, 5.05) | | 6.29  (5.67, 6.94) | | 8.91  (7.95, 9.87) | | 11.8  (10.3, 13.4) | | 13.5  (12.1, 15.5) | | 498 | | 2.16  (1.79, 2.32) | | | 2.35  (2.21, 2.67) | | | 3.01  (2.70, 3.32) | | | 3.85  (3.54, 4.31) | | | 5.41  (4.78, 5.82) | | | 6.95  (6.34, 7.35) | | | 7.89  (7.12, 8.32) | | |

1 Values are weighted concentrations. Fasting: no meals in the past 8 or more hours.  
(95% CI) at selected percentiles; same *n* as in Table 2. MA, Mexican-American; NHB, non-Hispanic Black; NHW, non-Hispanic White.

**Supplemental Table 7.** Percentile distribution of trans-vaccenic acid (mol/L) in fasted adults 20 y and older, NHANES 1999–2000 and 2009–2010.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1999–2000** | | | | | | | | | | | | | | | | | | | | | | | **2009–2010** | | | | | | | | | | | | | | | | | | | | | | |
| Category | ***n*** | **5th** | | | **10th** | | | **25th** | | | **50th** | | | **75th** | | | **90th** | | | **95th** | | | ***n*** | | **5th** | | | **10th** | | | **25th** | | | **50th** | | | **75th** | | | **90th** | | | **95th** | | |
| All | 1675 | 17.5  (15.8, 19.2) | | | 20.7  (19.2, 22.6) | | | 28.3  (26.6, 29.9) | | | 37.6  (35.1, 40.8) | | | 49.8  (45.7, 54.9) | | | 66.7  (61.1, 73.5) | | | 85.1  (73.0, 93.2) | | | 2575 | | 7.90  (7.05, 8.59) | | | 9.59  (9.07, 10.1) | | | 13.0  (12.5, 13.6) | | | 17.8  (17.3, 18.4) | | | 24.6  (23.8, 25.4) | | | 32.8  (30.8, 35.3) | | | 41.3  (38.4, 43.7) | | |
| Sex |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |
| Male | 793 | 15.9  (13.3, 19.0) | | | 20.1  (17.5, 22.3) | | | 27.2  (24.6, 29.1) | | | 37.6  (33.9, 41.2) | | | 51.2  (45.4, 58.9) | | | 71.9  (64.1, 78.5) | | | 92.0  (77.8, 112) | | | 1198 | | 7.66  (7.05, 8.30) | | | 9.24  (8.50, 9.95) | | | 12.7  (12.0, 13.8) | | | 17.8  (17.2, 18.7) | | | 25.0  (23.9, 26.3) | | | 34.5  (31.1, 37.5) | | | 43.4  (38.5, 48.4) | | |
| Female | 882 | 18.8  (17.1, 19.9) | | | 21.3  (19.7, 23.9) | | | 29.6  (27.3, 30.9) | | | 37.6  (34.7, 41.2) | | | 48.5  (45.3, 52.0) | | | 61.7  (57.0, 69.1) | | | 75.2  (63.8, 88.7) | | | 1377 | | 8.34  (7.03, 9.04) | | | 10.1  (9.31, 10.8) | | | 13.2  (12.5, 13.7) | | | 17.7  (16.7, 18.5) | | | 24.3  (23.0, 25.6) | | | 31.7  (29.8, 34.2) | | | 39.8  (35.3, 42.9) | | |
| Age group, y | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |
| 20–29 | 282 | 18.7  (17.0, 21.7) | | | 21.7  (18.6, 24.5) | | | 28.1  (24.9, 30.5) | | | 35.7  (32.5, 38.7) | | | 45.6  (41.2, 52.5) | | | 58.8  (52.0, 65.0) | | | 68.8  (59.0, 75.2) | | | 428 | | 7.48  (6.89, 8.39) | | | 8.91  (7.66, 10.6) | | | 12.1  (11.2, 13.0) | | | 16.0  (14.8, 17.3) | | | 22.1  (20.1, 24.5) | | | 30.7  (25.8, 37.0) | | | 40.6  (31.4, 43.4) | | |
| 30–39 | 296 | 16.7  (12.7, 19.8) | | | 20.3  (16.7, 24.8) | | | 29.1  (24.0, 32.0) | | | 38.6  (32.3, 43.7) | | | 49.9  (45.4, 55.4) | | | 64.1  (55.4, 85.1) | | | 86.0  (62.3, 120) | | | 414 | | 8.27  (6.69, 9.31) | | | 9.90  (8.98, 10.9) | | | 13.5  (12.3, 14.7) | | | 18.3  (17.2, 19.4) | | | 23.7  (21.4, 25.6) | | | 30.9  (26.3, 37.9) | | | 38.6  (30.9, 44.3) | | |
| 40–49 | 261 | 17.0  (10.0, 21.2) | | | 20.3  (17.4, 23.3) | | | 27.5  (23.6, 31.3) | | | 37.9  (34.0, 42.2) | | | 51.8  (42.3, 62.9) | | | 72.9  (53.5, 102) | | | 96.5  (63.4, 164) | | | 474 | | 8.57  (7.03, 9.47) | | | 10.2  (8.78, 11.0) | | | 13.5  (12.2, 15.1) | | | 17.7  (16.8, 19.2) | | | 24.9  (22.7, 26.4) | | | 31.8  (28.7, 42.0) | | | 44.6  (31.8, 64.1) | | |
| 50–59 | 227 | 17.6  (12.5, 20.8) | | | 19.9  (17.0, 23.8) | | | 28.7  (24.1, 33.7) | | | 41.5  (36.6, 45.0) | | | 51.4  (46.4, 60.1) | | | 71.9  (58.8, 85.9) | | | 85.9  (64.1, 124) | | | 414 | | 7.07  (5.68, 8.67) | | | 8.70  (7.86, 10.1) | | | 12.9  (11.0, 14.6) | | | 18.3  (16.7, 20.0) | | | 25.8  (23.9, 28.2) | | | 34.6  (31.4, 36.9) | | | 40.9  (35.4, 48.7) | | |
| 60–69 | 303 | 17.0  (15.0, 18.9) | | | 19.4  (17.5, 22.3) | | | 25.9  (22.8, 29.2) | | | 35.3  (32.2, 38.1) | | | 49.4  (43.0, 57.3) | | | 73.0  (59.0, 87.5) | | | 92.0  (72.6, 105) | | | 399 | | 8.34  (5.74, 9.87) | | | 9.58  (8.30, 11.8) | | | 13.4  (12.4, 14.2) | | | 18.1  (16.2, 20.1) | | | 25.6  (22.2, 28.3) | | | 33.5  (29.8, 40.8) | | | 44.3  (35.1, 53.5) | | |
| ≥70 | 306 | 19.0  (16.8, 21.9) | | | 23.4  (20.7, 26.9) | | | 30.2  (28.0, 31.2) | | | 37.7  (34.7, 40.4) | | | 49.4  (46.0, 54.4) | | | 69.0  (56.4, 75.2) | | | 77.4  (71.2, 114) | | | 446 | | 8.75  (7.66, 10.1) | | | 10.7  (9.77, 11.9) | | | 14.5  (13.2, 15.5) | | | 19.1  (18.3, 20.3) | | | 26.8  (24.9, 28.6) | | | 36.0  (31.2, 40.5) | | | 41.9  (37.9, 53.4) | | |
| Race/Ethnicity | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |
| NHW | 788 | 19.2  (17.0, 21.8) | | | 23.3  (20.5, 25.5) | | | 30.4  (27.9, 32.5) | | | 40.2  (36.2, 43.7) | | | 51.3  (46.8, 57.7) | | | 69.0  (61.9, 77.4) | | | 86.4  (74.0, 98.4) | | | 1222 | | 8.41  (7.48, 9.25) | | | 10.4  (9.47, 10.9) | | | 13.8  (13.3, 14.7) | | | 18.5  (18.0, 19.2) | | | 25.6  (24.6, 26.4) | | | 33.9  (31.2, 37.3) | | | 42.8  (39.2, 48.4) | | |
| NHB | 271 | 15.7  (13.3, 18.5) | | | 17.8  (15.0, 20.2) | | | 23.4  (20.0, 27.9) | | | 33.8  (30.2, 37.8) | | | 44.4  (39.3, 52.0) | | | 59.4  (52.8, 63.8) | | | 75.3  (61.5, 84.4) | | | 427 | | 6.72  (6.05, 8.30) | | | 8.51  (6.72, 10.0) | | | 11.5  (10.8, 12.5) | | | 16.0  (15.3, 16.8) | | | 21.4  (19.5, 22.6) | | | 27.3  (24.7, 30.1) | | | 32.2  (27.4, 37.4) | | |
| MA | 463 | 16.7  (13.1, 18.8) | | | 20.2  (17.7, 22.3) | | | 25.7  (23.5, 29.1) | | | 35.1  (31.3, 38.8) | | | 46.8  (42.7, 53.7) | | | 66.7  (55.0, 88.4) | | | 88.9  (73.8, 109) | | | 498 | | 9.06  (7.87, 10.7) | | | 10.9  (9.07, 12.3) | | | 14.1  (12.4, 15.8) | | | 19.2  (16.7, 21.8) | | | 26.1  (23.9, 29.3) | | | 37.1  (33.0, 40.6) | | | 46.1  (40.5, 54.2) | | |

1 Values are weighted concentrations, Fasting: no meals in the past 8 or more hours.  
(95% CI) at selected percentiles; same *n* as in Table 2. MA, Mexican-American; NHB, non-Hispanic Black; NHW, non-Hispanic White.

**Supplemental Table 8.** Percentile distribution of elaidic acid (mol/L) in fasted adults 20 y and older, NHANES 1999–2000 and 2009–2010.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1999-2000** | | | | | | | | | | | | | | | | **2009-2010** | | | | | | | | | | | | | | | |
| Category | ***n*** | **5th** | | **10th** | | **25th** | | **50th** | | **75th** | | **90th** | | **95th** | | ***n*** | | **5th** | | **10th** | | **25th** | | **50th** | | **75th** | | **90th** | | **95th** | |
| All | 1646 | 14.4  (12.1, 16.6) | | 17.6  (15.7, 19.4) | | 23.7  (21.9, 25.4) | | 32.4  (29.0, 36.0) | | 45.1  (41.2, 49.1) | | 60.7  (55.4, 69.1) | | 80.8  (68.1, 90.3) | | 2578 | | 6.02  (5.63, 6.45) | | 6.86  (6.46, 7.37) | | 9.23  (8.78, 9.75) | | 13.0  (12.3, 13.8) | | 18.5  (17.7, 19.4) | | 26.6  (24.8, 28.2) | | 33.9  (32.1, 35.6) | |
| Sex |  |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |
| Male | 787 | 13.2  (11.4, 16.3) | | 17.0  (14.7, 18.6) | | 21.8  (20.7, 23.7) | | 30.7  (27.0, 35.1) | | 44.6  (39.0, 50.7) | | 63.1  (53.2, 78.9) | | 82.9  (66.4, 97.3) | | 1199 | | 5.81  (5.48, 6.13) | | 6.62  (6.19, 7.05) | | 8.81  (8.38, 9.34) | | 12.4  (11.6, 13.2) | | 17.9  (16.9, 19.0) | | 25.4  (23.2, 27.5) | | 32.6  (28.6, 35.4) | |
| Female | 859 | 14.6  (12.1, 18.1) | | 18.7  (15.5, 21.2) | | 25.6  (23.3, 27.5) | | 33.7  (30.7, 37.5) | | 45.3  (41.5, 49.4) | | 60.4  (54.7, 68.5) | | 77.3  (60.7, 90.7) | | 1379 | | 6.29  (5.84, 6.67) | | 7.19  (6.61, 8.10) | | 9.72  (8.92, 10.5) | | 13.6  (12.5, 14.7) | | 19.0  (18.0, 20.6) | | 27.3  (25.2, 30.0) | | 34.1  (32.6, 36.4) | |
| Age group, y | | |  | |  | |  | |  | |  | |  | |  | | | |  | |  | |  | |  | |  | |  | |  | |
| 20–29 | 274 | 14.8  (13.1, 17.3) | | 17.6  (15.2, 19.6) | | 22.1  (20.1, 25.0) | | 30.8  (27.6, 34.5) | | 41.5  (38.1, 44.3) | | 54.0  (46.1, 60.6) | | 61.6  (54.0, 68.2) | | 428 | | 5.82  (4.93, 6.14) | | 6.42  (5.88, 6.98) | | 8.43  (7.64, 8.92) | | 10.9  (10.1, 12.0) | | 15.5  (14.2, 17.0) | | 21.8  (18.0, 25.6) | | 26.8  (23.0, 32.6) | |
| 30–39 | 291 | 12.4  (11.4, 14.5) | | 15.7  (12.2, 20.9) | | 22.9  (19.4, 25.7) | | 30.6  (25.9, 36.1) | | 43.7  (37.5, 49.4) | | 58.3  (51.9, 68.1) | | 81.3  (56.2, 94.6) | | 415 | | 5.96  (5.51, 6.63) | | 6.91  (5.96, 8.07) | | 9.3  (8.47, 9.95) | | 12.9  (11.6, 14.0) | | 17.7  (15.6, 19.0) | | 23.6  (20.6, 24.6) | | 26.9  (24.0, 33.9) | |
| 40–49 | 256 | 13.4  (9.70, 18.1) | | 17.6  (12.4, 19.8) | | 22.9  (19.7, 25.2) | | 31.3  (25.5, 38.1) | | 44.1  (35.4, 52.3) | | 64.5  (44.6, 127) | | 101  (53.0, 153) | | 475 | | 6.02  (4.88, 6.86) | | 6.86  (6.21, 7.70) | | 9.44  (8.67, 10.0) | | 12.8  (11.8, 14.3) | | 18.5  (16.9, 20.7) | | 25.9  (22.1, 31.7) | | 33.6  (26.2, 41.9) | |
| 50–59 | 223 | 16.0  (11.4, 19.0) | | 18.1  (16.0, 22.8) | | 27.6  (23.1, 30.5) | | 37.3  (32.8, 41.3) | | 52.6  (45.0, 56.0) | | 69.7  (55.6, 90.3) | | 90.7  (58.5, 164) | | 415 | | 6.17  (5.55, 6.96) | | 6.96  (6.22, 7.94) | | 9.57  (8.75, 10.7) | | 14.0  (12.1, 15.3) | | 19.6  (16.4, 23.1) | | 28.1  (25.1, 31.9) | | 34.1  (30.7, 40.5) | |
| 60–69 | 299 | 14.4  (12.6, 17.6) | | 17.8  (14.6, 19.2) | | 24.8  (20.8, 27.1) | | 33.3  (28.4, 38.2) | | 45.5  (40.6, 53.2) | | 65.0  (54.0, 81.9) | | 82.9  (64.4, 93.2) | | 399 | | 5.83  (5.45, 6.64) | | 6.64  (5.99, 7.46) | | 9.10  (8.07, 10.7) | | 13.7  (12.7, 15.1) | | 19.6  (18.1, 22.4) | | 30.7  (25.5, 35.5) | | 41.1  (29.5, 55.2) | |
| ≥70 | 303 | 16.9  (14.7, 18.2) | | 18.8  (18.1, 21.6) | | 26.3  (23.7, 28.5) | | 34.7  (30.9, 38.9) | | 48.3  (44.4, 54.5) | | 62.7  (58.5, 69.4) | | 75.8  (61.8, 81.8) | | 446 | | 7.23  (6.19, 8.25) | | 8.70  (7.37, 9.70) | | 11.4  (10.5, 12.4) | | 16.3  (15.0, 17.2) | | 23.8  (22.4, 25.0) | | 33.8  (29.0, 36.5) | | 38.3  (36.5, 42.1) | |
| Race/Ethnicity | | |  | |  | |  | |  | |  | |  | |  | | | |  | |  | |  | |  | |  | |  | |  | |
| NHW | 785 | 15.9  (12.1, 18.9) | | 19.3  (16.5, 21.7) | | 25.5  (23.0, 27.8) | | 34.9  (30.8, 38.4) | | 47.3  (41.5, 53.0) | | 63.1  (55.9, 75.8) | | 82.9  (68.1, 96.4) | | 1224 | | 6.11  (5.69, 6.63) | | 7.00  (6.45, 7.88) | | 9.61  (9.07, 10.3) | | 13.6  (12.8, 14.5) | | 19.4  (18.4, 20.6) | | 27.3  (26.0, 29.6) | | 35.0  (33.1, 37.2) | |
| NHB | 262 | 14.2  (12.5, 15.4) | | 16.0  (14.3, 17.5) | | 20.7  (19.1, 22.8) | | 28.5  (26.7, 30.1) | | 38.0  (33.0, 41.6) | | 54.4  (41.8, 59.7) | | 60.1  (49.1, 70.5) | | 427 | | 5.88  (4.34, 6.69) | | 6.80  (6.14, 7.49) | | 8.67  (7.77, 9.59) | | 11.8  (10.6, 12.8) | | 15.8  (14.6, 17.0) | | 21.4  (17.3, 28.8) | | 28.1  (21.8, 32.2) | |
| MA | 464 | 13.9  (12.1, 15.9) | | 16.4  (13.8, 19.4) | | 21.4  (19.0, 24.6) | | 31.2  (27.9, 34.2) | | 43.4  (38.6, 48.8) | | 63.1  (48.8, 81.3) | | 81.3  (67.3, 101) | | 498 | | 7.21  (6.17, 8.19) | | 8.15  (7.36, 9.31) | | 10.7  (9.09, 12.6) | | 15.3  (13.4, 17.0) | | 20.4  (18.2, 23.9) | | 28.6  (25.2, 33.2) | | 35.6  (31.4, 41.6) | |

1 Values are weighted concentrations, Fasting: no meals in the past 8 or more hours.  
(95% CI) at selected percentiles; same *n* as in Table 2. MA, Mexican-American; NHB, non-Hispanic Black; NHW, non-Hispanic White.

**Supplemental Table 9.** Percentile distribution of linoelaidic acid (mol/L) in fasted adults 20 y and older, NHANES 1999–2000 and 2009–2010.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **1999-2000** | | | | | | | | | | | | | | | | **2009-2010** | | | | | | | | | | | | | | | | |
| Category | ***n*** | | **5th** | | **10th** | | **25th** | | **50th** | | **75th** | | **90th** | | **95th** | | ***n*** | | **5th** | | | **10th** | | **25th** | | **50th** | | **75th** | | **90th** | | **95th** | |
| All | 1650 | | 1.28  (1.17, 1.36) | | 1.50  (1.35, 1.62) | | 2.03  (1.82, 2.19) | | 2.72  (2.50, 3.00) | | 3.81  (3.49, 4.16) | | 5.20  (4.62, 5.75) | | 6.21  (5.58, 6.96) | | 2467 | | 0.815  (0.778, 0.847) | | | 0.924  (0.896, 0.951) | | 1.17  (1.12, 1.21) | | 1.54  (1.47, 1.62) | | 2.09  (2.00, 2.18) | | 2.76  (2.59, 3.00) | | 3.35  (3.09, 3.64) | |
| Sex |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | | |  | |  | |  | |  | |  | |  | |
| Male | 781 | | 1.30  (1.17, 1.36) | | 1.52  (1.35, 1.65) | | 1.98  (1.76, 2.20) | | 2.62  (2.36, 2.87) | | 3.64  (3.28, 3.95) | | 5.17  (4.32, 6.14) | | 6.24  (5.56, 7.72) | | 1146 | | 0.801  (0.763, 0.868) | | | 0.914  (0.881, 0.947) | | 1.16  (1.09, 1.20) | | 1.51  (1.43, 1.60) | | 2.05  (1.95, 2.17) | | 2.70  (2.52, 2.87) | | 3.13  (2.87, 3.63) | |
| Female | 869 | | 1.26  (1.10, 1.40) | | 1.48  (1.34, 1.61) | | 2.03  (1.86, 2.23) | | 2.81  (2.56, 3.16) | | 3.99  (3.58, 4.34) | | 5.22  (4.74, 5.73) | | 6.01  (5.34, 6.96) | | 1321 | | 0.821  (0.769, 0.868) | | | 0.943  (0.881, 0.986) | | 1.18  (1.12, 1.25) | | 1.57  (1.46, 1.71) | | 2.14  (1.98, 2.28) | | 2.87  (2.63, 3.17) | | 3.45  (3.14, 3.82) | |
| Age group, y | | | |  | |  | |  | |  | |  | |  | |  | | | |  |  | |  | |  | |  | |  | |  | |
| 20–29 | 280 | | 1.27  (1.10, 1.35) | | 1.39  (1.30, 1.52) | | 1.80  (1.65, 1.98) | | 2.53  (2.16, 2.81) | | 3.58  (2.91, 4.33) | | 4.96  (3.88, 5.75) | | 5.75  (4.41, 6.21) | | 409 | | 0.732  (0.679, 0.792) | | | 0.863  (0.789, 0.930) | | 1.07  (1.01, 1.12) | | 1.38  (1.28, 1.46) | | 1.84  (1.71, 2.03) | | 2.62  (2.26, 2.82) | | 3.05  (2.76, 3.63) | |
| 30–39 | 291 | | 1.18  (0.945, 1.44) | | 1.39  (1.17, 1.64) | | 1.87  (1.62, 2.22) | | 2.56  (2.31, 2.78) | | 3.74  (3.17, 3.99) | | 4.93  (4.17, 5.52) | | 5.62  (5.13, 6.55) | | 397 | | 0.808  (0.729, 0.907) | | | 0.907  (0.831, 1.03) | | 1.18  (1.08, 1.26) | | 1.49  (1.38, 1.64) | | 1.97  (1.85, 2.11) | | 2.34  (2.21, 2.66) | | 2.79  (2.45, 3.41) | |
| 40–49 | 258 | | 1.28  (1.12, 1.41) | | 1.49  (1.28, 1.75) | | 2.03  (1.68, 2.27) | | 2.61  (2.35, 2.79) | | 3.51  (2.79, 4.24) | | 4.98  (3.74, 7.17) | | 7.02  (4.63, 9.54) | | 449 | | 0.828  (0.776, 0.881) | | | 0.912  (0.854, 0.974) | | 1.17  (1.11, 1.22) | | 1.57  (1.42, 1.72) | | 2.18  (2.00, 2.35) | | 2.70  (2.47, 3.13) | | 3.72  (2.92, 4.19) | |
| 50–59 | 223 | | 1.48  (1.08, 1.87) | | 1.83  (1.42, 2.27) | | 2.51  (2.15, 2.88) | | 3.34  (2.95, 3.70) | | 4.38  (3.92, 4.87) | | 5.79  (4.84, 6.23) | | 6.24  (5.84, 7.06) | | 402 | | 0.869  (0.670, 0.952) | | | 0.952  (0.877, 1.06) | | 1.25  (1.14, 1.35) | | 1.62  (1.49, 1.87) | | 2.18  (1.98, 2.51) | | 3.03  (2.62, 3.44) | | 3.50  (3.03, 3.92) | |
| 60–69 | 295 | | 1.42  (1.19, 1.50) | | 1.54  (1.42, 1.84) | | 2.10  (1.86, 2.28) | | 2.95  (2.41, 3.54) | | 4.22  (3.69, 4.62) | | 5.41  (4.61, 6.52) | | 6.52  (5.08, 7.92) | | 380 | | 0.861  (0.749, 0.964) | | | 0.978  (0.879, 1.04) | | 1.19  (1.09, 1.29) | | 1.56  (1.38, 1.82) | | 2.16  (1.97, 2.46) | | 2.75  (2.50, 3.38) | | 3.74  (2.68, 5.14) | |
| ≥70 | 303 | | 1.33  (1.15, 1.61) | | 1.64  (1.36, 1.73) | | 2.14  (1.97, 2.30) | | 2.71  (2.53, 3.02) | | 3.64  (3.38, 4.18) | | 5.18  (4.52, 5.74) | | 6.01  (5.10, 7.36) | | 430 | | 0.848  (0.789, 0.907) | | | 0.947  (0.894, 1.04) | | 1.25  (1.16, 1.39) | | 1.66  (1.57, 1.78) | | 2.20  (2.03, 2.48) | | 3.14  (2.70, 3.42) | | 3.53  (3.25, 4.18) | |
| Race/Ethnicity | | | |  | |  | |  | |  | |  | |  | |  | | | |  |  | |  | |  | |  | |  | |  | |
| NHW | 767 | | 1.35  (1.18, 1.55) | | 1.61  (1.39, 1.85) | | 2.18  (1.87, 2.42) | | 2.95  (2.66, 3.36) | | 4.03  (3.66, 4.61) | | 5.49  (4.76, 6.21) | | 6.27  (5.79, 7.59) | | 1168 | | 0.869  (0.792, 0.903) | | | 0.960  (0.907, 1.04) | | 1.21  (1.16, 1.29) | | 1.60  (1.51, 1.71) | | 2.17  (2.06, 2.27) | | 2.87  (2.68, 3.14) | | 3.55  (3.14, 3.91) | |
| NHB | 266 | | 1.27  (1.13, 1.35) | | 1.36  (1.29, 1.51) | | 1.72  (1.61, 1.80) | | 2.16  (2.06, 2.32) | | 2.74  (2.57, 3.00) | | 3.41  (3.07, 3.97) | | 4.23  (3.41, 5.66) | | 405 | | 0.780  (0.704, 0.839) | | | 0.848  (0.789, 0.969) | | 1.06  (0.994, 1.15) | | 1.39  (1.24, 1.49) | | 1.86  (1.64, 2.03) | | 2.29  (2.12, 2.58) | | 2.69  (2.45, 3.01) | |
| MA | 462 | | 1.10  (0.948, 1.39) | | 1.33  (1.10, 1.60) | | 1.92  (1.50, 2.29) | | 2.64  (2.32, 2.92) | | 3.48  (3.08, 3.97) | | 4.73  (3.97, 5.89) | | 5.93  (4.63, 7.39) | | 489 | | 0.845  (0.729, 0.958) | | | 0.979  (0.868, 1.05) | | 1.24  (1.11, 1.40) | | 1.66  (1.53, 1.81) | | 2.17  (2.03, 2.40) | | 2.88  (2.54, 3.33) | | 3.36  (3.00, 3.84) | |

1 Values are weighted concentrations, Fasting: no meals in the past 8 or more hours.  
(95% CI) at selected percentiles; same *n* as in Table 2. MA, Mexican-American; NHB, non-Hispanic Black; NHW, non-Hispanic White.

**Supplemental Table 10:** P-values for the independent variables in the models used to estimate the covariate-adjusted parameters1.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Independent**  **Variable** | **Palmitelaidic acid** | **trans-Vaccenic acid** | **Elaidic acid** | **Linoelaidic acid** | **SumTFA** |
| Survey | NA2 | NA | NA | NA | NA |
| Sex | 0.463 | 0.153 | 0.03 | 0.02 | 0.583 |
| Race/Ethnicity | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Alcohol Consumption | < 0.0001 | < 0.0001 | < 0.0001 | 0.263 | < 0.0001 |
| Lipid Altering Medications | < 0.0001 | 0.002 | 0.02 | 0.703 | 0.004 |
| Physical Activity | 0.873 | 0.873 | 0.006 | 0.073 | 0.193 |
| Education | NA | NA | NA | NA | NA |
| Body Mass Index (BMI) | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Diabetes | 0.01 | 0.001 | 0.0001 | < 0.0001 | 0.0004 |
| Age | NA | NA | NA | NA | NA |
| Age squared | 0.04 | 0.463 | 0.413 | 0.01 | 0.583 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Education x Age | 0.001 | 0.003 | 0.04 | 0.103 | 0.006 |
| Survey x Age | 0.053 | 0.03 | 0.003 | 0.723 | 0.02 |

1 SumTFA, sum of the 4 trans-fatty acids.Model included survey year, sex, race/ethnicity, education, alcohol use, lipid-altering drugs, physical activity, education, BMI, age, age squared, and education/age and survey/age interactions. Fasting: no meals in the past 8 or more hours. Due to missing values for dependent or some independent variables for some subjects, the sample sizes for the various models were: palmitelaidic acid: 3785; trans-vaccenic acid: 3784; elaidic acid: 3760; linoelaidic acid: 3669; and sumTFA: 3730.  
2 NA: Main effect not tested because this variable is involved in an interaction later in the table.

3 Not statistically significant based on a False Discovery Rate (FDR) controlling procedure with q\* = 0.05.

**Supplemental Table 11.** P-values associated with comparisons of covariate-adjusted weighted geometric means between different population subgroups1.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameters** | **Palmitelaidic acid** | **trans-Vaccenic acid** | **Elaidic acid** | **Linoelaidic acid** | **SumTFA** |
| Male vs Female | 0.465 | 0.155 | 0.03 | 0.02 | 0.585 |
| NHW vs NHB | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| NHW vs MA | 0.007 | 0.075 | 0.215 | 0.01 | 0.085 |
| NHB vs MA | < 0.0001 | 0.002 | 0.00075 | 0.0004 | 0.0004 |
| Non-Drinker  vs <X Drink/day 2 | 0.006 | 0.005 | 0.0002 | 0.125 | 0.004 |
| Non-Drinker vs ≥X Drink/day 2 | < 0.0001 | < 0.0001 | < 0.0001 | 0.175 | < 0.0001 |
| <X Drink/day 2 vs ≥X Drink/day 2 | < 0.0001 | < 0.0001 | < 0.0001 | 0.825 | < 0.0001 |
| Lipid-Altering Medicine vs None | < 0.0001 | 0.002 | 0.02 | 0.705 | 0.004 |
| Physically Active vs Sedentary | 0.875 | 0.875 | 0.006 | 0.075 | 0.195 |
| Pre- or Diabetic vs non-Diabetic | 0.01 | 0.001 | < 0.0001 | < 0.0001 | 0.0004 |
| Normal or Underweight vs Overweight | < 0.0001 | 0.0003 | < 0.0001 | < 0.0001 | < 0.0001 |
| Normal or Underweight vs Obese | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Overweight vs Obese | < 0.0001 | 0.065 | 0.0008 | 0.01 | 0.008 |
| Education: ≤12 yrs vs >12 yrs 3 | 0.865 | 0.01 | 0.0001 | 0.002 | 0.001 |
| Age: 20 yrs vs 50 yrs (1999-2000) 4 | 0.155 | 0.345 | 0.975 | 0.165 | 0.695 |
| Age: 20 yrs vs 50 yrs (2009-2010) 4 | 0.595 | 0.265 | 0.006 | 0.03 | 0.065 |
| Age: 20 yrs vs 80 yrs (1999-2000) 4 | 0.875 | 0.009 | 0.295 | 0.705 | 0.135 |
| Age: 20 yrs vs 80 yrs (2009-2010) 4 | 0.004 | 0.565 | 0.005 | 0.925 | 0.105 |
| Age: 50 yrs vs 80 yrs (1999-2000) 4 | 0.105 | 0.035 | 0.135 | 0.007 | 0.155 |
| Age: 50 yrs vs 80 yrs (2009-2010) 4 | 0.003 | 0.935 | 0.185 | 0.075 | 0.525 |

1 MA, Mexican-American; NHB, non-Hispanic Black; NHW, non-Hispanic White; SumTFA, sum of the 4 trans-fatty acids. Model included survey year, sex, race/ethnicity, education, alcohol use, lipid-altering drugs, physical activity, body mass index, diabetic status, age, age2, and education/age and survey/age interactions. Fasting: no meals in the past 8 or more hours.  
2 For males X=2 and for females X=1.

3 The statistical significance associated with this comparison is applicable to subjects at the median age (46 years) of the study population.

4 The statistical significance values associated with the age comparisons are applicable to the educational distribution of subjects in the study population.

5 Not statistically significant based on a False Discovery Rate (FDR) controlling procedure with q\* = 0.05.