

**Supplemental Table 1.** Associations of energy density of meals and snacks with total dietary intakes in men (*n* 659)\*

(Regression coefficients and 95% confidence intervals)

|   | Meals and snacks determined based on time† |                |          |                          |               |          | Meals and snacks determined based on EI contribution‡ |                |          |                          |               |          |
|---|--|----------------|----------|--------------------------|---------------|----------|---|----------------|----------|--------------------------|---------------|----------|
|   | Energy density of meals                    |                |          | Energy density of snacks |               |          | Energy density of meals                               |                |          | Energy density of snacks |               |          |
|   | β§   | 95% CI§        | <i>P</i> | β§                       | 95% CI§       | <i>P</i> | β§  | 95% CI§        | <i>P</i> | β§                       | 95% CI§       | <i>P</i> |
| Food intake from meals and snacks (g/10 MJ) |  |                |          |                          |               |          |   |                |          |                          |               |          |
| Vegetables                                  | -23.06                                     | -26.90, -19.22 | <0.0001  | -4.92                    | -7.03, -2.80  | <0.0001  | -33.93  | -38.87, -29.00 | <0.0001  | -2.60                    | -4.06, -1.13  | <0.0001  |
| Legumes                                     | -1.32                                      | -3.24, 0.61    | 0.18     | -1.39                    | -2.45, -0.32  | 0.01     | -5.06   | -7.60, -2.52   | 0.0001   | 0.91                     | 0.16, 1.67    | 0.02     |
| Fruits                                      | -29.52                                     | -34.23, -24.80 | <0.0001  | -8.41                    | -11.01, -5.81 | <0.0001  | -28.41  | -34.42, -22.40 | <0.0001  | -10.33                   | -12.12, -8.55 | <0.0001  |
| Cereals                                     | -15.06                                     | -19.83, -10.29 | <0.0001  | -3.11                    | -5.74, -0.47  | 0.02     | -11.79  | -18.04, -5.54  | 0.0002   | -5.62                    | -7.47, -3.77  | <0.0001  |
| Biscuits, cakes and pastries                | 5.19                                       | 3.34, 7.05     | <0.0001  | 0.82                     | -0.20, 1.84   | 0.12     | 7.09  | 4.62, 9.55     | <0.0001  | -0.31                    | -1.04, 0.43   | 0.41     |
| Fish  | -4.42                                      | -6.35, -2.49   | <0.0001  | -1.98                    | -3.04, -0.91  | 0.0003   | -5.23   | -7.80, -2.65   | <0.0001  | -1.09                    | -1.85, -0.33  | 0.005    |
| Meat  | -9.51                                      | -14.06, -4.95  | <0.0001  | -1.51                    | -4.03, 1.00   | 0.24     | -16.57  | -22.57, -10.57 | <0.0001  | 0.49                     | -1.28, 2.27   | 0.59     |
| Dairy products                              | -17.44                                     | -26.39, -8.49  | 0.0001   | 2.98                     | -1.97, 7.92   | 0.24     | -12.76  | -24.61, -0.91  | 0.03     | -4.98                    | -8.49, -1.47  | 0.006    |
| Sugar, preserves and confectionery          | 6.54                                       | 4.99, 8.09     | <0.0001  | 1.79                     | 0.94, 2.64    | <0.0001  | 3.25  | 1.22, 5.28     | 0.002    | 2.80                     | 2.20, 3.40    | <0.0001  |
| Nutrient intake from meals and snacks       |  |                |          |                          |               |          |   |                |          |                          |               |          |
| Protein (% of energy)                       | -0.70                                      | -0.82, -0.58   | <0.0001  | -0.12                    | -0.18, -0.05  | 0.0007   | -0.84   | -1.00, -0.68   | <0.0001  | -0.11                    | -0.16, -0.07  | <0.0001  |
| Fat (% of energy)                           | 1.06                                       | 0.79, 1.32     | <0.0001  | 0.37                     | 0.23, 0.52    | <0.0001  | 2.06  | 1.72, 2.39     | <0.0001  | 0.02                     | -0.08, 0.12   | 0.66     |
| Saturated fat (% of energy)                 | 0.56                                       | 0.43, 0.70     | <0.0001  | 0.23                     | 0.16, 0.30    | <0.0001  | 1.01  | 0.84, 1.18     | <0.0001  | 0.05                     | -0.0003, 0.10 | 0.052    |
| Carbohydrate (% of energy)                  | -0.26                                      | -0.60, 0.08    | 0.14     | -0.12                    | -0.31, 0.07   | 0.22     | -0.66   | -1.11, -0.20   | 0.005    | -0.03                    | -0.16, 0.10   | 0.65     |
| Starch (% of energy)                        | -0.31                                      | -0.58, -0.03   | 0.03     | -0.12                    | -0.28, 0.03   | 0.11     | -0.06   | -0.42, 0.30    | 0.75     | -0.18                    | -0.29, -0.07  | 0.001    |
| Non-milk extrinsic sugar (% of energy)      | 0.87                                       | 0.59, 1.15     | <0.0001  | 0.18                     | 0.02, 0.33    | 0.02     | 0.21  | -0.15, 0.58    | 0.25     | 0.41                     | 0.30, 0.52    | <0.0001  |
| Alcohol (% of energy)                       | -0.10                                      | -0.44, 0.24    | 0.57     | -0.14                    | -0.32, 0.05   | 0.15     | -0.57   | -1.01, -0.12   | 0.01     | 0.12                     | -0.01, 0.26   | 0.07     |
| Dietary fiber (g/10 MJ)                     | -1.34                                      | -1.56, -1.12   | <0.0001  | -0.37                    | -0.50, -0.25  | <0.0001  | -1.56   | -1.86, -1.27   | <0.0001  | -0.31                    | -0.40, -0.22  | <0.0001  |
| Total EI (kJ/d)                             | 239.7                                      | 120.6, 358.7   | <0.0001  | 126.9                    | 61.2, 192.6   | 0.0002   | 550.7   | 394.1, 707.2   | <0.0001  | -15.0                    | -61.4, 31.4   | 0.53     |

EI, energy intake.

\* Energy density was calculated based on foods only, excluding all caloric and non-caloric beverages (tea, coffee, water, alcoholic beverages, soft drinks, fruit juice, and milk). Adjustment was made for age (years, continuous) and social class (manual or non-manual). Both energy density of meal and energy density of snack based on the same definition were entered simultaneously into the regression model.

† Meals were defined as eating events reported during select times of the day (0600-1000, 1200-1500, and 1800-2100 hours); all other eating occasions were considered as snacks.

‡ A meal was defined as any eating episode comprising ≥ 15% of total EI, regardless of the time of day or composition of foods and beverages consumed; all other eating episodes were classified as snacks.

§ Regression coefficients mean the change of dietary variables with 1-unit increase of energy density (kJ/g).

**Supplemental Table 2.** Associations of energy density of meals and snacks with total dietary intakes in women (*n* 792)\*

(Regression coefficients and 95% confidence intervals)

|   | Meals and snacks determined based on time† |                |          |                          |               |          | Meals and snacks determined based on EI contribution‡ |                |          |                          |                |          |
|---|--|----------------|----------|--------------------------|---------------|----------|---|----------------|----------|--------------------------|----------------|----------|
|   | Energy density of meals                    |                |          | Energy density of snacks |               |          | Energy density of meals                               |                |          | Energy density of snacks |                |          |
|   | β§   | 95% CI§        | <i>P</i> | β§                       | 95% CI§       | <i>P</i> | β§  | 95% CI§        | <i>P</i> | β§                       | 95% CI§        | <i>P</i> |
| Food intake from meals and snacks (g/10 MJ) |  |                |          |                          |               |          |   |                |          |                          |                |          |
| Vegetables                                  | -31.35                                     | -35.68, -27.03 | <0.0001  | -7.28                    | -9.42, -5.14  | <0.0001  | -47.57  | -52.84, -42.30 | <0.0001  | -3.35                    | -5.10, -42.30  | 0.0002   |
| Legumes                                     | -1.34                                      | -2.99, 0.31    | 0.11     | -0.99                    | -1.81, -0.18  | 0.02     | -5.21   | -7.33, -3.10   | <0.0001  | 1.00                     | 0.30, 1.70     | 0.005    |
| Fruits                                      | -47.81                                     | -53.43, -42.18 | <0.0001  | -8.69                    | -11.47, -5.90 | <0.0001  | -43.06  | -50.11, -36.01 | <0.0001  | -14.04                   | -16.38, -11.70 | <0.0001  |
| Cereals                                     | -8.46                                      | -12.76, -4.15  | 0.0001   | -1.69                    | -3.82, 0.44   | 0.12     | -10.30  | -15.84, -4.77  | 0.0003   | -2.00                    | -3.84, -0.17   | 0.03     |
| Biscuits, cakes and pastries                | 3.24                                       | 1.69, 4.78     | <0.0001  | 1.50                     | 0.74, 2.27    | 0.0001   | 5.24  | 3.24, 7.23     | <0.0001  | 0.56                     | -0.10, 1.22    | 0.10     |
| Fish  | -7.53                                      | -9.89, -5.16   | <0.0001  | -0.97                    | -2.14, 0.20   | 0.10     | -10.15  | -13.18, -7.13  | <0.0001  | -0.84                    | -1.84, 0.17    | 0.10     |
| Meat  | -4.09                                      | -8.82, 0.64    | 0.09     | -2.46                    | -4.80, -0.11  | 0.04     | -12.20  | -18.29, -6.12  | <0.0001  | 1.34                     | -0.68, 3.35    | 0.19     |
| Dairy products                              | -10.25                                     | -19.37, -1.12  | 0.03     | -7.50                    | -12.01, -2.98 | 0.001    | -11.50  | -23.30, 0.30   | 0.06     | -4.98                    | -8.89, -1.07   | 0.01     |
| Sugar, preserves and confectionery          | 6.06                                       | 4.73, 7.40     | <0.0001  | 1.86                     | 1.20, 2.52    | <0.0001  | 4.74  | 3.02, 6.46     | <0.0001  | 2.24                     | 1.67, 2.81     | <0.0001  |
| Nutrient intake from meals and snacks       |  |                |          |                          |               |          |   |                |          |                          |                |          |
| Protein (% of energy)                       | -0.61                                      | -0.73, -0.49   | <0.0001  | -0.26                    | -0.32, -0.20  | <0.0001  | -0.94   | -1.10, -0.79   | <0.0001  | -0.12                    | -0.17, -0.07   | <0.0001  |
| Fat (% of energy)                           | 1.35                                       | 1.10, 1.60     | <0.0001  | 0.37                     | 0.25, 0.50    | <0.0001  | 2.18  | 1.87, 2.49     | <0.0001  | 0.11                     | 0.01, 0.22     | 0.03     |
| Saturated fat (% of energy)                 | 0.67                                       | 0.54, 0.80     | <0.0001  | 0.20                     | 0.14, 0.26    | <0.0001  | 1.10  | 0.94, 1.26     | <0.0001  | 0.07                     | 0.02, 0.13     | 0.005    |
| Carbohydrate (% of energy)                  | -0.28                                      | -0.58, 0.02    | 0.06     | -0.10                    | -0.24, 0.05   | 0.20     | -0.87   | -1.25, -0.48   | <0.0001  | 0.09                     | -0.04, 0.21    | 0.18     |
| Starch (% of energy)                        | -0.07                                      | -0.31, 0.17    | 0.57     | -0.10                    | -0.22, 0.02   | 0.09     | -0.35   | -0.66, -0.04   | 0.03     | 0.03                     | -0.07, 0.14    | 0.52     |
| Non-milk extrinsic sugar (% of energy)      | 0.90                                       | 0.67, 1.14     | <0.0001  | 0.29                     | 0.17, 0.41    | <0.0001  | 0.65  | 0.34, 0.95     | <0.0001  | 0.35                     | 0.25, 0.45     | <0.0001  |
| Alcohol (% of energy)                       | -0.48                                      | -0.70, -0.25   | <0.0001  | -0.02                    | -0.13, 0.09   | 0.73     | -0.39   | -0.69, -0.10   | 0.009    | -0.08                    | -0.18, 0.01    | 0.09     |
| Dietary fiber (g/10 MJ)                     | -1.73                                      | -1.97, -1.49   | <0.0001  | -0.43                    | -0.55, -0.31  | <0.0001  | -2.42   | -2.72, -2.12   | <0.0001  | -0.31                    | -0.41, -0.21   | <0.0001  |
| Total EI (kJ/d)                             | 149.3                                      | 79.0, 219.6    | <0.0001  | 99.4                     | 64.6, 134.2   | <0.0001  | 287.3   | 197.1, 377.4   | <0.0001  | 48.0                     | 18.1, 77.8     | 0.002    |

EI, energy intake.

\* Energy density was calculated based on foods only, excluding all caloric and non-caloric beverages (tea, coffee, water, alcoholic beverages, soft drinks, fruit juice, and milk). Adjustment was made for age (years, continuous) and social class (manual or non-manual). Both energy density of meal and energy density of snack based on the same definition were entered simultaneously into the regression model.

† Meals were defined as eating events reported during select times of the day (0600-1000, 1200-1500, and 1800-2100 hours); all other eating occasions were considered as snacks.

‡ A meal was defined as any eating episode comprising ≥ 15% of total EI, regardless of the time of day or composition of foods and beverages consumed; all other eating episodes were classified as snacks.

§ Regression coefficients mean the change of dietary variables with 1-unit increase of energy density (kJ/g).

Supplemental Table 3. Characteristics of meals and snacks in men reporting acceptable energy intake (EI) (*n* 422)\*

(Mean values and standard deviations)

|  | Total intake |       | Meals and snacks determined based on time* |       |                    |       | <i>P</i> ‡ | Meals and snacks determined based on EI contribution† |       |                    |       | <i>P</i> ‡ |
|--|--------------|-------|--|-------|--------------------|-------|------------|---|-------|--------------------|-------|------------|
|  |              |       | Intake from meals                          |       | Intake from snacks |       |            | Intake from meals                                     |       | Intake from snacks |       |            |
|  | Mean         | SD    | Mean                                       | SD    | Mean               | SD    |            | Mean  | SD    | Mean               | SD    |            |
| Food EI (kJ/d)                         | 9126         | 1883  | 6666                                       | 1922  | 2460               | 1561  | <0.0001    | 7467  | 1605  | 1658               | 1097  | <0.0001    |
| Beverage EI (kJ/d)                     | 1904         | 1073  | 1159                                       | 667   | 745                | 624   | <0.0001    | 675   | 496   | 1229               | 915   | <0.0001    |
| Food weight consumed (g/d)             | 1168         | 281   | 869  | 287   | 299                | 208   | <0.0001    | 969   | 225   | 199                | 148   | <0.0001    |
| Energy density (kJ/g)                  | 7.99         | 1.38  | 7.95                                       | 1.58  | 9.04               | 2.84  | <0.0001    | 7.83  | 1.27  | 9.78               | 3.99  | <0.0001    |
| Food intake (g/10 MJ)                  |              |       |  |       |                    |       |            |   |       |                    |       |            |
| Vegetables                             | 104.6        | 75.3  | 114.8                                      | 89.3  | 70.1               | 91.5  | <0.0001    | 132.0   | 91.5  | 30.8               | 83.4  | <0.0001    |
| Legumes                                | 35.8         | 36.7  | 36.7                                       | 43.8  | 27.3               | 57.1  | 0.004      | 47.2  | 50.1  | 4.4                | 22.5  | <0.0001    |
| Fruits                                 | 104.5        | 112.7 | 101.6                                      | 118.1 | 123.7              | 218.2 | 0.03       | 65.8  | 86.8  | 245.9              | 383.9 | <0.0001    |
| Cereals                                | 240.5        | 95.2  | 259.2                                      | 110.3 | 173.5              | 123.6 | <0.0001    | 279.4   | 108.3 | 125.5              | 117.7 | <0.0001    |
| Biscuits, cakes and pastries           | 43.8         | 38.6  | 38.3                                       | 41.5  | 67.6               | 80.8  | <0.0001    | 35.3  | 37.5  | 67.6               | 74.3  | <0.0001    |
| Fish                                   | 32.2         | 36.1  | 35.4                                       | 42.1  | 21.2               | 50.4  | <0.0001    | 41.5  | 46.2  | 6.0                | 23.0  | <0.0001    |
| Meat                                   | 189.1        | 83.7  | 194.4                                      | 97.8  | 154.2              | 145.1 | <0.0001    | 245.2   | 115.2 | 37.4               | 68.1  | <0.0001    |
| Dairy products                         | 286.8        | 169.2 | 278.9                                      | 165.5 | 355.8              | 349.1 | <0.0001    | 179.9   | 137.7 | 641.5              | 471.0 | <0.0001    |
| Sugar, preserves and confectionery     | 33.5         | 31.9  | 31.4                                       | 32.5  | 44.5               | 54.2  | <0.0001    | 20.3  | 23.0  | 71.1               | 79.2  | <0.0001    |
| Nutrient intake                        |              |       |  |       |                    |       |            |   |       |                    |       |            |
| Protein (% of energy)                  | 14.9         | 2.5   | 15.4                                       | 2.7   | 13.0               | 4.1   | <0.0001    | 16.8  | 2.8   | 10.1               | 3.8   | <0.0001    |
| Fat (% of energy)                      | 33.6         | 5.7   | 33.9                                       | 5.9   | 31.8               | 9.0   | <0.0001    | 37.8  | 6.0   | 21.8               | 9.1   | <0.0001    |
| Saturated fat (% of energy)            | 12.8         | 2.9   | 12.7                                       | 3.1   | 12.9               | 4.2   | 0.44       | 13.7  | 3.1   | 10.2               | 4.8   | <0.0001    |
| Carbohydrate (% of energy)             | 44.7         | 6.8   | 45.1                                       | 7.1   | 44.4               | 10.2  | 0.12       | 42.4  | 6.8   | 51.9               | 12.4  | <0.0001    |
| Starch (% of energy)                   | 25.2         | 5.3   | 26.5                                       | 5.6   | 20.7               | 7.6   | <0.0001    | 28.9  | 5.3   | 14.7               | 8.3   | <0.0001    |
| Non-milk extrinsic sugar (% of energy) | 12.7         | 5.4   | 11.9                                       | 5.8   | 16.5               | 9.3   | <0.0001    | 7.9   | 3.9   | 26.3               | 13.6  | <0.0001    |
| Alcohol (% of energy)                  | 6.9          | 7.0   | 5.7  | 6.3   | 10.8               | 12.8  | <0.0001    | 3.1   | 4.2   | 16.4               | 16.0  | <0.0001    |
| Dietary fiber (g/10 MJ)                | 15.9         | 5.1   | 16.7                                       | 5.6   | 13.2               | 6.6   | <0.0001    | 17.5  | 4.8   | 11.7               | 8.4   | <0.0001    |

\* Acceptable EI reporters were defined as subjects with the ratio of EI to estimated energy requirement 0.665 to 1.335.

† Meals were defined as eating events reported during select times of the day (0600-1000, 1200-1500, and 1800-2100 hours); all other eating occasions were considered as snacks.

‡ A meal was defined as any eating episode comprising ≥ 15% of total EI, regardless of the time of day or composition of foods and beverages consumed; all other eating episodes were classified as snacks.

§ *P* values for differences between meal and snack based on the paired *t*-test.

|| Calculated based on foods only; excluding all caloric and non-caloric beverages (tea, coffee, water, alcoholic beverages, soft drinks, fruit juice, and milk).

Supplemental Table 4. Characteristics of meals and snacks in women reporting acceptable energy intake (EI) (*n* 446)\*

(Mean values and standard deviations)

|  | Total intake |       | Meals and snacks determined based on time* |       |                    |       | <i>P</i> ‡ | Meals and snacks determined based on EI contribution† |       |                    |       | <i>P</i> ‡ |
|--|--------------|-------|--|-------|--------------------|-------|------------|---|-------|--------------------|-------|------------|
|  |              |       | Intake from meals                          |       | Intake from snacks |       |            | Intake from meals                                     |       | Intake from snacks |       |            |
|  | Mean         | SD    | Mean                                       | SD    | Mean               | SD    | Mean       | SD  | Mean  | SD                 |       |            |
| Food EI (kJ/d)                         | 6899         | 1336  | 5023                                       | 1328  | 1876               | 1165  | <0.0001    | 5611  | 1172  | 1288               | 727   | <0.0001    |
| Beverage EI (kJ/d)                     | 1179         | 628   | 749  | 404   | 430                | 342   | <0.0001    | 463   | 306   | 716                | 497   | <0.0001    |
| Food weight consumed (g/d)             | 960          | 241   | 716  | 254   | 244                | 167   | <0.0001    | 783   | 198   | 178                | 117   | <0.0001    |
| Energy density (kJ/g)                  | 7.44         | 1.54  | 7.43                                       | 1.72  | 8.72               | 3.38  | <0.0001    | 7.38  | 1.40  | 8.61               | 3.93  | <0.0001    |
| Food intake (g/10 MJ)                  |              |       |  |       |                    |       |            |   |       |                    |       |            |
| Vegetables                             | 153.5        | 113.8 | 161.1                                      | 134.5 | 108.5              | 141.8 | <0.0001    | 191.6   | 139.6 | 41.4               | 110.4 | <0.0001    |
| Legumes                                | 32.0         | 33.1  | 33.0                                       | 40.6  | 24.1               | 49.0  | 0.002      | 41.2  | 44.1  | 3.9                | 17.0  | <0.0001    |
| Fruits                                 | 154.8        | 156.4 | 149.4                                      | 159.9 | 200.9              | 338.9 | 0.0007     | 93.9  | 112.4 | 364.1              | 466.1 | <0.0001    |
| Cereals                                | 234.7        | 92.5  | 256.0                                      | 106.3 | 160.6              | 128.8 | <0.0001    | 267.9   | 108.4 | 124.5              | 132.1 | <0.0001    |
| Biscuits, cakes and pastries           | 50.2         | 40.1  | 43.3                                       | 40.5  | 78.1               | 83.2  | <0.0001    | 43.0  | 42.5  | 74.3               | 70.0  | <0.0001    |
| Fish                                   | 40.6         | 47.3  | 42.6                                       | 55.2  | 25.0               | 50.7  | <0.0001    | 51.3  | 59.9  | 7.8                | 31.6  | <0.0001    |
| Meat                                   | 162.5        | 90.8  | 164.7                                      | 105.8 | 126.0              | 135.2 | <0.0001    | 209.8   | 116.4 | 21.6               | 45.4  | <0.0001    |
| Dairy products                         | 350.1        | 200.6 | 345.3                                      | 222.2 | 444.4              | 436.6 | <0.0001    | 207.9   | 146.8 | 814.1              | 568.4 | <0.0001    |
| Sugar, preserves and confectionery     | 35.1         | 33.0  | 32.7                                       | 34.5  | 50.5               | 59.0  | <0.0001    | 21.4  | 23.3  | 76.7               | 77.4  | <0.0001    |
| Nutrient intake                        |              |       |  |       |                    |       |            |   |       |                    |       |            |
| Protein (% of energy)                  | 14.9         | 2.5   | 15.1                                       | 2.9   | 13.2               | 4.3   | <0.0001    | 16.3  | 2.8   | 10.6               | 3.7   | <0.0001    |
| Fat (% of energy)                      | 34.1         | 6.1   | 34.3                                       | 6.7   | 32.6               | 8.8   | <0.0001    | 37.4  | 6.3   | 24.1               | 9.1   | <0.0001    |
| Saturated fat (% of energy)            | 13.1         | 3.2   | 13.0                                       | 3.5   | 13.3               | 4.6   | 0.07       | 13.6  | 3.4   | 11.4               | 4.7   | <0.0001    |
| Carbohydrate (% of energy)             | 46.9         | 6.3   | 47.0                                       | 7.0   | 48.0               | 10.1  | 0.06       | 44.2  | 6.3   | 55.2               | 11.3  | <0.0001    |
| Starch (% of energy)                   | 25.8         | 5.1   | 26.8                                       | 5.5   | 21.4               | 8.3   | <0.0001    | 28.9  | 5.3   | 15.6               | 7.9   | <0.0001    |
| Non-milk extrinsic sugar (% of energy) | 12.6         | 5.9   | 11.9                                       | 6.3   | 16.6               | 10.2  | <0.0001    | 8.6   | 4.0   | 24.8               | 13.5  | <0.0001    |
| Alcohol (% of energy)                  | 4.2          | 5.5   | 3.6  | 5.2   | 6.2                | 10.0  | <0.0001    | 2.2   | 3.5   | 10.1               | 13.2  | <0.0001    |
| Dietary fiber (g/10 MJ)                | 18.0         | 6.2   | 18.7                                       | 7.0   | 15.4               | 7.8   | <0.0001    | 19.1  | 5.9   | 14.7               | 10.1  | <0.0001    |

\* Acceptable EI reporters were defined as subjects with the ratio of EI to estimated energy requirement 0.665 to 1.335.

† Meals were defined as eating events reported during select times of the day (0600-1000, 1200-1500, and 1800-2100 hours); all other eating occasions were considered as snacks.

‡ A meal was defined as any eating episode comprising ≥ 15% of total EI, regardless of the time of day or composition of foods and beverages consumed; all other eating episodes were classified as snacks.

§ *P* values for differences between meal and snack based on the paired *t*-test.

|| Calculated based on foods only; excluding all caloric and non-caloric beverages (tea, coffee, water, alcoholic beverages, soft drinks, fruit juice, and milk).

Supplemental Table 5. Associations of energy density of meals and snacks with total dietary intakes in men reporting acceptable energy intake (EI) (*n* 422)\*

(Regression coefficients and 95% confidence intervals)

|   | Meals and snacks determined based on time† |                |          |                          |               |          | Meals and snacks determined based on EI contribution‡ |                |          |                          |                |          |
|---|--|----------------|----------|--------------------------|---------------|----------|---|----------------|----------|--------------------------|----------------|----------|
|   | Energy density of meals                    |                |          | Energy density of snacks |               |          | Energy density of meals                               |                |          | Energy density of snacks |                |          |
|   | β§   | 95% CI§        | <i>P</i> | β§                       | 95% CI§       | <i>P</i> | β§  | 95% CI§        | <i>P</i> | β§                       | 95% CI§        | <i>P</i> |
| Food intake from meals and snacks (g/10 MJ) |  |                |          |                          |               |          |   |                |          |                          |                |          |
| Vegetables                                  | -19.01                                     | -23.19, -14.82 | <0.0001  | -3.56                    | -5.75, -1.37  | 0.002    | -27.30  | -32.67, -21.91 | <0.0001  | -1.70                    | -3.30, -0.11   | 0.04     |
| Legumes                                     | 0.72                                       | -1.70, 3.15    | 0.56     | -1.12                    | -2.39, 0.15   | 0.08     | -4.25   | -7.38, -1.12   | 0.008    | 1.93                     | 1.00, 2.85     | <0.0001  |
| Fruits                                      | -32.30                                     | -38.34, -26.26 | <0.0001  | -8.77                    | -11.93, -5.61 | <0.0001  | -26.67  | -34.19, -19.15 | <0.0001  | -12.36                   | -14.59, -10.12 | <0.0001  |
| Cereals                                     | -16.52                                     | -22.57, -10.46 | <0.0001  | -2.51                    | -5.68, 0.66   | 0.12     | -15.80  | -23.65, -7.94  | <0.0001  | -4.91                    | -7.24, -2.58   | <0.0001  |
| Biscuits, cakes and pastries                | 6.26                                       | 3.80, 8.72     | <0.0001  | -0.56                    | -1.84, 0.73   | 0.40     | 6.21  | 2.94, 9.48     | 0.0002   | -0.54                    | -1.51, 0.43    | 0.28     |
| Fish  | -3.76                                      | -6.02, -1.49   | 0.001    | -1.16                    | -2.35, 0.02   | 0.06     | -3.43   | -6.39, -0.47   | 0.02     | -1.37                    | -2.25, -0.49   | 0.002    |
| Meat  | -6.36                                      | -11.87, -0.85  | 0.02     | -1.29                    | -4.18, 1.60   | 0.38     | -13.99  | -21.17, -6.81  | 0.0001   | 1.49                     | -0.64, 3.62    | 0.17     |
| Dairy products                              | -18.14                                     | -29.20, -7.07  | 0.001    | 1.36                     | -4.44, 7.15   | 0.65     | -13.03  | -27.61, 1.55   | 0.08     | -3.39                    | -7.72, 0.94    | 0.12     |
| Sugar, preserves and confectionery          | 5.96                                       | 3.97, 7.95     | <0.0001  | 1.66                     | 0.62, 2.71    | 0.002    | 4.71  | 2.13, 7.29     | 0.0004   | 2.31                     | 1.55, 3.08     | <0.0001  |
| Nutrient intake from meals and snacks       |  |                |          |                          |               |          |   |                |          |                          |                |          |
| Protein (% of energy)                       | -0.62                                      | -0.77, -0.48   | <0.0001  | -0.13                    | -0.20, -0.05  | 0.001    | -0.77   | -0.96, -0.57   | <0.0001  | -0.09                    | -0.15, -0.03   | 0.002    |
| Fat (% of energy)                           | 1.10                                       | 0.76, 1.45     | <0.0001  | 0.39                     | 0.21, 0.58    | <0.0001  | 1.93  | 1.49, 2.37     | <0.0001  | 0.12                     | -0.01, 0.25    | 0.07     |
| Saturated fat (% of energy)                 | 0.58                                       | 0.41, 0.76     | <0.0001  | 0.25                     | 0.15, 0.34    | <0.0001  | 0.91  | 0.68, 1.14     | <0.0001  | 0.12                     | 0.05, 0.19     | 0.0006   |
| Carbohydrate (% of energy)                  | -0.26                                      | -0.71, 0.20    | 0.26     | -0.16                    | -0.40, 0.07   | 0.17     | -0.55   | -1.14, 0.05    | 0.07     | -0.13                    | -0.31, 0.05    | 0.15     |
| Starch (% of energy)                        | -0.28                                      | -0.62, 0.07    | 0.12     | -0.10                    | -0.28, 0.09   | 0.30     | -0.23   | -0.69, 0.23    | 0.33     | -0.13                    | -0.27, 0.01    | 0.06     |
| Non-milk extrinsic sugar (% of energy)      | 0.89                                       | 0.54, 1.23     | <0.0001  | 0.12                     | -0.06, 0.30   | 0.21     | 0.78  | 0.02, 0.93     | 0.04     | 0.27                     | 0.14, 0.41     | <0.0001  |
| Alcohol (% of energy)                       | -0.23                                      | -0.70, 0.23    | 0.32     | -0.10                    | -0.34, 0.14   | 0.42     | -0.62   | -1.23, -0.02   | 0.04     | 0.10                     | -0.08, 0.28    | 0.28     |
| Dietary fiber (g/10 MJ)                     | -1.36                                      | -1.64, -1.07   | <0.0001  | -0.32                    | -0.47, -0.17  | <0.0001  | -1.54   | -1.91, -1.16   | <0.0001  | -0.28                    | -0.39, -0.17   | <0.0001  |
| Total EI (kJ/d)                             | 192.9                                      | 68.5, 317.4    | 0.003    | 34.7                     | -30.5, 99.9   | 0.30     | 331.4   | 168.6, 494.1   | <0.0001  | -30.6                    | -79.0, 17.7    | 0.21     |
| Diet quality score                          |  |                |          |                          |               |          |   |                |          |                          |                |          |
| Healthy diet indicator                      | -0.26                                      | -0.35, -0.18   | <0.0001  | -0.05                    | -0.09, -0.001 | 0.04     | -0.26   | -0.37, -0.15   | <0.0001  | -0.07                    | -0.10, -0.03   | <0.0001  |
| Mediterranean diet score¶                   | -0.29                                      | -0.39, -0.20   | <0.0001  | -0.11                    | -0.16, -0.06  | <0.0001  | -0.30   | -0.43, -0.17   | <0.0001  | -0.11                    | -0.14, -0.07   | <0.0001  |

\* Energy density was calculated based on foods only, excluding all caloric and non-caloric beverages (tea, coffee, water, alcoholic beverages, soft drinks, fruit juice, and milk). Acceptable EI reporters were defined as subjects with the ratio of EI to estimated energy requirement 0.665 to 1.335. Adjustment was made for age (years, continuous) and social class (manual or non-manual). Both energy density of meal and energy density of snack based on the same definition were entered simultaneously into the regression model.

† Meals were defined as eating events reported during select times of the day (0600-1000, 1200-1500, and 1800-2100 hours); all other eating occasions were considered as snacks.

Supplemental Table 5. Continued

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‡ A meal was defined as any eating episode comprising  $\geq 15\%$  of total EI, regardless of the time of day or composition of foods and beverages consumed; all other eating episodes were classified as snacks.

§ Regression coefficients mean the change of dietary variables with 1-unit increase of energy density (kJ/g).

|| Possible score ranging from 0 to 7.

¶ Possible score ranging from 0 to 9.

Supplemental Table 6. Associations of energy density (ED) of meals and snacks with total dietary intakes in women reporting acceptable energy intake (EI) (*n* 446)\*

(Regression coefficients and 95% confidence intervals)

|   | Meals and snacks determined based on time† |                |          |                          |               |          | Meals and snacks determined based on EI contribution‡ |                |          |                          |                |          |
|---|--|----------------|----------|--------------------------|---------------|----------|---|----------------|----------|--------------------------|----------------|----------|
|   | Energy density of meals                    |                |          | Energy density of snacks |               |          | Energy density of meals                               |                |          | Energy density of snacks |                |          |
|   | β§   | 95% CI§        | <i>P</i> | β§                       | 95% CI§       | <i>P</i> | β§  | 95% CI§        | <i>P</i> | β§                       | 95% CI§        | <i>P</i> |
| Food intake from meals and snacks (g/10 MJ) |  |                |          |                          |               |          |   |                |          |                          |                |          |
| Vegetables                                  | -32.52                                     | -38.11, -26.94 | <0.0001  | -3.98                    | -6.62, -1.35  | 0.003    | -43.90  | -50.96, -36.84 | <0.0001  | -2.91                    | -5.31, -0.51   | 0.02     |
| Legumes                                     | -1.31                                      | -3.26, 0.64    | 0.19     | -0.78                    | -1.70, 0.14   | 0.10     | -6.20   | -8.71, -3.70   | <0.0001  | 1.73                     | 0.88, 2.58     | <0.0001  |
| Fruits                                      | -48.04                                     | -54.90, -41.17 | <0.0001  | -9.44                    | -12.68, -6.20 | <0.0001  | -36.49  | -45.38, -27.60 | <0.0001  | -15.98                   | -19.00, -12.96 | <0.0001  |
| Cereals                                     | -11.07                                     | -16.38, -5.75  | <0.0001  | -3.71                    | -6.22, -1.20  | 0.004    | -18.38  | -25.33, -11.42 | <0.0001  | -1.39                    | -3.75, 0.98    | 0.25     |
| Biscuits, cakes and pastries                | 4.20                                       | 1.91, 6.50     | 0.0003   | 0.96                     | -0.13, 2.04   | 0.08     | 5.36  | 2.34, 8.38     | 0.0005   | 0.70                     | -0.32, 1.73    | 0.18     |
| Fish  | -7.02                                      | -9.66, -4.38   | <0.0001  | -0.67                    | -1.91, 0.58   | 0.29     | -10.77  | -14.20, -7.35  | <0.0001  | -0.39                    | -1.56, 0.77    | 0.51     |
| Meat  | 0.93                                       | -4.42, 6.28    | 0.73     | -1.15                    | -3.68, 1.38   | 0.37     | -2.33   | -9.41, 4.74    | 0.52     | 0.91                     | -1.50, 3.31    | 0.46     |
| Dairy products                              | -10.30                                     | -21.71, 1.11   | 0.08     | -5.71                    | -11.09, -0.32 | 0.04     | -2.90   | -18.02, 12.22  | 0.71     | -5.73                    | -10.86, -0.59  | 0.03     |
| Sugar, preserves and confectionery          | 6.53                                       | 4.73, 8.32     | <0.0001  | 1.82                     | 0.97, 2.66    | <0.0001  | 5.60  | 3.23, 7.97     | <0.0001  | 2.15                     | 1.35, 2.96     | <0.0001  |
| Nutrient intake from meals and snacks       |  |                |          |                          |               |          |   |                |          |                          |                |          |
| Protein (% of energy)                       | -0.52                                      | -0.65, -0.39   | <0.0001  | -0.18                    | -0.24, -0.12  | <0.0001  | -0.72   | -0.89, -0.55   | <0.0001  | -0.10                    | -0.16, -0.04   | 0.0007   |
| Fat (% of energy)                           | 1.19                                       | 0.85, 1.52     | <0.0001  | 0.40                     | 0.24, 0.56    | <0.0001  | 1.81  | 1.37, 2.24     | <0.0001  | 0.20                     | 0.05, 0.35     | 0.008    |
| Saturated fat (% of energy)                 | 0.67                                       | 0.49, 0.84     | <0.0001  | 0.19                     | 0.11, 0.27    | <0.0001  | 1.01  | 0.78, 1.23     | <0.0001  | 0.11                     | 0.03, 0.19     | 0.005    |
| Carbohydrate (% of energy)                  | -0.18                                      | -0.56, 0.19    | 0.33     | -0.19                    | -0.37, -0.02  | 0.03     | -0.61   | -1.11, -0.12   | 0.02     | 0.01                     | -0.16, 0.18    | 0.90     |
| Starch (% of energy)                        | -0.03                                      | -0.33, 0.27    | 0.84     | -0.11                    | -0.25, 0.03   | 0.13     | -0.45   | -0.84, -0.05   | 0.03     | 0.10                     | -0.04, 0.23    | 0.16     |
| Non-milk extrinsic sugar (% of energy)      | 0.96                                       | 0.64, 1.29     | <0.0001  | 0.20                     | 0.04, 0.35    | 0.01     | 0.78  | 0.35, 1.21     | 0.0004   | 0.26                     | 0.12, 0.41     | 0.0005   |
| Alcohol (% of energy)                       | -0.50                                      | -0.82, -0.18   | 0.003    | -0.03                    | -0.18, 0.12   | 0.73     | -0.48   | -0.90, -0.06   | 0.03     | -0.11                    | -0.26, 0.03    | 0.12     |
| Dietary fiber (g/10 MJ)                     | -1.70                                      | -2.00, -1.40   | <0.0001  | -0.31                    | -0.45, -0.17  | <0.0001  | -2.07   | -2.46, -1.69   | <0.0001  | -0.26                    | -0.39, -0.13   | 0.0001   |
| Total EI (kJ/d)                             | 104.7                                      | 31.4, 178.0    | 0.005    | 31.0                     | -3.6, 65.6    | 0.08     | 148.9   | 52.6, 245.2    | 0.003    | 27.9                     | -4.8, 60.6     | 0.09     |
| Diet quality score                          |  |                |          |                          |               |          |   |                |          |                          |                |          |
| Healthy diet indicator                      | -0.21                                      | -0.28, -0.14   | <0.0001  | -0.02                    | -0.05, 0.02   | 0.29     | -0.21   | -0.31, -0.11   | <0.0001  | -0.05                    | -0.08, -0.01   | 0.006    |
| Mediterranean diet score¶                   | -0.38                                      | -0.47, -0.29   | <0.0001  | -0.05                    | -0.09, -0.005 | 0.03     | -0.53   | -0.65, -0.41   | <0.0001  | -0.04                    | -0.08, -0.003  | 0.04     |

\* Energy density was calculated based on foods only, excluding all caloric and non-caloric beverages (tea, coffee, water, alcoholic beverages, soft drinks, fruit juice, and milk). Acceptable EI reporters were defined as subjects with the ratio of EI to estimated energy requirement 0.665 to 1.335. Adjustment was made for age (years, continuous) and social class (manual or non-manual). Both energy density of meal and energy density of snack based on the same definition were entered simultaneously into the regression model.

† Meals were defined as eating events reported during select times of the day (0600-1000, 1200-1500, and 1800-2100 hours); all other eating occasions were considered as snacks.

Supplemental Table 6. Continued

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‡ A meal was defined as any eating episode comprising  $\geq 15\%$  of total EI, regardless of the time of day or composition of foods and beverages consumed; all other eating episodes were classified as snacks.

§ Regression coefficients mean the change of dietary variables with 1-unit increase of energy density (kJ/g).

|| Possible score ranging from 0 to 7.

¶ Possible score ranging from 0 to 9.

Supplemental Table 7. Associations of energy density (ED) of meals and snacks with **measures of body fatness** in acceptable energy intake (EI) reporters\*

(Regression coefficients and 95% confidence intervals)

|  | Men (n 422) |             |      |          |             |       | Women (n 446) |             |      |          |             |       |
|--|-------------|-------------|------|----------|-------------|-------|---------------|-------------|------|----------|-------------|-------|
|  | Model 1†    |             |      | Model 2‡ |             |       | Model 1†      |             |      | Model 2‡ |             |       |
|  | β§          | 95% CI§     | P    | β§       | 95% CI§     | P     | β§            | 95% CI§     | P    | β§       | 95% CI§     | P     |
| ED of meals determined based on time (kJ/g)              |             |             |      |          |             |       |               |             |      |          |             |       |
| BMI (kg/m <sup>2</sup> )                                 | 0.29        | 0.04, 0.53  | 0.02 | 0.33     | 0.08, 0.58  | 0.009 | -0.03         | -0.31, 0.25 | 0.82 | 0.06     | -0.22, 0.35 | 0.66  |
| WC (cm)  | 0.62        | -0.04, 1.27 | 0.07 | 0.71     | 0.04, 1.37  | 0.04  | 0.24          | -0.39, 0.87 | 0.46 | 0.40     | -0.24, 1.04 | 0.22  |
| ED of snacks determined based on time (kJ/g)             |             |             |      |          |             |       |               |             |      |          |             |       |
| BMI (kg/m <sup>2</sup> )                                 | -0.07       | -0.20, 0.06 | 0.30 | -0.05    | -0.18, 0.07 | 0.40  | 0.12          | -0.01, 0.25 | 0.06 | 0.13     | 0.004, 0.26 | 0.04  |
| WC (cm)  | 0.05        | -0.30, 0.39 | 0.79 | 0.08     | -0.27, 0.42 | 0.67  | 0.21          | -0.08, 0.50 | 0.16 | 0.22     | -0.07, 0.51 | 0.13  |
| ED of meals determined based on EI contribution (kJ/g)¶  |             |             |      |          |             |       |               |             |      |          |             |       |
| BMI (kg/m <sup>2</sup> )                                 | 0.29        | -0.03, 0.61 | 0.07 | 0.37     | 0.04, 0.69  | 0.03  | 0.27          | -0.10, 0.63 | 0.15 | 0.37     | 0.005, 0.74 | 0.047 |
| WC (cm)  | 0.57        | -0.29, 1.43 | 0.20 | 0.72     | -0.15, 1.60 | 0.11  | 0.76          | -0.05, 1.58 | 0.07 | 0.94     | 0.12, 1.76  | 0.03  |
| ED of snacks determined based on EI contribution (kJ/g)¶ |             |             |      |          |             |       |               |             |      |          |             |       |
| BMI (kg/m <sup>2</sup> )                                 | -0.01       | -0.11, 0.08 | 0.72 | -0.02    | -0.11, 0.07 | 0.68  | 0.04          | -0.09, 0.16 | 0.54 | 0.05     | -0.07, 0.18 | 0.40  |
| WC (cm)  | 0.10        | -0.15, 0.36 | 0.43 | 0.10     | -0.16, 0.35 | 0.45  | 0.13          | -0.15, 0.41 | 0.36 | 0.15     | -0.12, 0.43 | 0.27  |
| ED of total diet (kJ/g)                                  |             |             |      |          |             |       |               |             |      |          |             |       |
| BMI (kg/m <sup>2</sup> )                                 | 0.29        | 0.01, 0.57  | 0.04 | 0.35     | 0.07, 0.64  | 0.02  | 0.33          | 0.01, 0.64  | 0.04 | 0.46     | 0.14, 0.77  | 0.005 |
| WC (cm)  | 0.82        | 0.07, 1.57  | 0.03 | 0.97     | 0.20, 1.73  | 0.01  | 0.90          | 0.20, 1.60  | 0.01 | 1.12     | 0.41, 1.84  | 0.002 |

WC, waist circumference.

\* Energy density was calculated based on foods only, excluding all caloric and non-caloric beverages (tea, coffee, water, alcoholic beverages, soft drinks, fruit juice, and milk). Acceptable EI reporters were defined as subjects with the ratio of EI to estimated energy requirement 0.665 to 1.335.

† Adjusted for age (years, continuous), social class (manual or non-manual), smoking status (never, former, or current), physical activity (metabolic equivalent-h/d, continuous), meal frequency based on the same definition (times/d, continuous), snack frequency based on the same definition (times/d, continuous), and energy intake from beverages (kJ/d, continuous). Both energy density of meal and energy density of snack based on the same definition were entered simultaneously into the regression model.

‡ Adjusted for variables used in model 1 and ratio of EI to estimated energy requirement (continuous). Both energy density of meal and energy density of snack based on the same definition were entered simultaneously into the regression model.

§ Regression coefficients mean the change of adiposity measures with 1-unit increase of energy density (kJ/g).

|| Meals were defined as eating events reported during select times of the day (0600-1000, 1200-1500, and 1800-2100 hours); all other eating occasions were considered as snacks.

¶ A meal was defined as any eating episode comprising ≥ 15% of total EI, regardless of the time of day or composition of foods and beverages consumed; all other eating episodes were classified as snacks.