| **Micronutrient** | **Population** | **Country [reference]** | **Nutrient intake, mean ± SD  (min.-max., except where shown)** | **Nutrient intake, median (IQR, except where shown)** | **Intake from dietary supplements is included** | **Recommended nutrient intake or adequate blood concentration (where applicable) [reference]\*** | **Proportion of daily recommended nutrient intake or adequate blood concentration, % (range)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Folate, µg/day | Non-pregnant adolescent girls | Europe [7]a  (14-24 y) | (154-298) |  | Yes (Ireland, Norway, UK; type not specified) | 400 [10] | (39-75) |
| Germany [7] (n=605; 15-18 y) | 298 ± 159 |  | No | 400 [10] | 75 |
| Non-pregnant women | Europe [7]a (19-64 y) | (131-392) |  | Yes (Greece, Ireland, Norway; type not specified) | 400 [10] | (33-98) |
| Germany [7] (n=6,016; 19-64 y) | 277 ± 124 |  | No | 400 [10] | 69 |
| Australia [26]b  (n=302; 18-25 y) | Serum concentration, nmol/L:  23.5 ± 10.4 |  | No | Normal serum concentration, nmol/L:  13.5-45.3 [95] | (174-52) |
| Australia [27]b  (26-36 y)  All women (n=996): |  | 27.1 (18.8-35.0) | Yes  (no specific data apart from they contained ‘folic acid’, ‘folate’ or ‘multivitamins’) | Normal serum concentration, nmol/L:  13.5-45.3[95] | Using lower ref. value: 200 (139-259)  Using higher ref. value: 60 (42-77) |
| Not taking supplements (n=497): |  | 24.5 (16.9-32.8) | Using lower ref. value: 181 (125-243)  Using higher ref. value: 54 (37-72) |
| USA [38] b  (n=3,210)  19-30 y:  31-50 y: | 456.4 ± 8.7 (SE)  465.1 ± 10.2 (SE) |  | Yes  (vitamins D, C and K,calcium, magnesium and potassium) | 400 [76] | 114  116 |
| Italy [28]  (n=55; 18-44 y, childbearing) | Serum concentration (95% CI), nmol/L:  10.4 (4.3-25.3) |  | No | Normal serum concentration, nmol/L:  13.5-45.3[95] | (77-23) |
| Japan [34]  (n=37; 32.4 y) | 256 ± 93 |  | No | 240 [82] | 107 |
| Pregnant adolescent girls | UK [29]b (n=290; 14-18 y) | 285 ± 141 | 249 (188-350) | Yes  (folic acid, iron, multivitamins) | 300 [79] | Mean value: 95  Median value: 83 (63-117) |
| Pregnant women | Austria [7]  <25 y  25-35 y  >35 y | 209  232  270 |  | No | 550 [7] | 38  42  49 |
| Belgium [30]  (n=77) | Serum concentration, nmol/L:  13.5 ± 12.9 |  | Yes  (‘vitamin supplementation’) | Normal serum concentration, nmol/L:  13.5-45.3[95] | (100-30) |
| Spain [31]  (n=154; mean 31.1)  First trimester  Second trimester  Third trimester |  | Serum concentration (95% CI), nmol/L:  35.2 (3.22, 45.4)  19.75 (4.76, 45.4)  14.75 (2.77, 45.4) | Yes  (folic acid) | Normal serum concentration, nmol/L:  13.5-45.3[95] | (261-78)  (146-44)  (109-33) |
| Canada [32] b  (n=599)  First trimester  Second trimester  Third trimester |  | Median (95% CI):  269 (240, 303)  299 (281, 310)  306 (290, 318) | Yes  (folic acid) | 400 [76] | 67  75  77 |
| Australia [33] b  (n=24)  20 wks gestation:  36 wks gestation:  14 wks postpartum:  27 wks postpartum: |  | Serum concentration, nmol/L:  16  16  15  17 | Yes  (folate, vitamin B12 or multi-nutrient containing both) | Normal serum concentration, nmol/L:  13.5-45.3 [95] | (119-35)  (119-35)  (111-33)  (126-38) |
|  | Japan [34]  2nd trimester  (n=24; 31.2 y):  3rd trimester  (n=32; 31.7 y) | 286 ± 111  282 ± 111 |  | No | 490 [82] | 58  58 |
|  | Japan (29 y) [35]  1st trimester (n=51):  2nd trimester (n=77):  3rd trimester (n=82): | 276 ± 168  284 ± 131  271 ± 131 |  | Yes (folic acid; n=2 1st trimester; n=4 2nd trimester) | 490 [82] | 56  58  55 |
|  |  | Japan (30.5 y) [36]  1st trimester (n=118):  2nd trimester (n=187):  3rd trimester (n=232): |  | 180.2 (103.5)  207.2 (104.6)  217.5 (107.8) | Yes (folate; n=120, 22.3%) | 490 [82] | 37  42  44 |
|  |  | Japan [37]  1st trimester (n=5075): | Serum concentration, nmol/L:  18.4 ± 21.6 |  | Yes (n=518) | Serum concentration, nmol/L:  13.5-45.3 [95] | (136-41) |
| Vitamin B2 (riboflavin), mg/day | Non-pregnant adolescent girls | Europe [7]a  (14-24 y) | (1.2-2.3) |  | Yes (Ireland, Norway, UK; type not specified) | 1.3 [10] | (92-177) |
| Germany [7] (n=605; 15-18 y) | 2.0 ± 1.2 |  | No | 1.3 [10] | 154 |
| Non-pregnant women | Europe [7]a (19-64 y) | (1.2-2.8) |  | Yes  (Greece, Ireland, Norway; type not specified) | 1.1 [10] | (109-255) |
| Germany [7] (n=6,016; 19-64 y) | 1.8 ± 0.9 |  | No | 1.1 [10] | 164 |
| USA [38]  (n=3,210)  19-30 y:  31-50 y: | 1.8 ± 0.04 (SE)  1.9 ± 0.03 (SE) |  | Yes  (vitamins D, C and K, calcium, magnesium and potassium) | 1.1 [76] | 164  173 |
| Japan [34]  (n=37; 32.4 y) | 1.2 ± 0.4 |  | No | 1.2 [82] | 100 |
| Pregnant adolescent girls | UK [29]  (n=290; 14-18 y) | 1.56 ± 0.76 | 1.42 (1.04-1.96) | Yes  (folic acid, iron, multivitamins) | 1.4 [79] | Mean value: 111Median value: 101 (74-196) |
| Pregnant women | Austria [7]  <25 y  25-35 y  >35 y | 1.3  1.5  1.6 |  | No | 1.5 [77] | 86  100  133 |
| Japan [34]  2nd trimester  (n=24; 31.2 y):  3rd trimester  (n=32; 31.7 y) | 1.3 ± 0.6  1.4 ± 0.5 |  | No | 1.7 [82] | 76  82 |
| Vitamin B6 (pyroxidine), mg/day | Non-pregnant adolescent girls | Europe [7] a  (14-24 y) | (1.2-2.5) |  | Yes (Ireland, Norway, UK; type not specified) | 1.2 [10] | (100-208) |
| Germany [7] (n=605; 15-18 y) | 2.4 ± 1.5 |  | No | 1.2 [10] | 200 |
| Non-pregnant women | Europe [7] a (19-64 y) | (1.3-2.1) |  | Yes  (Greece, Ireland, Norway; type not specified) | 1.3 [10] | (100-162) |
| Germany [7] (n=6,016; 19-64 y) | 2.0 ± 1.0 |  | No | 1.3 [10] | 154 |
| USA [38]  (n=3,210; 19-50 y) | 1.6 ± 0.05 (SE) |  | Yes  (vitamins D, C and K, calcium, magnesium and potassium) | 1.3 [76] | 123 |
| Japan [34]  (n=37; 32.4 y) | 0.87 ± 0.27 |  | No | 1.2 [82] | 73 |
| Pregnant adolescent girls | UK [29]  (n=290; 14-18 y) | 2.25 ± 1.08 | 2.02 (1.57-2.65) | Yes  (folic acid, iron, multivitamins) | 1.2 [79] | Mean value: 188  Median value: 168 (131-221) |
| Pregnant women | Austria [7]  <25y 25-35 y  >35 y | 1.4  1.5  1.7 |  | No | 1.9 [77] | 74  79  89 |
| Canada [32]  (n=599)  First trimester  Second trimester  Third trimester |  | Median (95% CI):  1.8 (1.6, 2.0)  1.8 (1.7, 1.9)  1.9 (1.8, 2.0) | Yes  (folic acid) | 1.9 [76] | 95  95  100 |
| Japan [34]  2nd trimester  (n=24; 31.2 y):  3rd trimester  (n=32; 31.7 y) | 1.0 ± 0.32  0.97 ± 0.28 |  | No | 1.5 [82] | 67  65 |
|  |  | Japan (29 y) [35]  1st trimester (n=51):  2nd trimester (n=77):  3rd trimester (n=82): | 1.1 ± 0.8  1.5 ± 2.8  1.2 ± 1.3 |  | Yes (folic acid; n=2 1st trimester; n=4 2nd trimester) | 1.5 [82] | 73  100  80 |
| Vitamin B12 (cobalamin), µg/day | Non-pregnant adolescent girls | Europe [7] a  (14-24 y) | (3.5-5.2) |  | Yes (Ireland, Norway, UK; type not specified) | 2.4 [10] | (146-217) |
| Germany [7] (n=605; 15-18 y) | 4.0 ± 1.8 |  | No | 2.4 [10] | 167 |
| Non-pregnant women | Europe [7] a (19-64 y) | (1.0-8.8) |  | Yes  (Greece, Ireland, Norway; type not specified) | 2.4 [10] | (42-367) |
| Germany [7] (n=6,016; 19-64 y) | 4.4 ± 2.1 |  | No | 2.4 [10] | 183 |
| Italy [28]  (n=55; 18-44 y) | Serum concentration (95% CI), pmol/L:  237 (121-464) |  | No | Lowest normal serum concentration, pmol/L:  221 [96] | 107 (55-210) |
| Australia [26]  (n=302; 18-25 y) | Serum concentration, pmol/L:  224.4 ± 109.2 |  | No | Lowest normal serum concentration, pmol/L:  221 [96] | 102 |
| USA [38]  (n=3,210)  19-30 y:  31-50 y: | 4.0 ± 0.1 (SE)  4.2 ± 0.1 (SE) |  | Yes  (vitamins D, C and K, calcium, magnesium and potassium) | 2.4 [76] | 167  175 |
| Japan [34]  (n=37; 32.4 y) | 4.9 ± 2.0 |  | No | 2.4 [82] | 204 |
| Pregnant adolescent girls | UK [29]  (n=290; 14-18 y) | 5.31 ± 4.96 | 4.31 (2.97-6.11) | Yes  (folic acid, iron, multivitamins) | 1.5 [79] | Mean value: 354  Median value: 287 (198-407) |
| Pregnant women | Belgium [30]  (n=78) | Serum concentration, pmol/L:  243.9 ± 93.9 (2-500) |  | Yes  (‘vitamin supplementation’) | Lowest normal serum concentration, pmol/L:  221 [96] | 110 (0.9-226) |
| Spain [31]  (n=154; mean 31.1 y)  First trimester  Second trimester  Third trimester |  | Median (95% CI) serum concentration, pmol/L:  222.8 (118.02, 661.9)  172.7 (19.60, 572.7)  140.6 (17.2, 482.6) | Yes  (folic acid) | Lowest normal serum concentration, pmol/L:  221 [96] | 101  78  64 |
| Canada [32]  (n=599)  First trimester  Secondtrimester  Third trimester |  | Median (95% CI):  3.7 (3.3, 4.0)  4.0 (3.7, 4.2)  4.1 (3.8, 4.4) | Yes  (folic acid) | 2.6 [76] | 142  154  158 |
| Australia [33]  (n=60)  20 wks gestation:  36 wks gestation:  14 wks postpartum:  27 wks postpartum: |  | Plasma concentration, pmol/L:  162  138  222  237 | Yes  (folate, vitamin B12 or multi-nutrient containing both) | Lowest normal serum concentration, pmol/L:  221 [96] | 73  62  100  107 |
| Japan [34]  2nd trimester  (n=24; 31.2 y):  3rd trimester  (n=32; 31.7 y) | 5.8 ± 3.1  6.0 ± 3.2 |  | No | 2.9 [82] | 200  207 |
|  |  | Japan (29 y) [35]  1st trimester (n=51):  2nd trimester (n=77):  3rd trimester (n=82): | 5.5 ± 4.8  6.2 ± 7.9  7.9 ± 19 |  | Yes (folic acid; n=2 1st trimester; n=4 2nd trimester) | 2.9 [82] | 190  214  272 |
| Vitamin D, µg/day | Non-pregnant adolescent girls | Europe [7]a  (14-24 y) | (1.5-7.1) |  | Yes (Ireland, Norway, UK; type not specified) | 5.0 [10] | (30-142) |
| Germany [7] (n=605; 15-18 y) | 2.0 ± 1.3 |  | No | 5.0 [10] | 40 |
| Non-pregnant women | Europe [7] a (19-64 y) | (1.2-10.1) |  | Yes (Greece, Ireland, Norway; type not specified) | 5.0 [10] | (24-202) |
| Germany [7] (n=6,016; 19-64 y) | 2.0 ± 1.3 |  | No | 5.0 [10] | 40 |
| Sweden [39]  (n=84 - including some pregnant women; 25-40 y) | Serum 25(OH)D concentration, nmol/L:  65.8 ± 19.9 (21.0-123.0) |  | Yes, mean 1.1 µg/d | Normal serum 25(OH)D concentration, nmol/L:  75 [97] | 88 (28-164) |
| USA [38]  (n=3,210)  19-30 y:  31-50 y: | 3.3 ± 0.1 (SE)  3.7 ± 0.1 (SE) |  | Yes  (vitamins D, C and K, calcium, magnesium and potassium) | 15 [76] | 22  25 |
| Pregnant adolescent girls | UK [29]  (n=290; 14-18 y) | 2.15 ± 1.71 |  | Yes  (folic acid, iron, multivitamins) | 10 [84] | 22 |
| Pregnant women | Austria [7]  <25 y  25-35 y  >35 y | 2.1  2.6  3.3 |  | No | 10 [77] | 21  26  33 |
| Denmark [40]  (n=141; 30.4 ± 3.8 y)  18 wks  32 wks  39 wks  8 wks postpartum |  | Serum 25(OH)D concentration, nmol/L:  76 (55-100)  98 (77-125)  91 (56-122)  73 (51-89) | Yes  (34% of women) | Normal serum 25(OH)D concentration, nmol/L:  75 [97] | 101 (73-133)  131 (103-167)  121 (75-163)  97 (68-119) |
| UK [41]  (n=1753; 30.4 ± 3.7 y)  Early pregnancy:  Late pregnancy: |  | Serum 25(OH)D concentration, nmol/L:  61 (43-81)  59 (41-84) | Yes  (up to 37% women) | Normal serum 25(OH)D concentration, nmol/L:  75 [97] | 81 (57-108)  79 (55-119) |
| New Zealand [42]  (n=259; median 28 y) | Serum 25(OH)D concentration, nmol/L:  63 ± 35 |  | No, if >200 IU/day | Normal serum 25(OH)D concentration, nmol/L:  75 [97] | 84 |
| Australia [43]  Canberra (n=100; 30.8 ± 5.6 y):  Campbelltown (n=101; 27.9 ± 6.6 y): | Serum 25(OH)D concentration, nmol/L:  61.3 ± 23.4  57.6 ± 26.9 |  | Yes | Normal serum 25(OH)D concentration, nmol/L:  75 [97] | 82  77 |
| China [44]  (n=70; mean 29.9 y) | Mean ± SE 25(OH)D concentration, nmol/L:  28.64 ± 1.41  (13.4-64.3) |  | No | Normal serum 25(OH)D concentration, nmol/L:  75 [97] | 38 (18-86) |
| China [45]  (n=1,695) | Serum 25(OH)D concentration, nmol/L:  17.57 ± 11.44 |  | No | Normal serum 25(OH)D concentration, nmol/L:  75 [97] | 23 |
| China [46]  (n=5,823; 26.4 ± 3.1 y) |  | Serum 25(OH)D concentration, nmol/L:  34.0 (25.0-47.4) | Not stated | Normal serum 25(OH)D concentration, nmol/L:  75 [97] | 45 (33-63) |
| Japan [47]  (n=284; 34.8 y) | 6.3 ± 3.1 |  | Yes (14.4% women) | 13 [82] | 48 |
| USA [48]  (n=2,473) | Serum 25(OH)D concentration, nmol/L:  58.9 ± 23.8 |  | Not stated | Normal serum 25(OH)D concentration, nmol/L:  75 [97] | 79 |
| Calcium, mg/day | Non-pregnant adolescent girls | Europe [7]a  (14-24 y) | (645-1,040) |  | Yes (Ireland, Norway, UK; type not specified) | 1,300 [10] | (50-80) |
| Germany [7] (n=605; 15-18 y) | 1,022 ± 369 |  | No | 1,300 [10] | 79 |
| Non-pregnant women | Europe [7]a (19-64 y) | (508-1,047) |  | Yes  (Greece, Ireland, Norway; type not specified) | 1,000 [10] | (51-105) |
| Germany [7] (n=6,016; 19-64 y) | 1,047 ± 389 |  | No | 1,000 [10] | 105 |
| USA [38]  (n=3,210)  19-30 y:  31-50 y: | 823.0 ± 18.6 (SE)  821.5 ± 15.5 (SE) |  | Yes  (vitamins D, C and K, calcium, magnesium and potassium) | 1,000 [76] | 82  82 |
| Pregnant adolescent girls | UK [29]  (n=290; 14-18 y) | 840 ± 351 | 798 (557-1,079) | Yes  (folic acid, iron, multivitamins) | 700 [79] | Mean value: 120  Median value: 114 (80-154) |
| Pregnant women | Austria [7]  <25 y  25-35 y  >35 y | 798  919  1,078 |  | No | 1,000 [77] | 80  92  108 |
| Brazil [49]  (n=50; mean 28.1 y) | 613.8 ± 176.90 |  | Yes  (folic acid/iron) | 1,000 [76] | 61 |
| Iron, mg/day | Non-pregnant adolescent girls | Europe [7]a  (14-24 y) | (7.8-14.0) |  | Yes (Ireland, Norway, UK; type not specified) | 20.7-62.0 [10] | Using lower ref. value: (38-68)  Using upper ref. value: (13-23) |
| Germany [7] (n=605; 15-18 y) | 12.0 ± 3.9 |  | No | 20.7-62.0 [10] | Using lower ref. value: 58  Using upper ref. value: 19 |
| Non-pregnant women | Europe [7]a (19-64 y) | (8.2-22.2) |  | Yes  (Greece, Ireland, Norway; type not specified) | 19.6-58.8 [10] | Using lower ref. value: (42-113)  Using upper ref. value: (14-38) |
| Germany [7] (n=6,016; 19-64 y) | 12.6 ± 3.8 |  |  | 19.6-58.8 [10] | Using lower ref. value: 64  Using upper ref. value: 21 |
| Australia [26]b  (n=301; 18-25 y) | Serum concentration, µmol/L:  17.7 ± 6.8 |  | No | Serum reference range, µmol/L:  10-30 [26] | (177-59) |
| USA [38]b  (n=3,210)  19-30 y:  31-50 y: | 13.1 ± 0.2 (SE)  13.4 ± 0.2 (SE) |  | Yes  (vitamins D, C and K, calcium, magnesium and potassium) | 18 [76] | 73  74 |
| Pregnant adolescent girls | UK [29]b (n=290; 14-18 y) | 17.0 ± 17.0 | 10.8 (8.1-15.3) | Yes  (folic acid, iron, multivitamins) | 14.8 [79] | Mean value: 115  Median value: 73 (55-103) |
| Pregnant women | Austria [7]  <25 y  25-35 y  >35 y | 11.3  12.5  15.0 |  | No | 30 [77] | 38  42  50 |
| Belgium [50]  (n=1,280; 28 y) |  | Serum sTfR, mg/L:  3.7 (3.0-4.8) | Yes  (including iron) | Serum sTfR reference range (all women), mg/L:  <4.40 [51] c | 84 (68-109) c |
| USA [51]b  (n=1,171; 27.5 y) |  | Serum sTfR, mg/L:  3.11 (2.63-3.97) | Not stated | Serum sTfR reference range (all women), mg/L:  <4.40 c | 70 (60-90) c |
| Iodine, µg/day | Non-pregnant adolescent girls | Europe [7]a  (14-24 y) | (115-182) |  | Yes (Ireland, Norway, UK; type not specified) | 150 [10] | (77-121) |
| Germany [7] (n=605; 15-18 y) | 78 ± 29 |  |  | 150 [10] | 52 |
| Non-pregnant women | Europe [7]a (19-64 y) | (48-200) |  | Yes  (Greece, Ireland, Norway; type not specified) | 150 [10] | (32-133) |
| Germany [7] (n=6,016; 19-64 y) | 101 ± 40 |  | No | 150 [10] | 67s |
| UK [53]  (n=57; median 23 y, range 19-45 y) |  | Urinary excretion: 167 (114-245) | Yes  (‘multivitamin/ mineral suppl.’) | 150 [10] | 111 (76-163) |
| Italy [54]‑  (n=361; 18-40 y) |  | UIC (min.-max.), µg/L:  55 (30-679) | No | Adequate median UIC, µg/L:  100-199 [98] | Using lower ref. value: 55 (30-679)  Using higher ref. value: 28 (15-341) |
| Pregnant women | Austria [7]  <25 y  25-35 y  >35 y | 176  184  213 |  | No | 230 [77] | 77  80  93 |
| Australia [55]  (n=130; 16-40 y) | 211 ± 98 (with bread) |  | Yes  (‘iodine-containing’) | 220 [78] | 96 |
| Canada [56]  (n=142; 33.8 ± 4.3 y) |  | UIC, µg/L:  221 (142-397) | Yes  (multivitamins or ‘preconception multivitamins’) | Adequate median UIC, µg/L:  150-249 [98] | Using lower ref. value: 147 (95-265)  Using higher ref. value: 89 (57-159) |
| China [57]  (n=430) |  | UIC, µg/L:  130 (89.7-181) | Not stated | Adequate median UIC, µg/L:  150-249 [98] | Using lower ref. value: 87 (60-121)  Using higher ref. value: 52 (36-73) |
| Selenium, µg/day | Non-pregnant adolescent girls | Europe [7] a  (14-24 y) | (30-38) |  | Yes (Ireland, Norway, UK; type not specified) | 26 [10] | (115-146) |
| Non-pregnant women | Australia [26]  (n=289; 18-25 y) | Serum concentration, µmol/L:  1.11 ± 0.21 | Serum concentration (SE), µmol/L:  1.08 ± 0.13 | No | Serum reference range, µmol/L: 0.75-1.35 [26] | Mean value:  (148-82)  Median value:  (144-80) |
| USA [38]  (n=3,210)  19-30 y:  31-50 y: | 91.3 ± 1.2 (SE)  92.7 ± 1.1 (SE) |  | Yes  (vitamins D, C and K, calcium, magnesium and potassium) | 55 [76] | 166  169 |
| Pregnant women | UK [58]  (n=229, including those taking selenium supplement) |  | Whole blood concentration, µmol/L:  1.32 (0.84-2.19) | No | Serum reference range, µmol/L: 0.75-1.35 [26] | Using lower ref. value: 176 (112-292)  Using upper ref. value: 98 (62-162) |
| \*Please note that the recommended nutrient intake is country specific, unless a recommendation could not befound; in such cases, a recognized standard value was used. aAustria, Belgium, Denmark, Germany, Ireland, Italy, Norway, Poland, Slovenia, Spain, The Netherlands, United Kingdom;  bNote that flour fortification with either folic acid and iron (USA, Canada, Brazil), folic acid alone (Australia) or iron alone (UK) is mandatory in these countries;  cNote that a higher value in this case denotes greater iron deficiency.  25(OH)D, 25-hydroxyvitamin D; CI: Confidence Interval; IQR: Interquartile Range; SD: Standard Deviation; SE: Standard Error; sTfR: Soluble Transferrin Receptor (note that a higher concentration indicates greater iron deficiency); UIC: Urinary Iodine Concentration. | | | | | | | |

**Supplimentary Table 1**: Micronutrient status in women of childbearing potential and pregnant women.