**Supplementary table 1.** The Dietary Reference Intakes for Koreans per a day in 2015.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | Male / Female | | |
| Age (year) | | 19-29 | 30-49 | 50-64 |
| Daily food intake | |  |  |  |
|  | Total energy (kcal (kJ) per a day) of EER | 2,600 (10,878.4) / 2,100 (8,786.4) | 2,400 (10,041.6) / 1,900 (7,949.6) | 2,200 (9,204.8) / 1,800 (7,531.2) |
|  | Carbohydrate (%) of AMDR | 55-65 / 55-65 | | |
|  | Fat (%) of AMDR | 15-30 / 15-30 | | |
|  | Protein (g) of EAR | 50 / 45 | 50 / 40 | |
|  | of RNI | 65 / 55 | 60 / 50 | |
| Water (fluid) (ml) of AI | | 1200 / 1000 | | 1000 / 900 |
| Vitamins | |  |  |  |
|  | Vitamin A (μgRE) of EAR | 570 / 460 | 550 / 450 | 530 / 430 |
|  | of RNI | 800 / 650 | 750 / 650 | 750 / 600 |
|  | of UL | 3000 / 3000 | | |
|  | Vitamin C (mg) of EAR | 75 / 75 | | |
|  | of RNI | 100 / 100 | | |
|  | of UL | 2000 / 2000 | | |
|  | Vitamin B1 (mg) of EAR | 1.0 / 0.9 | | |
|  | of RNI | 1.2 / 1.1 | | |
|  | Vitamin B2 (mg) of EAR | 1.3 / 1.0 | | |
|  | of RNI | 1.5 / 1.2 | | |
|  | Niacin (mg) of EAR | 12 / 11 | | |
|  | of RNI | 16 / 14 | | |
| Minerals | |  |  |  |
|  | Ca (mg) of EAR | 650 / 530 | 630 / 510 | 600 / 580 |
|  | of RNI | 800 / 700 | | 750 / 800 |
|  | of UL | 2500 / 2500 | | 2000 / 2000 |
|  | P (mg) of EAR | 580 / 580 | | |
|  | of RNI | 700 / 700 | | |
|  | of UL | 3500 / 3500 | | |
|  | Na (mg) of EAR | 1500 / 1500 | | |
|  | of RNI | 2000 / 2000 | | |
|  | of UL | 2300 / 2300 | | |
|  | K (mg) of AI | 3500 / 3500 | | |
|  | Fe (mg) of EAR | 8 / 11 | | 7 / 6 |
|  | of RNI | 10 / 14 | | 10 / 8 |
|  | of UL | 45 / 45 | | |
| \* EER: Estimated Energy Requirement, EAR: Estimated Average Requirement, AMDR: Acceptable Macronutrient Distribution Ranges, RNI: Recommended Nutrient Intake, AI: Adequate Intake, UL: Tolerable Upper Intake Level. | | | | |

**Supplementary table 2.** Risk for inappropriate energy and nutrition intake according to occupational classification in male workers (Odds Ratio and 95% confidence intervals)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Occupational classification (Reference are white-collared) | | | | | |
|  |  |  | Pink | | Green | | Blue | |
|  |  |  | crude | full-adjusted\* | crude | full-adjusted | crude | full-adjusted |
| Total energy and nutrition intake | | |  |  |  |  |  |  |
|  |  | Under | **1.83 (1.21-2.77)** | 1.04 (0.67-1.63) | 1.64 (0.39-6.94) | 1.37 (0.70-1.47) | 1.29 (0.95-1.75) | 1.02 (0.70-1.47) |
|  |  | Over | 1.35 (0.95-1.91) | 1.23 (0.85-1.79) | 0.45 (0.06-3.33) | 0.69 (0.09-5.18) | 0.80 (0.62-1.04) | 1.28 (0.93-1.76) |
| Energy intake by macro nutrients | | |  |  |  |  |  |  |
|  | Carbohydrate | Under | 1.18 (0.94-1.48) | 1.16 (0.92-1.47) | 0.76 (0.29-2.04) | 0.85 (0.32-2.30) | 0.89 (0.76-1.03) | 0.95 (0.79-1.14) |
|  |  | Over | 1.13 (0.89-1.42) | 1.24 (0.97-1.59) | **2.28 (1.01-5.14)** | 1.91 (0.83-4.39) | **1.43 (1.24-1.65)** | 1.19 (0.99-1.43) |
|  | Fat | Under | 1.02 (0.82-1.26) | 1.06 (0.84-1.33) | **2.81 (1.47-5.39)** | 1.79 (0.90-3.54) | **1.81 (1.59-2.06)** | 1.16 (0.98-1.38) |
|  |  | Over | 1.28 (0.99-1.63) | 1.14 (0.87-1.48) | 0.24 (0.03-1.79) | 0.36 (0.05-2.72) | 0.70 (0.58-0.85) | 0.93 (0.74-1.17) |
|  | Protein | Under | **1.44 (1.11-1.88)** | 1.21 (0.92-1.60) | **3.17 (1.52-6.60)** | **2.18 (1.03-4.62)** | **1.76 (1.48-2.09)** | 1.23 (0.99-1.53) |
| Water intake | | Under | **1.55 (1.30-1.86)** | **1.22 (1.01-1.47)** | 1.76 (0.92-3.35) | 1.27 (0.66-2.45) | **1.46 (1.30-1.63)** | 1.06 (0.92-1.23) |
| Vitamins | |  |  |  |  |  |  |  |
|  | Vitamin A | Under | **1.32 (1.10-1.59)** | 1.17 (0.96-1.42) | 1.86 (0.93-3.72) | 1.65 (0.82-3.32) | 1.08 (0.96-1.21) | 0.96 (0.83-1.11) |
|  |  | Over | 1.58 (0.98-2.55) | **1.87 (1.13-3.10)** | 1.26 (0.16-9.82) | 1.65 (0.21-13.05) | 0.73 (0.50-1.06) | 0.96 (0.60-1.54) |
|  | Vitamin C | Under | **1.66 (1.38-1.98)** | **1.28 (1.06-1.55)** | 0.88 (0.46-1.70) | 0.72 (0.37-1.39) | **1.25 (1.11-1.40)** | 1.02 (0.88-1.18) |
|  | Vitamin B1 | Under | **1.64 (1.25-2.14)** | 1.23 (0.95-1.68) | 1.92 (0.79-4.63) | 1.49 (0.60-3.65) | **1.29 (1.07-1.56)** | 1.01 (0.79-1.28) |
|  | Vitamin B2 | Under | **1.32 (1.18-1.49)** | 0.95 (0.78-1.15) | **1.95 (1.03-3.71)** | 1.34 (0.69-2.58) | **1.32 (1.18-1.49)** | 0.92 (0.80-1.07) |
|  | Niacin | Under | **1.56 (1.24-1.98)** | **1.32 (1.03-1.68)** | 2.07 (0.97-1.99) | 1.54 (0.71-3.34) | **1.70 (1.46-1.99)** | **1.30 (1.07-1.58)** |
| Minerals | |  |  |  |  |  |  |  |
|  | Calcium | Under | 1.15 (0.96-1.39) | 0.96 (0.79-1.16) | 1.32 (0.66-2.62) | 1.05 (0.52-2.12) | 1.07 (0.95-1.21) | 0.86 (0.74-1.00) |
|  |  | Over | NA | NA | NA | NA | 1.80 (0.72-4.49) | 1.94 (0.55-6.83) |
|  | Phosphate | Under | **2.37 (1.57-3.57)** | 1.51 (0.97-2.35) | 0.99 (0.13-7.29) | 0.64 (0.09-4.82) | **1.73 (1.26-2.36)** | 1.13 (0.77-1.66) |
|  |  | Over | 0.55 (0.17-1.84) | 0.52 (0.15-1.81) | NA | NA | 0.92 (0.50-1.68) | 1.33 (0.62-2.82) |
|  | Sodium | Under | 1.79 (0.87-3.72) | 1.45 (0.72-3.34) | NA | NA | 1.57 (0.96-2.58) | 1.21 (0.64-2.29) |
|  |  | Over | 1.00 (0.59-1.71) | 1.09 (0.63-1.90) | **0.26 (0.09-0.75)** | 0.35 (0.12-1.04) | 1.00 (0.71-1.41) | 1.31 (0.85-2.01) |
|  | Potassium | Under | **1.32 (1.10-1.58)** | 1.06 (0.88-1.28) | 1.31 (0.69-2.51) | 0.96 (0.50-1.87) | **1.18 (1.06-1.33)** | 0.88 (0.74-1.02) |
|  | Iron | Under | **1.88 (1.36-2.58)** | 1.02 (0.72-1.45) | 1.51 (0.46-4.98) | 1.23 (0.36-4.18) | **1.28 (1.01-1.62)** | 0.98 (0.73-1.31) |
|  |  | Over | 1.11 (0.70-1.77) | 1.11 (0.68-1.81) | 1.50 (0.36-6.36) | 1.74 (0.40-7.51) | 0.86 (0.62-1.18) | 0.99 (0.67-1.49) |
| \*Full-adjusted model is adjusted age, educational level and household income level.  NA : Not Applicable  Bolds are statistical significance. | | | | | | | | | |

**Supplementary table 3.** Risk for inappropriate energy and nutrition intake according to occupational classification in female workers (Odds Ratio and 95% confidence intervals)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Occupational classification (Reference are white-collared) | | | | | |
|  |  |  | Pink | | Green | | Blue | |
|  |  |  | crude | full-adjusted\* | crude | full-adjusted | crude | full-adjusted |
| Total energy and nutrition intake | | |  |  |  |  |  |  |
|  |  | Under | 0.82 (0.66-1.01) | 0.86 (0.69-1.08) | NA | NA | 0.73 (0.60-0.90) | 1.01 (0.78-1.31) |
|  |  | Over | 0.68 (0.49-0.93) | 0.95 (0.67-1.35) | NA | NA | 0.53 (0.38-0.75) | 1.07 (0.70-1.62) |
| Energy intake by macro nutrients | | |  |  |  |  |  |  |
|  | Carbohydrate | Under | 1.11 (0.93-1.34) | **1.25 (1.00-1.53)** | NA | NA | 0.93 (0.77-1.14) | 1.27 (0.99-1.62) |
|  |  | Over | **1.65 (1.42-1.93)** | 1.19 (0.99-1.41) | 6.92 (0.88-54.58) | 4.60 (0.57-37.3) | **2.23 (1.91-2.60)** | **1.27 (1.04-1.54)** |
|  | Fat | Under | **1.89 (1.63-2.18)** | 1.16 (0.98-1.37) | **10.50 (2.23-49.56)** | **5.78 (1.17-28.50)** | **2.35 (2.04-2.70)** | 1.09 (0.91-1.31) |
|  |  | Over | 0.81 (0.67-0.99) | 1.02 (0.83-1.26) | NA | NA | 0.58 (0.47-0.72) | 0.98 (0.76-1.27) |
|  | Protein | Under | **1.25 (1.07-1.46)** | 1.07 (0.90-1.28) | 2.81 (0.80-10.01) | 2.14 (0.59-7.79) | **1.32 (1.14-1.54)** | 1.10 (0.91-1.34) |
| Water intake | | Under | **1.55 (1.30-1.86)** | 1.10 (0.97-1.25) | 0.95 (0.82-1.10) | 2.20 (0.57-8.49) | 1.71 (0.43-6.71) | **1.28 (1.13-1.45)** |
| Vitamins | |  |  |  |  |  |  |  |
|  | Vitamin A | Under | 1.09 (0.96-1.25) | 1.10 (0.95-1.28) | 1.32 (0.48-11.17) | 2.24 (0.46-10.87) | 0.980 (0.86-1.11) | 1.02 (0.86-1.21) |
|  |  | Over | 1.29 (0.82-2.03) | 1.39 (0.84-2.31) | 10.49 (0.94-117.54) | **12.28 (1.04-145.75)** | **1.77 (1.19-2.64)** | **1.95 (1.16-3.30)** |
|  | Vitamin C | Under | 1.02 (0.90-1.16) | 1.08 (0.93-1.25) | 0.65 (0.18-2.30) | 0.68 (0.19-2.47) | 0.93 (0.82-1.05) | 1.09 (0.92-1.28) |
|  | Vitamin B1 | Under | **1.21 (1.03-1.42)** | 1.03 (0.86-1.23) | **4.36 (1.26-15.10)** | 3.34 (0.95-11.79) | **1.20 (1.03-1.40)** | 0.99 (0.81-1.22) |
|  | Vitamin B2 | Under | **1.33 (1.17-1.52)** | 1.04 (0.90-1.20) | **6.69 (1.42-31.58)** | 4.50 (0.94-21.50) | **1.50 (1.32-1.71)** | 1.03 (0.87-1.21) |
|  | Niacin | Under | **1.26 (1.10-1.45)** | 1.02 (0.88-1.19) | **3.75 (1.06-13.31)** | 2.64 (0.73-9.56) | **1.36 (1.19-1.55)** | 1.01 (0.85-1.20) |
| Minerals | |  |  |  |  |  |  |  |
|  | Calcium | Under | 1.10 (0.96-1.26) | 0.94 (0.80-1.09) | 2.02 (0.43-9.51) | 1.54 (0.32-7.32) | **1.28 (1.12-1.47)** | 1.03 (0.87-1.23) |
|  |  | Over | 0.72 (0.07-6.91) | 0.60 (0.05-6.95) | NA | NA | 1.52 (0.25-9.10) | 1.16 (0.11-12.21) |
|  | Phosphate | Under | 1.16 (0.96-1.41) | 1.07 (0.86-1.32) | 1.92 (0.41-9.10) | 1.66 (0.34-7.99) | 1.17 (0.97-1.42) | 1.11 (0.87-1.41) |
|  |  | Over | 1.54 (0.34-6.89) | 1.09 (0.20-5.89) | NA | NA | 0.94 (0.18-5.32) | 0.63 (0.08-5.19) |
|  | Sodium | Under | 1.01 (0.76-1.35) | 1.05 (0.76-1.45) | NA | NA | 1.12 (0.84-1.49) | 1.24 (0.85-1.82) |
|  |  | Over | 0.83 (0.67-1.03) | 0.94 (0.73-1.20) | NA | NA | 0.96 (0.77-1.20) | 1.18 (0.89-1.57) |
|  | Potassium | Under | 1.03 (0.89-1.20) | 1.03 (0.87-1.22) | 2.93 (0.37-23.14) | 2.85 (0.36-22.85) | 0.91 (0.79-1.05) | 0.97 (0.80-1.17) |
|  | Iron | Under | 0.82 (0.72-0.95) | 1.09 (0.93-1.30) | 0.97 (0.24-3.87) | 1.51 (0.33-6.88) | **0.52 (0.45-0.60)** | 1.01 (0.83-1.22) |
|  |  | Over | 1.10 (0.61-1.97) | 1.50 (0.78-2.91) | **9.96 (1.17-85.12)** | 18.17 (1.94-170.47) | 1.24 (0.73-2.13) | 2.01 (0.98-4.08) |
| \*Full-adjusted model is adjusted age, educational level and household income level.  NA : Not Applicable  Bolds are statistical significance. | | | | | | | | | |