**Supplementary Table 1. General characteristics of nut consumers and non-consumers aged 19-39y by sex**

|  |  |  |
| --- | --- | --- |
| **Characteristics** | **Men (n=1,620)** | **Women (n=2,342)** |
| **Non-consumer** | **Consumer** | **P value\*** | **Non-consumer** | **Consumer** | **P value\*** |
| **%** | **mean** | **SE** | **%** | **mean** | **SE** | **%** | **mean** | **SE** | **%** | **mean** | **SE** |
| Age, y |  | 29.2 | 0.2 |  | 30.3 | 0.4 | 0.01 |  | 29.3 | 0.2 |  | 30.7 | 0.3 | <0.001 |
| Household income |  |  |  |  |  |  | 0.01 |  |  |  |  |  |  | 0.006 |
| Low | 10.8 |  | 1.1 | 5.4 |  | 1.5 |  | 8.2 |  | 0.9 | 4.4 |  | 1.2 |  |
| Middle-low | 24.6 |  | 1.3 | 20.5 |  | 2.8 |  | 27.6 |  | 1.3 | 21.9 |  | 2.2 |  |
| Middle-high | 31.8 |  | 1.4 | 40.1 |  | 3.3 |  | 31.7 |  | 1.3 | 36.5 |  | 2.6 |  |
| High | 32.8 |  | 1.5 | 34.0 |  | 3.1 |  | 32.5 |  | 1.4 | 37.1 |  | 2.6 |  |
| Current alcohol consumer | 73.8 |  | 1.3 | 74.6 |  | 3.0 | 0.83 | 62.8 |  | 1.3 | 54.7 |  | 2.6 | 0.004 |
| Current smoker | 39.5 |  | 1.5 | 26.9 |  | 2.8 | <0.001 | 8.6 |  | 0.8 | 5.9 |  | 1.3 | 0.12 |
| Regular resistance exercise | 30.4 |  | 1.3 | 31.9 |  | 3.1 | 0.65 | 13.6 |  | 0.9 | 23.5 |  | 2.4 | <0.001 |
| Medical history† | 1.8 |  | 0.3 | 1.2 |  | 0.7 | 0.51 | 2.4 |  | 0.4 | 3.0 |  | 0.7 | 0.46 |
| Body mass index, kg/m2 |  | 24.9 | 0.1 |  | 24.2 | 0.3 | 0.03 |  | 22.2 | 0.1 |  | 22.2 | 0.2 | 0.90 |
| Total energy intake, kcal/d |  | 2,268.4 | 22.3 |  | 2358.3 | 50.6 | 0.10 |  | 1760.0 | 18.5 |  | 1811.5 | 29.5 | 0.15 |
| Protein intake, g/d |  | 86.5 | 1.1 |  | 93.0 | 2.7 | 0.003 |  | 64.4 | 0.8 |  | 70.9 | 1.3 | 0.03 |
| Nut intake, g/d |  | N/A |  |  | 8.7 | 0.9 |  |  | N/A |  |  | 9.5 | 1.0 |  |
| Maximal handgrip strength, Kg |  | 42.4 | 0.2 |  | 42.8 | 0.5 | 0.45 |  | 24.8 | 0.1 |  | 24.9 | 0.3 | 0.83 |
| Low muscle strength | 2.3 |  | 0.4 | 2.4 |  | 1.1 | 0.90 | 6.1 |  | 0.6 | 8.1 |  | 1.5 | 0.18 |

**\*** Differences between consumers and non-consumers were determined by t-test for continuous variables and Rao-Scott chi-square test for categorical variables.

† Any history of type 2 diabetes, stroke, arthritis, osteoporosis, cancer, kidney disease, myocardial infarction or angina

**Supplementary Table 2. General characteristics of nut consumers and non-consumers aged 40-64y by sex**

|  |  |  |
| --- | --- | --- |
| **Characteristics** | **Men (n=2,799)** | **Women (n=4,122)** |
| **Non-consumer** | **Consumer** | **P value\*** | **Non-consumer** | **Consumer** | **P value\*** |
| **%** | **mean** | **SE** | **%** | **mean** | **SE** | **%** | **mean** | **SE** | **%** | **mean** | **SE** |
| Age, y |  | 50.9 | 0.2 |  | 51.6 | 0.3 | 0.03 |  | 51.2 | 0.2 |  | 52.2 | 0.2 | <0.001 |
| Household income |  |  |  |  |  |  | <0.001 |  |  |  |  |  |  | 0.001 |
| Low | 10.2 |  | 0.8 | 5.5 |  | 1.0 |  | 10.8 |  | 0.7 | 8.4 |  | 1.0 |  |
| Middle-low | 22.0 |  | 1.0 | 14.4 |  | 1.6 |  | 24.0 |  | 1.0 | 20.1 |  | 1.4 |  |
| Middle-high | 29.6 |  | 1.1 | 32.5 |  | 2.0 |  | 30.7 |  | 1.0 | 30.6 |  | 1.5 |  |
| High | 38.2 |  | 1.3 | 47.5 |  | 2.4 |  | 34.5 |  | 1.3 | 40.9 |  | 1.9 |  |
| Current alcohol consumer | 73.9 |  | 1.1 | 72.4 |  | 1.8 | 0.46 | 45.9 |  | 1.1 | 40.8 |  | 1.6 | 0.01 |
| Current smoker | 42.2 |  | 1.3 | 30.5 |  | 2.0 | <0.001 | 5.7 |  | 0.6 | 3.8 |  | 0.7 | 0.05 |
| Regular resistance exercise | 23.1 |  | 1.0 | 32.3 |  | 1.9 | <0.001 | 14.4 |  | 0.8 | 19.3 |  | 1.3 | <0.001 |
| Medical history† | 17.0 |  | 0.9 | 18.0 |  | 1.5 | 0.57 | 27.5 |  | 1.0 | 28.7 |  | 1.5 | 0.52 |
| Body mass index, kg/m2 |  | 24.6 | 0.1 |  | 24.6 | 0.1 | 0.94 |  | 23.8 | 0.1 |  | 23.1 | 0.1 | <0.001 |
| Total energy intake, kcal/d |  | 2240.2 | 18.8 |  | 2363.3 | 31.0 | <0.001 |  | 1651.9 | 13.5 |  | 1745.0 | 18.1 | <0.001 |
| Protein intake, g/d |  | 77.9 | 0.8 |  | 88.1 | 1.5 | <0.001 |  | 58.6 | 0.6 |  | 64.6 | 0.9 | <0.001 |
| Nut intake, g/d |  | N/A |  |  | 14.6 | 1.1 |  |  | N/A |  |  | 14.4 | 0.9 |  |
| Maximal handgrip strength, Kg |  | 41.4 | 0.2 |  | 41.9 | 0.3 | 0.18 |  | 24.4 | 0.1 |  | 24.7 | 0.2 | 0.15 |
| Low muscle strength | 2.4 |  | 0.4 | 2.6 |  | 0.7 | 0.77 | 7.4 |  | 0.6 | 6.0 |  | 0.7 | 0.15 |

**\*** Differences between consumers and non-consumers were determined by t-test for continuous variables and Rao-Scott chi-square test for categorical variables.

† Any history of type 2 diabetes, stroke, arthritis, osteoporosis, cancer, kidney disease, myocardial infarction or angina

**Supplementary Table 3. General characteristics of nut consumers and non-consumers aged ≥65y by sex**

|  |  |  |
| --- | --- | --- |
| **Characteristics** | **Men (n=1,760)** | **Women (n=2,201)** |
| **Non-consumer** | **Consumer** | **P value\*** | **Non-consumer** | **Consumer** | **P value\*** |
| **%** | **mean** | **SE** | **%** | **mean** | **SE** | **%** | **mean** | **SE** | **%** | **mean** | **SE** |
| Age, y |  | 73.0 | 0.2 |  | 72.0 | 0.3 | <0.001 |  | 73.3 | 0.1 |  | 71.4 | 0.3 | <0.001 |
| Household income |  |  |  |  |  |  | <0.001 |  |  |  |  |  |  | <0.001 |
| Low | 42.8 |  | 1.7 | 29.7 |  | 2.8 |  | 53.6 |  | 1.6 | 38.4 |  | 2.9 |  |
| Middle-low | 28.5 |  | 1.4 | 30.5 |  | 2.7 |  | 23.6 |  | 1.2 | 28.8 |  | 2.4 |  |
| Middle-high | 16.5 |  | 1.2 | 22.4 |  | 2.2 |  | 13.1 |  | 1.1 | 18.1 |  | 2.2 |  |
| High | 12.2 |  | 1.3 | 17.4 |  | 2.2 |  | 9.6 |  | 1.0 | 14.7 |  | 2.1 |  |
| Current alcohol consumer | 57.0 |  | 1.6 | 58.2 |  | 2.7 | 0.69 | 17.2 |  | 1.1 | 20.8 |  | 2.3 | 0.15 |
| Current smoker | 19.0 |  | 1.4 | 11.8 |  | 1.8 | 0.004 | 2.4 |  | 0.6 | 1.4 |  | 0.5 | 0.19 |
| Regular resistance exercise | 24.7 |  | 1.4 | 31.6 |  | 2.7 | 0.02 | 7.3 |  | 0.8 | 18.0 |  | 2.2 | <0.001 |
| Medical history† | 48.7 |  | 1.6 | 49.8 |  | 2.9 | 0.75 | 73.7 |  | 1.3 | 73.8 |  | 2.4 | 0.96 |
| Body mass index, kg/m2 |  | 23.6 | 0.1 |  | 23.9 | 0.2 | 0.06 |  | 24.5 | 0.1 |  | 24.3 | 0.2 | 0.21 |
| Total energy intake, kcal/d |  | 1824.4 | 20.6 |  | 2097.0 | 36.0 | <0.001 |  | 1416.5 | 15.4 |  | 1636.3 | 34.0 | <0.001 |
| Protein intake, g/d |  | 60.0 | 0.9 |  | 74.7 | 1.5 | <0.001 |  | 44.9 | 0.6 |  | 56.5 | 1.3 | <0.001 |
| Nut intake, g/d |  | N/A |  |  | 16.8 | 1.4 |  |  | N/A |  |  | 20.1 | 2.7 |  |
| Maximal handgrip strength, Kg |  | 32.0 | 0.2 |  | 34.7 | 0.4 | <0.001 |  | 19.2 | 0.2 |  | 20.8 | 0.2 | <0.001 |
| Low muscle strength | 28.5 |  | 1.5 | 13.9 | <0.001 | 1.7 |  | 39.1 |  | 1.6 | 23.6 |  | 2.4 | <0.001 |

**\*** Differences between consumers and non-consumers were determined by t-test for continuous variables and Rao-Scott chi-square test for categorical variables.

† Any history of type 2 diabetes, stroke, arthritis, osteoporosis, cancer, kidney disease, myocardial infarction or angina