**Table S1.** Baseline characteristics of participants according to quartiles of the animal fat

(Numbers and percentages; median and interquartile range)

|  |  |  |
| --- | --- | --- |
|  | **Animal fat** |  |
|  | **All participants（n）** | **Q1** | **Q2** | **Q3** | **Q4** | **P** |
| **n** | **%** | **n** | **%** | **n** | **%** | **n** | **%** | **n** | **%** |
| Age at enrolment（years） |  |  |  |  |  |  |  |  |  |  | 0.247 |
| ≤24 | 383 | 25.9 | 99 | 26.8 | 86 | 23.3 | 96 | 26.1 | 102 | 27.6 |  |
| 25-29 | 791 | 53.6 | 198 | 53.5 | 215 | 58.3 | 180 | 48.9 | 198 | 53.5 |  |
| 30-34 | 172 | 11.6 | 42 | 11.4 | 39 | 10.6 | 56 | 15.2 | 35 | 9.5 |  |
| ≥35 | 131 | 8.9 | 31 | 8.4 | 29 | 7.9 | 36 | 9.8 | 35 | 9.5 |  |
| Pre-pregnancy BMI (kg/m2) |  |  |  |  |  |  |  |  |  |  | 0.745 |
| <18.5 | 213 | 14.4 | 52 | 14.1 | 53 | 14.4 | 49 | 13.3 | 59 | 15.9 |  |
| 18.5-23.9 | 1090 | 73.8 | 275 | 74.6 | 275 | 74.5 | 267 | 72.6 | 272 | 73.5 |  |
| ≥24.0 | 174 | 11.8 | 42 | 11.4 | 41 | 11.1 | 52 | 14.1 | 39 | 10.5 |  |
| Educational level (schooling years) |  |  |  |  |  |  |  |  |  |  | 0.029 |
| ≤12 | 340 | 23.0 | 91 | 24.6 | 77 | 20.9 | 87 | 23.6 | 85 | 23.0 |  |
| 13-15 | 531 | 36.0 | 146 | 39.5 | 128 | 34.7 | 144 | 39.1 | 113 | 30.5 |  |
| ≥16 | 606 | 41.0 | 133 | 35.9 | 164 | 44.4 | 137 | 37.3 | 172 | 46.5 |  |
| Nulliparous（%） | 1090 | 73.8 | 263 | 71.1 | 277 | 75.1 | 262 | 71.2 | 288 | 77.8 | 0.105 |
| Family history of diabetes (%) | 258 | 17.5 | 47 | 12.7 | 68 | 18.4 | 67 | 18.2 | 76 | 20.5 | 0.035 |
| Alcohol drinking (%) | 111 | 7.5 | 28 | 7.6 | 32 | 8.7 | 22 | 6.0 | 29 | 7.8 | 0.569 |
| Physical activity\*  (MET-h/wk2) |  |  |  |  |  |  |  |  |  |  | 0.195 |
| Median | 103.2 | 98.7 | 103.6 | 106.3 | 102.8 |  |
| Interquartile range | 72.3,132.9 | 67.1,132.1 | 74.1,135.1 | 77.0,136.5 | 70.0,127.2 |  |
| Gestational weight gain before GDM diagnosis\* (kg) |  |  |  |  |  |  |  |  |  |  | 0.969 |
| Median | 6.1 | 6.1 | 6.1 | 6.4 | 6.0 |  |
| Interquartile range | 4.1,8.2 | 4.1,8.2 | 3.8,8.4 | 4.0,8.4 | 4.4,8.2 |  |

MET, metabolic equivalent of task; GDM, gestational diabetes mellitus.

\* Data of physical activity and gestational weight gain before GDM diagnosis were described by median and interquartile range.

**Table S2.** Dietary intakes of participants according to quartiles of the animal fat

 (Median values and interquartile ranges (IQR))

|  |  |  |
| --- | --- | --- |
|  | Animal fat |  |
|  | All participants（n） | Q1 | Q2 | Q3 | Q4 | P |
| Median | IQR | Median | IQR | Median | IQR | Median | IQR | Median | IQR |
| Total energy(kcal/d) | 1797.0 | 1489.5,2135.6 | 1794.1 | 1408.7,2181.3 | 1768.1 | 1476.0,2094.9 | 1821.5 | 1542.6,2115.1 | 1826.3 | 1491.8,2161.6 | 0.698 |
| Protein(%E) | 12.1 | 10.7,13.9 | 10.5 | 9.4,12.1 | 11.9 | 10.7,13.6 | 12.6 | 11.4,14.5 | 13.3 | 11.9,15.4 | <0.001 |
| Carbohydrate(%E) | 55.7 | 50.1,60.6 | 63.5 | 59.4,67.1 | 58.2 | 54.2,60.8 | 54.0 | 50.7,56.8 | 48.4 | 44.4,51.7 | <0.001 |
| Dietary fiber\* (g/d)  | 11.8 | 9.4,5.0 | 12.8 | 10.3,16.7 | 12.4 | 10.0,15.6 | 11.1 | 9.0,14.4 | 10.9 | 8.6,13.4 | <0.001 |
| Dietary glycemic load\* | 150.6 | 131.0,170.2 | 171.0 | 155.5,192.2 | 158.8 | 140.1,175.1 | 145.7 | 131.4,161.3 | 126.6 | 110.6,143.6 | <0.001 |
| Eggs(g/d) | 33.3 | 12.5,50.0 | 16.7 | 0.0,50.0 | 33.3 | 16.7,50.0 | 39.0 | 16.7,50.0 | 45.2 | 16.7,58.1 | <0.001 |
| Grains and tubers(g/d) | 266.8 | 209.1,337.2 | 308.6 | 235.9,396.6 | 274.2 | 215.0,350.6 | 264.0 | 213.8,323.8 | 228.6 | 176.9,291.8 | <0.001 |
| Fruit and vegetables(g/d) | 553.8 | 403.7,756.5 | 557.5 | 414.8,831.0 | 569.2 | 400.0,760.3 | 549.9 | 403.2,726.5 | 543.1 | 400.6,722.1 | 0.212 |
| Red meat and poultry(g/d) | 96.0 | 43.0,194.2 | 32.2 | 15.0,73.8 | 79.5 | 41.6,153.6 | 117.7 | 69.5,214.9 | 175.7 | 107.6,282.4 | <0.001 |
| Dairy products(g/d) | 125.0 | 0.0,236.1 | 0.0 | 0.0,120.8 | 125.0 | 9.8,218.6 | 166.7 | 56.9,250.0 | 166.7 | 79.2,250.0 | <0.001 |
| Nuts(g/d) | 5.0 | 0.0,15.0 | 4.9 | 0.0,15.2 | 7.3 | 0.0,16.9 | 5.9 | 0.0,16.3 | 4.1 | 0.0,11.7 | <0.001 |
| Aquatic products(g/d) | 0.0 | 0.0,21.6 | 0.0 | 0.0,9.5 | 0.0 | 0.0,23.4 | 0.0 | 0.0,25.2 | 0.0 | 0.0,22.2 | <0.001 |
| Legumes(g/d) | 7.6 | 0.0, 19.0 | 7.7 | 0.0,19.4 | 9.3 | 0.0,18.8 | 8.3 | 0.0,20.4 | 5.2 | 0.0,17.0 | 0.079 |
| Edible oil(g/d) | 31.2 | 25.8,37.0 | 31.1 | 24.4,37.7 | 30.5 | 25.7,36.3 | 31.7 | 26.8,36.8 | 31.8 | 26.0,37.5 | 0.497 |

%E, percentage of energy intake.

\* Dietary variables were adjusted for total energy intake by the residual method.

**Table S3.** Baseline characteristics of participants according to quartiles of the vegetable fat

(Numbers and percentages; median and interquartile range)

|  |  |  |
| --- | --- | --- |
|  | Animal fat |  |
|  | All participants（n） | Q1 | Q2 | Q3 | Q4 | P |
| n | % | n | % | n | % | n | % | n | % |
| Age at enrolment（years） |  |  |  |  |  |  |  |  |  |  | 0.556 |
| ≤24 | 383 | 25.9 | 107 | 28.8 | 94 | 25.5 | 86 | 23.3 | 96 | 26.1 |  |
| 25-29 | 791 | 53.6 | 190 | 51.2 | 207 | 56.1 | 196 | 53.1 | 198 | 53.8 |  |
| 30-34 | 172 | 11.6 | 42 | 11.3 | 40 | 10.8 | 53 | 14.4 | 37 | 10.1 |  |
| ≥35 | 131 | 8.9 | 32 | 8.6 | 28 | 7.6 | 34 | 9.2 | 37 | 10.1 |  |
| Pre-pregnancy BMI (kg/m2) |  |  |  |  |  |  |  |  |  |  | 0.205 |
| <18.5 | 213 | 14.4 | 44 | 11.9 | 52 | 14.1 | 51 | 13.8 | 66 | 17.9 |  |
| 18.5-23.9 | 1090 | 73.8 | 281 | 75.7 | 281 | 76.2 | 274 | 74.3 | 254 | 69.0 |  |
| ≥24.0 | 174 | 11.8 | 46 | 12.4 | 36 | 9.8 | 44 | 11.9 | 48 | 13.0 |  |
| Educational level (schooling years) |  |  |  |  |  |  |  |  |  |  | 0.031 |
| ≤12 | 340 | 23.0 | 100 | 27.0 | 94 | 25.5 | 83 | 22.5 | 63 | 17.1 |  |
| 13-15 | 531 | 36.0 | 127 | 34.2 | 119 | 32.2 | 141 | 38.2 | 144 | 39.1 |  |
| ≥16 | 606 | 41.0 | 144 | 38.8 | 156 | 42.3 | 145 | 39.3 | 161 | 43.8 |  |
| Nulliparous（%） | 1090 | 73.8 | 258 | 69.5 | 266 | 72.1 | 275 | 74.5 | 291 | 79.1 | 0.024 |
| Family history of diabetes (%) | 258 | 17.5 | 61 | 16.4 | 65 | 17.6 | 77 | 20.9 | 55 | 14.9 | 0.183 |
| Alcohol drinking (%) | 111 | 7.5 | 34 | 9.2 | 26 | 7.0 | 22 | 6.0 | 29 | 7.9 | 0.404 |
| Physical activity\*  (MET-h/wk2) |  |  |  |  |  |  |  |  |  |  | 0.586 |
| Median | 103.2 | 102.9 | 102.8 | 103.5 | 104.2 |  |
| Interquartile range | 72.3,132.9 | 65.5,131.1 | 77.4,132.2 | 75.8,133.2 | 71.0,135.3 |  |
| Gestational weight gain before GDM diagnosis\* (kg) |  |  |  |  |  |  |  |  |  |  | 0.334 |
| Median | 6.1 | 6.0 | 6.1 | 6.0 | 6.4 |  |
| Interquartile range | 4.1,8.2 | 4.3,8.1 | 3.8,8.2 | 3.9,8.2 | 4.5,8.6 |  |

MET, metabolic equivalent of task; GDM, gestational diabetes mellitus.

\* Data of physical activity and gestational weight gain before GDM diagnosis were described by median and interquartile range.

**Table S4.** Dietary intakes of participants according to quartiles of the vegetable fat

 (Median values and interquartile ranges (IQR))

|  |  |  |
| --- | --- | --- |
|  | Animal fat |  |
|  | All participants（n） | Q1 | Q2 | Q3 | Q4 | P |
| Median | IQR | Median | IQR | Median | IQR | Median | IQR | Median | IQR |
| Total energy(kcal/d) | 1797.0 | 1489.5,2135.6 | 1729.0 | 1413.6,2065.4 | 1754.3 | 1453.3,2093.7 | 1825.1 | 1530.0,2159.2 | 1884.1 | 1570.6,2222.1 | <0.001 |
| Protein(%E) | 12.1 | 10.7,13.9 | 12.1 | 10.6,13.9 | 12.1 | 10.4,14.0 | 12.1 | 10.8,14.1 | 12.2 | 10.6,13.8 | 0.733 |
| Carbohydrate(%E) | 55.7 | 50.1,60.6 | 58.2 | 52.5,62.8 | 57.8 | 51.4,62.6 | 55.4 | 50.5,59.8 | 51.9 | 46.8,56.8 | <0.001 |
| Dietary fiber\* (g/d)  | 11.8 | 9.4,5.0 | 10.4 | 8.4,13.2 | 11.9 | 9.5,14.8 | 12.1 | 9.7,15.2 | 12.9 | 10.2,16.2 | <0.001 |
| Dietary glycemic load\* | 150.6 | 131.0,170.2 | 158.0 | 137.9,175.1 | 154.5 | 132.9,175.5 | 153.2 | 133.8,172.9 | 139.2 | 120.3,158.0 | <0.001 |
| Eggs(g/d) | 33.3 | 12.5,50.0 | 33.3 | 0.0,50.0 | 33.3 | 12.5,50.0 | 33.3 | 16.7,50.0 | 37.6 | 16.7,50.0 | 0.266 |
| Grains and tubers(g/d) | 266.8 | 209.1,337.2 | 274.0 | 205.0,342.8 | 263.1 | 208.6,337.7 | 278.8 | 221.8,354.1 | 257.6 | 198.6,329.4 | 0.02 |
| Fruit and vegetables(g/d) | 553.8 | 403.7,756.5 | 528.0 | 376.3,715.4 | 580.7 | 420.7,788.8 | 552.1 | 391.0,742.2 | 556.9 | 423.9,758.7 | 0.115 |
| Red meat and poultry(g/d) | 96.0 | 43.0,194.2 | 110.0 | 48.0,206.5 | 98.3 | 42.3,193.8 | 108.7 | 47.5,194.6 | 81.0 | 40.1,172.5 | 0.067 |
| Dairy products(g/d) | 125.0 | 0.0,236.1 | 125.0 | 0.0,250.0 | 116.7 | 0.0,220.1 | 125.0 | 0.0,238.0 | 125.0 | 0.0,231.8 | 0.686 |
| Nuts(g/d) | 5.0 | 0.0,15.0 | 0.0 | 0.0,0.0 | 1.8 | 0.0,7.4 | 10.5 | 5.1,15.6 | 22.0 | 13.0,33.3 | <0.001 |
| Aquatic products(g/d) | 0.0 | 0.0,21.6 | 0.0 | 0.0,12.0 | 0.0 | 0.0,25.0 | 0.0 | 0.0,21.6 | 0.0 | 0.0,19.5 | 0.048 |
| Legumes(g/d) | 7.6 | 0.0, 19.0 | 1.0 | 0.0,10.3 | 9.0 | 0.0,18.0 | 10.5 | 2.7,22.9 | 10.3 | 0.0,25.6 | <0.001 |
| Edible oil(g/d) | 31.2 | 25.8,37.0 | 30.1 | 24.6,36.0 | 30.6 | 25.3,36.5 | 31.7 | 26.6,37.1 | 32.5 | 27.2,37.9 | 0.001 |

%E, percentage of energy intake.

\* Dietary variables were adjusted for total energy intake by the residual method.

**Table S5.** Intercorrelations in energy-adjusted baseline intakes of fat and fatty acids

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Total | Animal | Vegetable | SFA | MUFA | PUFA | n-3 PUFA | n-6 PUFA |
| Total | 1.000 |  |  |  |  |  |  |  |
| Animal | 0.7382 | 1.0000 |  |  |  |  |  |  |
| Vegetable | 0.8068 | 0.2583 | 1.0000  |  |  |  |  |  |
| SFA | 0.8542 | 0.8218 | 0.5433 | 1.0000 |  |  |  |  |
| MUFA | 0.9629 | 0.7246 | 0.7727 | 0.8756 | 1.0000 |  |  |  |
| PUFA | 0.8443 | 0.3762 | 0.9369 | 0.6109 | 0.8075 | 1.0000 |  |  |
| n-3 PUFA | 0.8108 | 0.4046 | 0.8775 | 0.6198 | 0.7860 | 0.9461 | 1.0000 |  |
| n-6 PUFA | 0.8415 | 0.3656 | 0.9407 | 0.6002 | 0.8022 | 0.9956 | 0.9310 | 1.0000 |

## Table S6. The exploration of the main dietary contributors for the association between the total fat and gestational diabetes mellitus (GDM) risk\*

|  |  |  |
| --- | --- | --- |
|  | Quartiles of the total fat intake  |  |
| Quartile1 | Quartile 2 | Quartile 3 | Quartile 4 | *P* for trend |
| RR(95%CI) | RR(95%CI) | RR(95%CI) | RR(95%CI) |  |
| Total fat |  |  |  |  |  |
| model 1 | 1.00(Reference) | 0.94（0.75,1.17） | 1.18（0.96,1.45） | 1.19（0.96,1.47） | 0.038 |
| model 1+ carbohydrate (%E) | 1.00(Reference) | 1.02(0.79,1.31) | 1.37(1.02,1.83) | 1.49(1.01,2.21) | 0.023 |
| model 1+ dietary glycemic load† | 1.00(Reference) | 0.98（0.78, 1.22） | 1.27（1.03,1.57） | 1.35（1.06,1.71） | 0.003 |
| model 1+ total protein (%E) | 1.00(Reference) | 0.95(0.76,1.19) | 1.21(0.98,1.49) | 1.22(0.98,1.52) | 0.022 |
| model 1+ animal protein (%E) | 1.00(Reference) | 0.95(0.76,1.19) | 1.22(0.99,1.50) | 1.23(0.98,1.55) | 0.022 |
| Animal fat |  |  |  |  |  |
| model 2 | 1.00(Reference) | 1.14(0.92,1.41) | 1.33(1.09,1.63) | 1.28(1.03,1.59) | 0.026 |
| model 2+ carbohydrate (%E) | 1.00(Reference) | 1.21(0.96, 1.52) | 1.46(1.14, 1.88) | 1.50(1.08, 2.10) | 0.013 |
| model 2+ dietary glycemic load† | 1.00(Reference) | 1.18(0.96, 1.47) | 1.41(1.15, 1.74) | 1.43(1.12, 1.82) | 0.002 |
| model 2+ total protein (%E) | 1.00(Reference) | 1.16(0.94, 1.44) | 1.37(1.11, 1.69) | 1.33(1.05, 1.68) | 0.010 |
| model 2+ animal protein (%E) | 1.00(Reference) | 1.16(0.93, 1.44) | 1.36(1.09, 1.70) | 1.32(1.02, 1.71) | 0.023 |
| Vegetable fat | 1.00(Reference) |  |  |  |  |
| model 3 | 1.00(Reference) | 1.16(0.93, 1.43) | 1.31(1.07,1.60) | 1.24(0.995, 1.54) | 0.048 |
| model 3+ carbohydrate (%E) | 1.00(Reference) | 1.17(0.95, 1.46) | 1.36(1.10, 1.69) | 1.35(1.03, 1.76) | 0.007 |
| model 3+ dietary glycemic load† | 1.00(Reference) | 1.16(0.94, 1.44) | 1.33(1.08, 1.62) | 1.30(1.04, 1.63) | 0.016 |
| model 3+ total protein (%E) | 1.00(Reference) | 1.16(0.94, 1.43) | 1.31(1.07, 1.61) | 1.24(0.999, 1.55) | 0.042 |
| model 3+ animal protein (%E) | 1.00(Reference) | 1.16(0.93, 1.43) | 1.31(1.07, 1.60) | 1.24(0.995, 1.54) | 0.046 |

\* Model 1 was adjusted for maternal age (≤ 24, 25–29, 30–34, or ≥35 years), pre-pregnancy BMI (<18·5, 18·5–23·9, or ≥24 kg/m2), educational level (≤ 12, 13–15 or ≥16 years), parity (primiparity or multiparity), family history of diabetes (yes or no), alcohol drinking (yes or no), physical activity (MET-hours/week), total energy intake (kJ/d), dietary fibers(g/d), Gestational weight gain before GDM diagnosis(kg). Model 2 was additionally adjusted for glycemic load.

Model 2 plus vegetable fat.

Model 3 plus animal fat.

**Table S7**. Relative risks (RR) of gestational diabetes mellitus (GDM) according to quartiles of specific fatty acid intake (% E) during early pregnancy

|  |  |  |
| --- | --- | --- |
|  | Quartile | *P* for trend |
| Q1 | Q2 | Q3 | Q4 |
| Lauric (12:0) |  |  |  |  |  |
| Model 1\* | 1.00 | 1.20(0.98,1.46) | 1.08(0.87,1.33) | 1.14(0.93,1.41) | 0.381 |
| Model 2† MUFA、PUFA | 1.00 | 1.11(0.91,1.36) | 1.00(0.80,1.24) | 1.07(0.86,1.33) | 0.774 |
| Myristic (14:0) |  |  |  |  |  |
| Model 1\* | 1.00 | 1.12(0.92,1.37) | 1.13(0.93,1.39) | 1.10(0.89,1.35) | 0.451 |
| Model 2† MUFA、PUFA | 1.00 | 1.02(0.83,1.26) | 1.01(0.82,1.25) | 1.01(0.81,1.26) | 0.984 |
| Palmitic (16:0) |  |  |  |  |  |
| Model 1\* | 1.00 | 1.13(0.92,1.39) | 1.13(0.92,1.39) | 1.23(1.00,1.51) | 0.056 |
| Model 2† MUFA、PUFA | 1.00 | 1.07(0.85,1.35) | 0.99(0.75,1.32) | 1.06(0.77,1.47) | 0.776 |
| Stearic (18:0) |  |  |  |  |  |
| Model 1\* | 1.00 | 1.19(0.97,1.45) | 1.11(0.90,1.37) | 1.19(0.96,1.46) | 0.186 |
| Model 2† MUFA、PUFA | 1.00 | 1.08(0.87,1.35) | 0.95(0.73,1.22) | 0.96(0.72,1.29) | 0.616 |
| Oleic (18:1) |  |  |  |  |  |
| Model 1\* | 1.00 | 1.00(0.81,1.23) | 1.16(0.95,1.41) | 1.21(0.99,1.47) | 0.030 |
| Model 2† SFA、PUFA | 1.00 | 1.01(0.80,1.27) | 1.16(0.90,1.50) | 1.24(0.90,1.70) | 0.519 |
| Erucic (22:1) |  |  |  |  |  |
| Model 1\* | 1.00 | 1.00(0.82,1.21) | 1.07(0.89,1.30) | 0.99(0.82,1.20) | 0.922 |
| Model 2† SFA、PUFA | 1.00 | 0.96(0.79,1.17) | 1.03(0.84,1.24) | 0.95(0.78,1.16) | 0.611 |
| Nervonic (24:1) |  |  |  |  |  |
| Model 1\* | 1.00 | 1.13(0.93,1.38) | 1.02(0.83,1.25) | 1.20(0.98,1.45) | 0.106 |
| Model 2† SFA、PUFA | 1.00 | 1.07(0.88,1.31) | 0.96(0.77,1.19) | 1.20(0.96,1.50) | 0.279 |
| α-Linolenic (18:3) |  |  |  |  |  |
| Model 1\* | 1.00 | 1.11(0.90,1.38) | 1.09(0.88,1.34) | 1.30(1.06,1.59) | 0.011 |
| Model 2† SFA、MUFA、n-6 PUFA | 1.00 | 1.06(0.85,1.31) | 1.01(0.80,1.26) | 1.21(0.97,1.51) | 0.110 |
| Eicosapentaenoic (20:5) |  |  |  |  |  |
| Model 1\* | 1.00 | 0.96(0.78,1.17) | 1.02(0.84,1.24) | 0.94(0.76,1.15) | 0.607 |
| Model 2† SFA、MUFA、n-6 PUFA | 1.00 | 0.96(0.78,1.18) | 0.98(0.81,1.20) | 0.90(0.72,1.11) | 0.305 |
| Linoleic (18:2) |  |  |  |  |  |
| Model 1\* | 1.00 | 1.19(0.97,1.46) | 1.11(0.90,1.37) | 1.25(1.02,1.54) | 0.078 |
| Model 2† SFA、MUFA、n-3 PUFA | 1.00 | 1.15(0.93,1.41) | 1.02(0.82,1.27) | 1.15(0.92,1.43) | 0.959 |
| Cis, cis-11, 14-Eicosadienoic (20:2) |  |  |  |  |  |
| Model 1\* | 1.00 | 1.05(0.85,1.29) | 1.27(1.05,1.54) | 1.21(0.996,1.46) | 0.044 |
| Model 2† SFA、MUFA、n-3 PUFA | 1.00 | 1.04(0.84,1.28) | 1.20(0.98,1.48) | 1.12(0.90,1.40) | 0.281 |
| Dihomo-γ-Linolenic (20:3) |  |  |  |  |  |
| Model 1\* | 1.00 | 1.10(0.90,1.34) | 1.15(0.95,1.39) | 1.14(0.94,1.38) | 0.111 |
| Model 2† SFA、MUFA、n-3 PUFA | 1.00 | 1.04(0.85,1.27) | 1.12(0.92,1.38) | 1.13(0.91,1.39) | 0.377 |
| Arachidonic (20:4) |  |  |  |  |  |
| Model 1\* | 1.00 | 1.21(0.98,1.49) | 1.30(1.06,1.59) | 1.23(0.998,1.51) | 0.064 |
| Model 2† SFA、MUFA、n-3 PUFA | 1.00 | 1.17(0.93,1.46) | 1.22(0.96,1.56) | 1.17(0.88,1.55) | 0.415 |
| All cis-7, 10, 13, 16-Docosatetraenoic (22:4) |  |  |  |  |  |
| Model 1\* | 1.00 | 1.30(1.05,1.60) | 1.21(0.97,1.50) | 1.27(1.03,1.56) | 0.078 |
| Model 2† SFA、MUFA、n-3 PUFA | 1.00 | 1.22(0.98,1.52) | 1.10(0.85,1.43) | 1.22(0.91,0.64) | 0.343 |

%E, percentage of energy intake; SFA, saturated fatty acids; MUFA, monounsaturated fatty acids; PUFA, polyunsaturated fatty acids

\*Adjusted for maternal age (≤24, 25-29, 30-34 or ≥35 years), prepregnancy BMI (<18.5, 18.5-23.9 or ≥24.0 kg/m2), educational level (≤12, 13–15, and ≥16 years), family history of diabetes (yes, no), parity (primiparity or multiparity), alcohol drinking status(yes, no), physical activity(MET h/week), gestational weight gain before GDM diagnosis (kg).

†Model 1plus total energy intake (kJ/d), dietary fiber (g/d), glycemic load and other fats or fatty acids as listed in the table.

**Table S8**. Multivariate RR of gestational diabetes mellitus (GDM) associated with increases in 5% or 3% of energy from types of fat1

|  |  |  |  |
| --- | --- | --- | --- |
|  | Coefficient ±SE |  RR | *P* |
| Substitution for carbohydrate intake |  |  |  |
| Total fat\* | 0.0656 ±0.0321 | 1.068(1.003,1.137) | 0.041 |
| Vegetable fat† | 0.0015 ±0.0013 |  1.002(0.999, 1.004) | 0.251 |
| animal fat‡ | 0.0437 ±0.0209 | 1.045(1.003.,1.088) | 0.037 |
| Substitution for animal fat intake |  |  |  |
| Vegetable fat§ | 0.0245 ±0.0237 | 1.025(0.978, 1.074) | 0.301 |

15% of energy from total fat and 3% of energy from animal/vegetable fat.

\* Adjusted for maternal age (≤ 24, 25–29, 30–34, or ≥35 years), pre-pregnancy BMI (<18·5, 18·5–23·9, or ≥24 kg/m2), educational level (≤ 12, 13–15 or ≥16 years), parity (primiparity or multiparity), family history of diabetes (yes or no), alcohol drinking (yes or no), physical activity (MET-hours/week), total energy intake (kJ/d), dietary fibers(g/d), Gestational weight gain before GDM diagnosis(kg) and protein(percentage of energy)

†Adjusted for model 1 plus animal fat

‡ Adjusted for model 1 plus vegetable fat

§Adjusted for model 1 plus carbohydrate (percentage of energy)

## Table S9. Stratified analysis of the association between fat and risk of gestational diabetes mellitus (GDM)\*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Age |  | Pre-pregnancy BMI |  | Family history of diabetes |
| <35 years | ≥35 years |  | <24.0 kg/m2 | ≥24.0 kg/m2 |  | yes | no |
| Total fat |  |  |  |  |  |  |  |  |
| Q1 [RR(95%CI)] | 1.00(reference) | 1.00(reference) |  | 1.00(reference) | 1.00(reference) |  | 1.00(reference) | 1.00(reference) |
| Q2 [RR(95%CI)] | 1.12(0.96, 1.36) | 1.24(0.73,2.12) |  | 1.07(0.86,1.33) | 1.63(1.08,2.47) |  | 1.32(0.81,2.13) | 1.11(0.90, 1.37) |
| Q3 [RR(95%CI)] | 1.32(1.05, 1.65) | 2.00(1.11,3.58) |  | 1.34(1.04,1.73) | 1.73(1.13,2.64) |  | 1.60(0.93,2.75) | 1.37(1.09,1.73) |
| *P* for interaction | 0.540 |  | 0.952 |  | 0.040 |
| Animal fat |  |  |  |  |  |  |  |  |
| Q1 [RR(95%CI)] | 1.00(reference) | 1.00(reference) |  | 1.00(reference) | 1.00(reference) |  | 1.00(reference) | 1.00(reference) |
| Q2 [RR(95%CI)] | 1.16(0.94,1.42) | 1.40(0.88,2.25) |  | 1.18(0.95,1.46) | 1.08(0.71,1.64) |  | 0.81(0.54,1.23) | 1.26(1.02,1.56) |
| Q3 [RR(95%CI)] | 1.29(1.02,1.62) | 1.57(0.86,2.87) |  | 1.26(0.98,1.62) | 1.80(1.16,2.77) |  | 0.90(0.55,1.47) | 1.46(1.15,1.86) |
| *P* for interaction | 0.298 |  | 0.974 |  | 0.003 |
| Vegetable fat |  |  |  |  |  |  |  |  |
| Q1 [RR(95%CI)] | 1.00(reference) | 1.00(reference) |  | 1.00(reference) | 1.00(reference) |  | 1.00(reference) | 1.00(reference) |
| Q2 [RR(95%CI)] | 1.04(0.86,1.26) | 1.51(0.91,2.49) |  | 1.02(0.84,1.24) | 1.44(0.94,2.21) |  | 0.91(0.60,1.39) | 1.13(0.93,1.37) |
| Q3 [RR(95%CI)] | 1.12(0.92,1.37) | 1.72(1.11,2.68) |  | 1.08(0.88,1.34) | 1.82(1.21.2.73) |  | 1.32(0.85,2.04) | 1.17(0.95,1.44) |
| *P* for interaction | 0.507 |  | 0.662 |  | 0.632 |

\* Models were adjusted for maternal age (≤ 24, 25–29, 30–34, or ≥35 years), pre-pregnancy BMI (<18·5, 18·5–23·9, or ≥24 kg/m2), educational level (≤ 12, 13–15 or ≥16 years), parity (primiparity or multiparity), family history of diabetes (yes or no), alcohol drinking (yes or no), physical activity (MET-hours/week), total energy intake (kJ/d), dietary fibers(g/d), Gestational weight gain before GDM diagnosis(kg) and glycemic load.