**Supplementary material**

***Intake of vitamin D from diet and supplements in participants ≥75-80 years***

Among participants ≥75 years (n=72), the mean (SD) daily intake of vitamin D from diet was 9.2 (5.3) µg (median: 7.5 µg), and that adjusted for total energy intake was 11.6 (6.2) µg/10 MJ (median: 10.0 µg/10 MJ).

Among participants ≥75 years old (n=72), 0.7% (n=5) reported intake of vitamin D supplements on one or more days during the 4-day recording period. In this group, the mean daily intake of vitamin D from supplements was 3.2 (1.8) µg (median: 3 µg), and that from both diet and food supplements was 14.1 (6.2) µg (median: 15.7 µg).

***Comparisons with NNR dietary reference values in participants ≥75-80 years***

Among participants ≥75 years, 0.6% (n=4) met the RI of >20 µg/d. The results did not change after including vitamin D intake from supplements.

***Comparisons of an LC-MS assay and a chemiluminescence immunoassay***

**Supplementary Table S1.** Plasma levels of 25-hydroxyvitamin D, as determined using an immunoassay, and the proportions of adults with levels below 30 and 50 nmol/l

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | n | Median  P-25(OH)D  (nmol/l) | Mean  P-25(OH)D  (nmol/l) | SD | Range | % (n) < 30 nmol/l | % (n) < 50 nmol/l |
| Women and men  Women  Men  *P* value | 268  144  124 | 56  57  56 | 58.5  57.5  59.6  0.406 | 24.5  24.3  24.7 | 14-200  14-200  16-189 | 8.6 (23)  9.0 (13)  8.1 (10)  0.779\* | 39.2 (105)  37.5 (54)  41.1 (51)  0.544\* |
| Age groups |  |  |  |  |  |  |  |
| 18-30 yr | 44 | 61.0 | 64.7 | 27.6 | 14-177 | 6.8 (3) | 25 (11) |
| 31-44 yr | 62 | 54.5 | 57.4 | 23.4 | 22-151 | 8.1 (5) | 41.9 (26) |
| 45-64 yr | 96 | 53.5 | 54.0 | 19.7 | 16-106 | 13.5 (13) | 41.7 (40) |
| 65-80 yr | 66 | 56.5 | 61.6 | 28.5 | 18-200 | 3.0 (2) | 24.8 (23) |
| *P* value |  |  | 0.069 |  |  | 0.122\* | 0.224\* |

P-25(OH)D, plasma 25-hydroxyvitamin D.

\*Differences in the proportions of 25(OH)D concentrations below 30 nmol/l or 50 nmol/l.

***Plasma 25-hydroxyvitamin D concentrations and dietary factors***

**Supplementary Table** **S2.** Correlations between plasma concentrations of 25-hydroxyvitamin D in adults, as measured using an LC-MS assay or an immunoassay, and dietary intake of vitamin D and food groups (n=268)

|  |  |  |  |
| --- | --- | --- | --- |
| Variable |  | P-25(OH)D measured with an LC-MS assay | P-25(OH)D measured with an immunoassay |
| Vitamin D intake (g/day) | r  p | 0.233  0.0001 | 0.230  0.0001 |
| Vitamin D intake g/10 MJ | r  p | 0.204  0.0008 | 0.162  0.008 |
| Fish and shellfish (g/day) | r  p | 0.175  0.004 | 0.175  0.004 |
| Milk and milk products fortified with vitamin D | r  p | 0.120  0.0496 | 0.108  0.079 |

P-25(OH)D, plasma 25-hydroxyvitamin D.

***Comparisons of the LC-MS assay and the chemiluminescence immunoassay***

**Supplementary Figure S1.** Bland-Altman plot assessing agreement between the LC-MS assay and the immunoassay when measuring plasma 25-hydroxyvitamin D (P-25(OH)D) in adults aged 18-80 years (n=268).