

Overview of *Dietary Reference Intakes for Japanese (2015)*

1. Purpose of Development

Dietary Reference Intakes for Japanese proposes reference values of desirable dietary intake of energy and nutrients for Japanese people to maintain and promote their health. It is specified by the Minister of Health, Labour and Welfare in accordance with Article 30-2 of the Health Promotion Act (Act No.103 of 2002).

2. Period of Use

Dietary Reference Intakes for Japanese (2015) is applicable for 5 years, 2015 fiscal year to 2019 fiscal year.

3. Development Policies

- *Dietary Reference Intakes for Japanese (2015)* included prevention of progression of life-style related diseases (LRDs) in its development purposes, in addition to prevention of onset of LRDs (Figure 1).
- Applicable populations are healthy individuals and groups. It also includes those who are under health guidance on hypertension, dyslipidemia, diabetes, or chronic kidney disease.
- Dietary reference intakes (DRIs) were determined based on scientific findings where data were available. If some issues were important yet has no sufficient scientific evidence at the present moment, these research topics were summarized and organized.

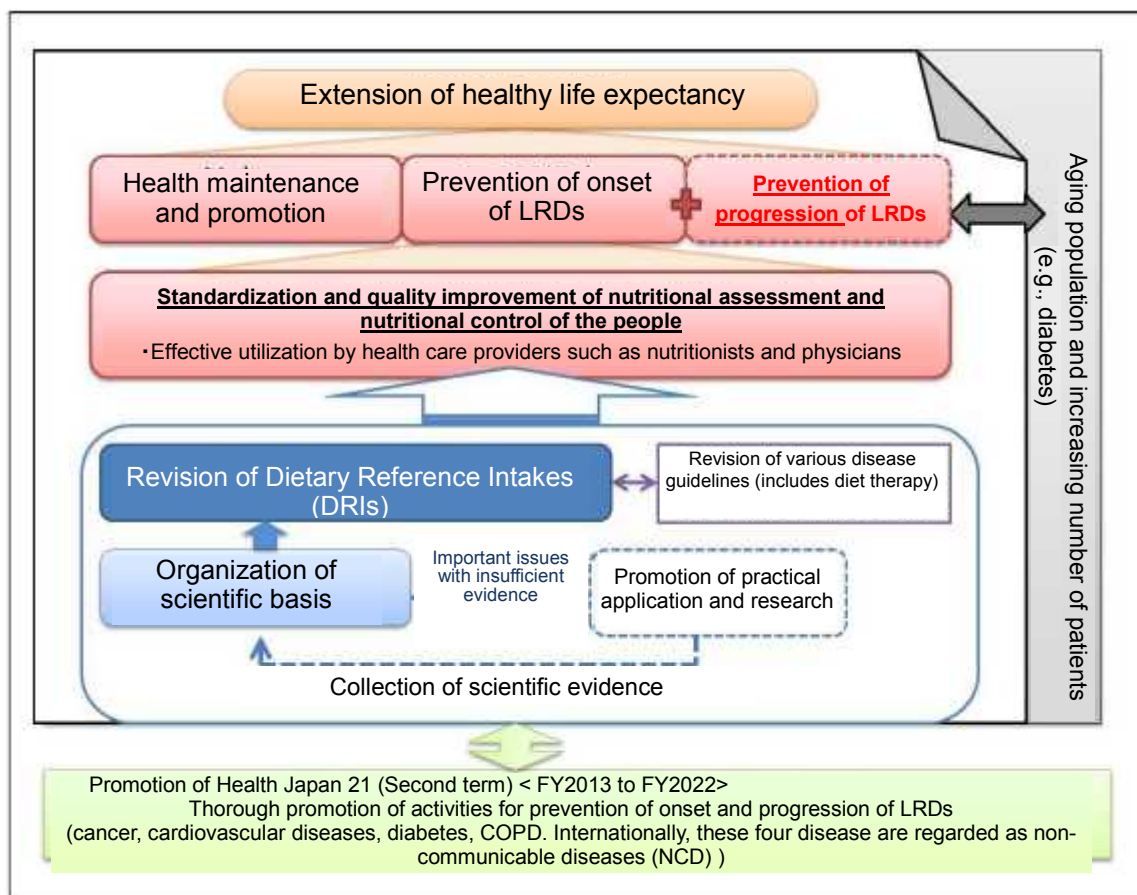


Figure 1 Basic concepts of *Dietary Reference Intakes for Japanese (2015)* development

4. Basic Matters of Development

1) Reference values

- **For Energy**

Body mass index (BMI) was adopted as the reference of the balance of energy intake and consumption (energy balance).

$$\text{BMI} = \text{body weight(kg)} \div (\text{body height (m)})^2$$

- **For Nutrients**

DRIs for nutrients included, as before, reference values with three different purposes (Figure 2).

For the purpose of avoiding inadequacy, the Estimated Average Requirement (EAR) was determined. The EARs indicate the amount that would meet the nutrient requirements of 50 percent of the population. The Recommended Dietary Allowance (RDA) was also determined in order to supplement EAR. The RDA indicates the amount that would meet the requirement of most of the population.

The Adequate Intake (AI) was developed where EAR and RDA could not be set due to insufficient scientific evidence. The AI indicates the amount adequate to maintain a certain level of nutritional status. Dietary intake no less than AI shall minimize risks of inadequacy.

For the purpose of avoiding adverse health effects due to excessive intake, Tolerable Upper Intake Level (UL) was determined.

For the purpose of prevention of LRDs, Tentative Dietary Goal for preventing LRDs (DG) was developed.

< Purpose >	< Type >
Avoidance of inadequacy	EAR, RDA * Alternative index where EAR and RDA cannot be specified: AI
Avoidance of adverse health effects due to excessive intake	UL
Prevention of life-style related diseases	DG

Figure 2 Purposes and types of nutrition indices

Nutrients for which DRIs have been developed and DRIs determined for persons 1 year and older are summarized in Table 1.

Table 1 Nutrients for Which DRIs Have Been Developed and Reference Values Determined (1 Year and Older)¹

Nutrient		EAR	RDA	AI	UL	DG	
Proteins		○	○	—	—	○ ²	
Fats	Fats	—	—	—	—	○ ²	
	Saturated fatty acid	—	—	—	—	○	
	n-6 fatty acid	—	—	○	—	—	
	n-3 fatty acid	—	—	○	—	—	
Carbohydrates	Carbohydrate	—	—	—	—	○ ²	
	Dietary fiber	—	—	—	—	○	
Energy-providing Nutrient Balance ²		—	—	—	—	○	
Vitamins	Fat-soluble	Vitamin A	○	○	—	○	—
		Vitamin D	—	—	○	○	—
		Vitamin E	—	—	○	○	—
		Vitamin K	—	—	○	—	—
	Water-soluble	Vitamin B ₁	○	○	—	—	—
		Vitamin B ₂	○	○	—	—	—
		Niacin	○	○	—	○	—
		Vitamin B ₆	○	○	—	○	—
		Vitamin B ₁₂	○	○	—	—	—
		Folic acid	○	○	—	○ ³	—
		Pantothenic acid	—	—	○	—	—
		Biotin	—	—	○	—	—
		Vitamin C	○	○	—	—	—
Minerals	Macro	Sodium	○	—	—	—	○
		Potassium	—	—	○	—	○
		Calcium	○	○	—	○	—
		Magnesium	○	○	—	○ ³	—
		Phosphorus	—	—	○	○	—
	Micro	Iron	○	○	—	○	—
		Zinc	○	○	—	○	—
		Copper	○	○	—	○	—
		Manganese	—	—	○	○	—
		Iodine	○	○	—	○	—
		Selenium	○	○	—	○	—
		Chromium	—	—	○	—	—
		Molybdenum	○	○	—	○	—

¹ Includes cases where values are determined only for some age groups.

² Desirable percentage of energy (% energy) from proteins, lipids and carbohydrates (includes alcohol) in the total energy intake.

³ Developed for intake from sources other than normal food.

2) Review methods and reference value revision policy

- In the review of scientific data about energy and nutrients, intensive reviews were conducted for the items that had been specified as pending issues in the previous version, *Dietary Reference Intakes for Japanese (2010)*. Especially, energy was reviewed in terms of energy balance, BMI and weight control.
- Associations between energy or each nutrient and prevention of onset or progression of LRDs (hypertension, dyslipidemia, diabetes, chronic kidney diseases) were reviewed.
- Policies of reference value revisions are clearly described.

3) Age groups

Age groups are the same as before (refer to the Age column of Table 2).

4) Reference body size (Reference Height and Reference Weight)

The term ‘standard body size’ previously was used, however, it does not imply desirable body size and it is merely used as reference. Therefore, this expression was changed to ‘reference body size’..

Table 2 Reference body size (reference height (RH), reference weight (RW))¹

Gender	Males		Females ²	
Age	RH (cm)	RW (kg)	RH (cm)	RW (kg)
0-5 months	61.5	6.3	60.1	5.9
6-11 months	71.6	8.8	70.2	8.1
6-8 months	69.8	8.4	68.3	7.8
9-11 months	73.2	9.1	71.9	8.4
1-2 years	85.8	11.5	84.6	11.0
3-5 years	103.6	16.5	103.2	16.1
6-7 years	119.5	22.2	118.3	21.9
8-9 years	130.4	28.0	130.4	27.4
10-11 years	142.0	35.6	144.0	36.3
12-14 years	160.5	49.0	155.1	47.5
15-17 years	170.1	59.7	157.7	51.9
18-29 years	170.3	63.2	158.0	50.0
30-49 years	170.7	68.5	158.0	53.1
50-69 years	166.6	65.3	153.5	53.0
70+ years	160.8	60.0	148.0	49.5

¹ Values for ages from 0 to 17 years are median values for the median age of the given age group, which were calculated from the reference values of height and weight used by the joint committee on growth reference value, The Japanese Society for Pediatric Endocrinology and the Japanese Association for Human Auxology for physical assessment of children. For the age groups that did not match the age range in the published data, values were calculated using the same method. Values for ages 18 years and over were set from median values of height and weight for the median age of the given age group in the National Health and Nutrition Survey 2010 and 2011.

² Excludes pregnant women and lactating women.

5. Basic Matters about Application

Application of Dietary Reference Intakes to dietary modification of healthy individuals and groups for the purpose of health maintenance and promotion and prevention of LRDs shall be based on the concept of PDCA cycle (Figure 3). Details of each process in the PDCA cycle are described in diagrams as below. Especially, on application, evaluations shall be conducted based on assessment of dietary intake, and other points to consider on application are described in detail.

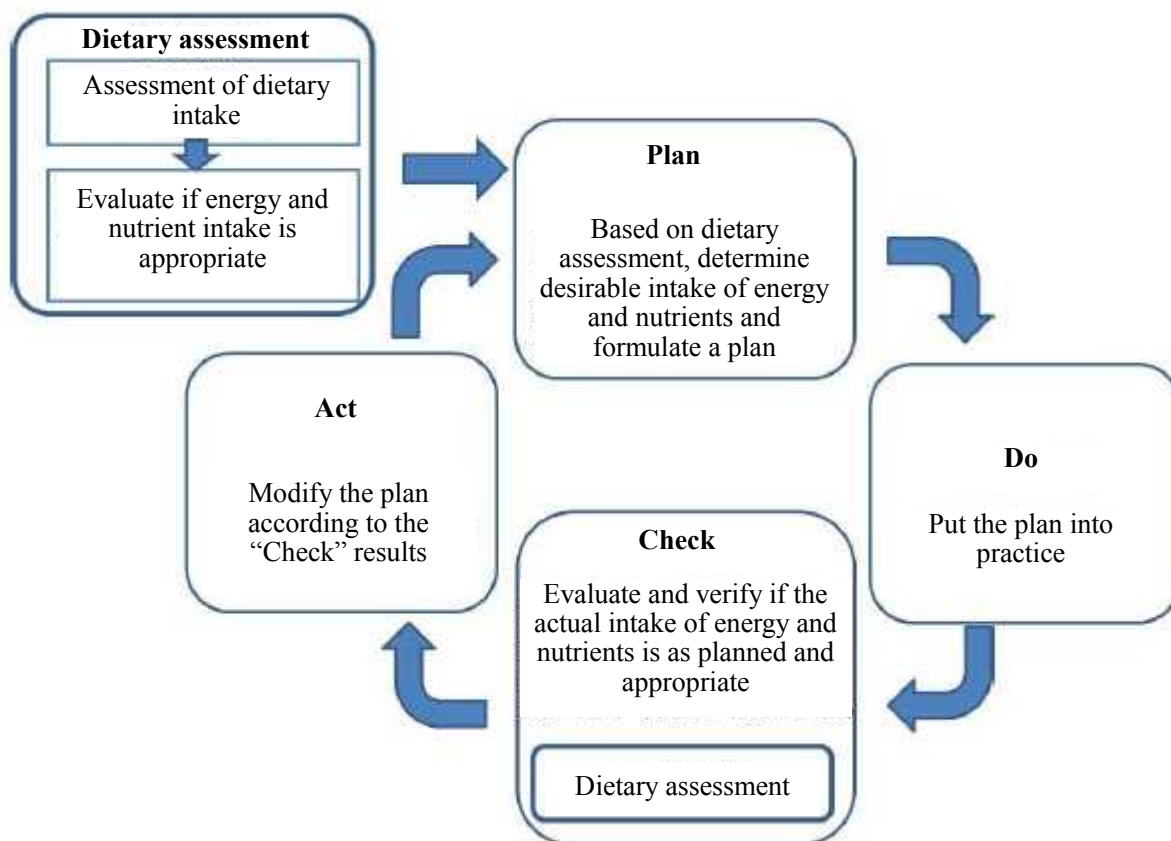


Figure 3 Application of Dietary Reference Intakes and PDCA cycle

6. Target Characteristics and Association between LRDs and Energy or Nutrients

- Items that require special attention for persons with special characteristics, namely, pregnant or lactating women, infants and children, and elderly people are described as additional references.
- For pregnant or lactating women, EAR and RDA are specified as additional values where possible. For nutrients where only AI can be determined, the intake considered sufficient for maintaining a certain level of nutritional status is determined instead of additional values.
- For elderly people, regarding the importance of issues involved with under-nutrition, nutritional deficiency as well as over-nutrition, scientific data about associations between energy or nutrients and frailty or sarcopenia (muscle weakening due to aging) were reviewed and the latest findings are summarized.

- Regarding associations between nutritional intake and hypertension, dyslipidemia, diabetes, or chronic kidney diseases, especially important matters found through scientific reviews were summarized in diagrams and they are shown as additional references along with explanations.

7. Dietary Reference Intakes Developed

Energy

- Body mass index (BMI) was adopted as the reference to maintain the balance of energy intake and consumption (energy balance). Target BMI was defined for 3 age categories of adults, according to comprehensive investigation of BMI ranges with the lowest all-cause mortality reported in epidemiological observational studies and actual BMI of Japanese people. Prevention and elimination of obesity as well as prevention of under-nutrition (especially for elderly people) are important when attempting to achieve a target BMI.
- There are two major methods to estimate energy requirements. One is to estimate intake, and another is to estimate consumption, under the condition of stable body weight (Figure 4). Estimated energy requirements shown in the table appendix in the present edition are calculated using a method to approximate from energy consumption. Meanwhile, the result of energy balance is often represented by change in body weight or BMI. Therefore, grasping change in body weight or BMI enables understanding of the general idea of energy balance. However, it must be noted that change in body weight or BMI is a representative of the result of energy balance, not a representative of energy requirement.

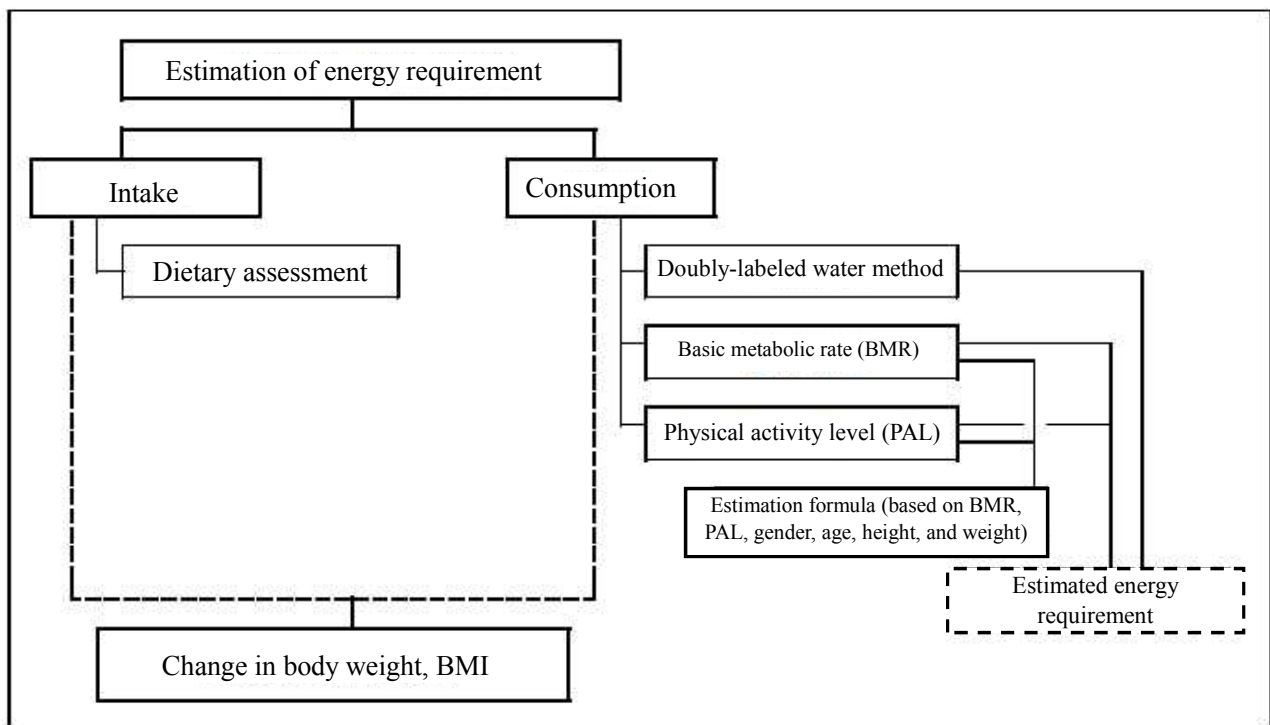


Figure 4 Measurement methods for estimation of energy requirement and association with change in body weight, BMI, or estimated energy requirement

Target BMI range (18 years and older)^{1,2}

Age (years)	Target BMI (kg/m ²)
18-49	18.5-24.9
50-69	20.0-24.9
70+	21.5-24.9 ³

¹ For both males and females. These values shall be used merely as a reference.

² Target range is defined through comprehensive consideration on the association between incidence rate for each disease and BMI, the association between causes of death and BMI, and actual BMI of Japanese people, based on BMI with the lowest all-cause mortality reported in epidemiological observational studies.

³ For people 70 years and over, the actual BMI deviates from the BMI with the lowest all-cause mortality. The tentative target BMI range is determined to be 21.5-24.9, considering the necessity to take into account both the prevention of frailty and prevention of LRDS.

Table appendix Estimated Energy Requirement (kcal/day)

Gender PAL ¹	Males			Females		
	I	II	III	I	II	III
0-5 months	-	550	-	-	500	-
6-8 months	-	650	-	-	600	-
9-11 months	-	700	-	-	650	-
1-2 years	-	950	-	-	900	-
3-5 years	-	1,300	-	-	1,250	-
6-7 years	1,350	1,550	1,750	1,250	1,450	1,650
8-9 years	1,600	1,850	2,100	1,500	1,700	1,900
10-11 years	1,950	2,250	2,500	1,850	2,100	2,350
12-14 years	2,300	2,600	2,900	2,150	2,400	2,700
15-17 years	2,500	2,850	3,150	2,050	2,300	2,550
18-29 years	2,300	2,650	3,050	1,650	1,950	2,200
30-49 years	2,300	2,650	3,050	1,750	2,000	2,300
50-69 years	2,100	2,450	2,800	1,650	1,900	2,200
70+ years ²	1,850	2,200	2,500	1,500	1,750	2,000
Pregnant women (additional) ³	/			+50	+50	+50
Early-stage				+250	+250	+250
Mid-stage				+450	+450	+450
Late-stage						
Lactating women (additional)				+350	+350	+350

¹ PALs (physical activity levels) of I, II, and III indicate low, medium and high activity levels, respectively.

² Calculated mainly from reports made on healthy independent subject persons 70-75 years old.

³ It is important to assess the physique of individual pregnant women, weight increase during pregnancy, and fetal growth.

Note 1: On application of the present table, ensure to conduct assessment of dietary intake, measurement of the body weight and calculation of BMI. Excess energy or inadequate energy shall be evaluated according to change in body weight or BMI.

Note 2: If a subject falls under the category of PAL I, the energy intake may have to be maintained low level to match the low energy consumption level. Such subject needs to increase the level of physical activities from the prospect of health maintenance and promotion.

Proteins

DRIs for Proteins

(EAR, RDA, AI: g/day, DG (median): % energy)

Gender	Males				Females			
Age etc.	EAR	RDA	AI	DG ¹ (Median ²)	EAR	RDA	AI	DG ¹ (Median ²)
0-5 months *	—	—	10	—	—	—	10	—
6-8 months *	—	—	15	—	—	—	15	—
9-11 months *	—	—	25	—	—	—	25	—
1-2 years	15	20	—	13-20(16.5)	15	20	—	13-20(16.5)
3-5 years	20	25	—	13-20(16.5)	20	25	—	13-20(16.5)
6-7 years	25	35	—	13-20(16.5)	25	30	—	13-20(16.5)
8-9 years	35	40	—	13-20(16.5)	30	40	—	13-20(16.5)
10-11 years	40	50	—	13-20(16.5)	40	50	—	13-20(16.5)
12-14 years	50	60	—	13-20(16.5)	45	55	—	13-20(16.5)
15-17 years	50	65	—	13-20(16.5)	45	55	—	13-20(16.5)
18-29 years	50	60	—	13-20(16.5)	40	50	—	13-20(16.5)
30-49 years	50	60	—	13-20(16.5)	40	50	—	13-20(16.5)
50-69 years	50	60	—	13-20(16.5)	40	50	—	13-20(16.5)
70+ years	50	60	—	13-20(16.5)	40	50	—	13-20(16.5)
Pregnant women (additional) Early-stage Mid-stage Late-stage					+0	+0	—	—
Lactating women (additional)					+5	+10	—	—
					+20	+25	—	—
					+15	+20	—	—

* AIs for infants are values for breast-fed children.

¹ Ranges are expressed as approximate values.

² Medians indicate the median values for the given range. They do not indicate most desirable values.

Fats

DRIs for Fats

(Percentage of lipids in total energy (fat energy ratio): % energy)

Gender	Males		Females	
Age etc.	AI	DG ¹ (median ²)	AI	DG ¹ (median ²)
0-5 months	50	—	50	—
6-11 months	40	—	40	—
1-2 years	—	20-30(25)	—	20-30(25)
3-5 years	—	20-30(25)	—	20-30(25)
6-7 years	—	20-30(25)	—	20-30(25)
8-9 years	—	20-30(25)	—	20-30(25)
10-11 years	—	20-30(25)	—	20-30(25)
12-14 years	—	20-30(25)	—	20-30(25)
15-17 years	—	20-30(25)	—	20-30(25)
18-29 years	—	20-30(25)	—	20-30(25)
30-49 years	—	20-30(25)	—	20-30(25)
50-69 years	—	20-30(25)	—	20-30(25)
70+ years	—	20-30(25)	—	20-30(25)
Pregnant women			—	—
Lactating women			—	—

¹ Ranges are expressed as approximate values.

² Medians indicate the median values for the given range. They do not indicate most desirable values.

DRI for Saturated Fatty Acid (% energy)

Gender	Males	Females
Age etc.	DG	DG
0-5 months	—	—
6-11 months	—	—
1-2 years	—	—
3-5 years	—	—
6-7 years	—	—
8-9 years	—	—
10-11 years	—	—
12-14 years	—	—
15-17 years	—	—
18-29 years	≤ 7	≤ 7
30-49 years	≤ 7	≤ 7
50-69 years	≤ 7	≤ 7
70+ years	≤ 7	≤ 7
Pregnant women	/	—
Lactating women		—

DRI for n-6 Fatty Acid (g/day)

Gender	Males	Females
Age etc.	AI	AI
0-5 months	4	4
6-11 months	4	4
1-2 years	5	5
3-5 years	7	6
6-7 years	7	7
8-9 years	9	7
10-11 years	9	8
12-14 years	12	10
15-17 years	13	10
18-29 years	11	8
30-49 years	10	8
50-69 years	10	8
70+ years	8	7
Pregnant women		9
Lactating women		9

DRIs for n-3 Fatty Acid (g/day)

Gender	Males	Females
Age etc.	AI	AI
0-5 months	0.9	0.9
6-11 months	0.8	0.8
1-2 years	0.7	0.8
3-5 years	1.3	1.1
6-7 years	1.4	1.3
8-9 years	1.7	1.4
10-11 years	1.7	1.5
12-14 years	2.1	1.8
15-17 years	2.3	1.7
18-29 years	2.0	1.6
30-49 years	2.1	1.6
50-69 years	2.4	2.0
70+ years	2.2	1.9
Pregnant women		1.8
Lactating women		1.8

Carbohydrates

DRI for Carbohydrates (% energy)

Gender	Males	Females
Age etc.	DG ^{1,2} (median ³)	DG ^{1,2} (median ³)
0-5 months	—	—
6-11 months	—	—
1-2 years	50-65 (57.5)	50-65 (57.5)
3-5 years	50-65 (57.5)	50-65 (57.5)
6-7 years	50-65 (57.5)	50-65 (57.5)
8-9 years	50-65 (57.5)	50-65 (57.5)
10-11 years	50-65 (57.5)	50-65 (57.5)
12-14 years	50-65 (57.5)	50-65 (57.5)
15-17 years	50-65 (57.5)	50-65 (57.5)
18-29 years	50-65 (57.5)	50-65 (57.5)
30-49 years	50-65 (57.5)	50-65 (57.5)
50-69 years	50-65 (57.5)	50-65 (57.5)
70+ years	50-65 (57.5)	50-65 (57.5)
Pregnant women	/	—
Lactating women		—

¹ Ranges are expressed as approximate values.

² Includes alcohol. However, it does not imply recommendation of alcohol consumption.

³ Medians indicate the median values for the given range. They do not indicate most desirable values.

DRIs for Dietary Fiber (g/day)

Gender	Males	Females
Age etc.	DG	DG
0-5 months	—	—
6-11 months	—	—
1-2 years	—	—
3-5 years	—	—
6-7 years	≥ 11	≥ 10
8-9 years	≥ 12	≥ 12
10-11 years	≥ 13	≥ 13
12-14 years	≥ 17	≥ 16
15-17 years	≥ 19	≥ 17
18-29 years	≥ 20	≥ 18
30-49 years	≥ 20	≥ 18
50-69 years	≥ 20	≥ 18
70+ years	≥ 19	≥ 17
Pregnant women	/	—
Lactating women		—

Energy-providing Nutrient Balance

Energy -providing Nutrient Balance (% energy)

DG ¹ (median ²) (For both males and females)				
Age etc.	Proteins	Fats ³		Carbohydrates ^{4,5}
		Fats	Saturated fatty acid	
0-11 months	—	—	—	—
1-17 years	13-20(16.5)	20-30(25)	—	50-65(57.5)
18-69 years	13-20(16.5)	20-30(25)	≤ 7	50-65(57.5)
70+ years	13-20(16.5)	20-30(25)	≤ 7	50-65(57.5)

¹ Ranges for each nutrient are expressed as approximate values. The present table shall be applied flexibly if used for the purpose of prevention of LRDs or frailty of elderly persons.

² Medians indicate the median values for the given range. They do not indicate most desirable values.

³ Fats require careful consideration on their qualities, such as their component fatty acids (e.g., saturated fatty acids).

⁴ Includes alcohol. However, it does not imply recommendation of alcohol consumption.

⁵ Pay extra attention on DGs for dietary fibers.

Fat-soluble vitamins

DRIs for Vitamin A ($\mu\text{g RAE/day}$)¹

Gender	Males				Females			
Age etc.	EAR ²	RDA ²	AI ³	UL ³	EAR ²	RDA ²	AI ³	UL ³
0-5 months	—	—	300	600	—	—	300	600
6-11 months	—	—	400	600	—	—	400	600
1-2 years	300	400	—	600	250	350	—	600
3-5 years	350	500	—	700	300	400	—	700
6-7 years	300	450	—	900	300	400	—	900
8-9 years	350	500	—	1,200	350	500	—	1,200
10-11 years	450	600	—	1,500	400	600	—	1,500
12-14 years	550	800	—	2,100	500	700	—	2,100
15-17 years	650	900	—	2,600	500	650	—	2,600
18-29 years	600	850	—	2,700	450	650	—	2,700
30-49 years	650	900	—	2,700	500	700	—	2,700
50-69 years	600	850	—	2,700	500	700	—	2,700
70+ years	550	800	—	2,700	450	650	—	2,700
Pregnant women (additional)								
Early-stage					+0	+0	—	—
Mid-stage					+0	+0	—	—
Late-stage					+60	+80	—	—
Lactating women (additional)					+300	+450	—	—

¹ Retinol activity equivalent (μgRAE)
= retinol (μg) + β -carotene (μg) \times 1/12 + α -carotene (μg) \times 1/24 + β -cryptoxanthin (μg) \times 1/24
+ other provitamin A carotenoids (μg) \times 1/24

² Includes provitamin A carotenoids.

³ Excludes provitamin A carotenoids.

DRI for Vitamin D ($\mu\text{g}/\text{day}$)

Gender	Males		Females	
Age etc.	AI	UL	AI	UL
0-5 months	5.0	25	5.0	25
6-11 months	5.0	25	5.0	25
1-2 years	2.0	20	2.0	20
3-5 years	2.5	30	2.5	30
6-7 years	3.0	40	3.0	40
8-9 years	3.5	40	3.5	40
10-11 years	4.5	60	4.5	60
12-14 years	5.5	80	5.5	80
15-17 years	6.0	90	6.0	90
18-29 years	5.5	100	5.5	100
30-49 years	5.5	100	5.5	100
50-69 years	5.5	100	5.5	100
70+ years	5.5	100	5.5	100
Pregnant women			7.0	—
Lactating women			8.0	—

DRI for Vitamin E (mg/day) ¹

Gender	Males		Females	
Age etc.	AI	UL	AI	UL
0-5 months	3.0	—	3.0	—
6-11 months	4.0	—	4.0	—
1-2 years	3.5	150	3.5	150
3-5 years	4.5	200	4.5	200
6-7 years	5.0	300	5.0	300
8-9 years	5.5	350	5.5	350
10-11 years	5.5	450	5.5	450
12-14 years	7.5	650	6.0	600
15-17 years	7.5	750	6.0	650
18-29 years	6.5	800	6.0	650
30-49 years	6.5	900	6.0	700
50-69 years	6.5	850	6.0	700
70+ years	6.5	750	6.0	650
Pregnant women			6.5	—
Lactating women			7.0	—

¹ Calculated for α -tocopherol. These do not include vitamin E other than α -tocopherol.

DRIs for Vitamin K ($\mu\text{g}/\text{day}$)

Gender	Males	Females
Age etc.	AI	AI
0-5 months	4	4
6-11 months	7	7
1-2 years	60	60
3-5 years	70	70
6-7 years	85	85
8-9 years	100	100
10-11 years	120	120
12-14 years	150	150
15-17 years	160	160
18-29 years	150	150
30-49 years	150	150
50-69 years	150	150
70+ years	150	150
Pregnant women		150
Lactating women		150

Water-soluble vitamins

DRI for Vitamin B₁ (mg/day)¹

Gender	Males			Females		
Age etc.	EAR	RDA	AI	EAR	RDA	AI
0-5 months	—	—	0.1	—	—	0.1
6-11 months	—	—	0.2	—	—	0.2
1-2 years	0.4	0.5	—	0.4	0.5	—
3-5 years	0.6	0.7	—	0.6	0.7	—
6-7 years	0.7	0.8	—	0.7	0.8	—
8-9 years	0.8	1.0	—	0.8	0.9	—
10-11 years	1.0	1.2	—	0.9	1.1	—
12-14 years	1.2	1.4	—	1.1	1.3	—
15-17 years	1.3	1.5	—	1.0	1.2	—
18-29 years	1.2	1.4	—	0.9	1.1	—
30-49 years	1.2	1.4	—	0.9	1.1	—
50-69 years	1.1	1.3	—	0.9	1.0	—
70+ years	1.0	1.2	—	0.8	0.9	—
Pregnant women (additional)				+0.2	+0.2	—
Lactating women (additional)				+0.2	+0.2	—

¹ Calculated using estimated energy requirement for PAL II.

Notice: EARs are calculated from the intake where urinary excretion of vitamin B₁ starts to increase (i.e. internal saturation intake), not from the minimum intake required to prevent beriberi (one of the major vitamin B₁ deficiency diseases).

DRIs for Vitamin B₂ (mg/day)¹

Gender	Males			Females		
Age etc.	EAR	RDA	AI	EAR	RDA	AI
0-5 months	—	—	0.3	—	—	0.3
6-11 months	—	—	0.4	—	—	0.4
1-2 years	0.5	0.6	—	0.5	0.5	—
3-5 years	0.7	0.8	—	0.6	0.8	—
6-7 years	0.8	0.9	—	0.7	0.9	—
8-9 years	0.9	1.1	—	0.9	1.0	—
10-11 years	1.1	1.4	—	1.1	1.3	—
12-14 years	1.3	1.6	—	1.2	1.4	—
15-17 years	1.4	1.7	—	1.2	1.4	—
18-29 years	1.3	1.6	—	1.0	1.2	—
30-49 years	1.3	1.6	—	1.0	1.2	—
50-69 years	1.2	1.5	—	1.0	1.1	—
70+ years	1.1	1.3	—	0.9	1.1	—
Pregnant women (additional)				+0.2	+0.3	—
Lactating women (additional)				+0.5	+0.6	—

¹ Calculated using estimated energy requirement for PAL II.

Notice: EARs are calculated from the intake where urinary excretion of vitamin B₂ starts to increase (i.e. internal saturation intake), not from the minimum intake required to prevent dermatitis such as cheilitis, perleche and glossitis (some of the major vitamin B₂ deficiency diseases).

DRIs for Niacin (mg NE/day) ¹

Gender	Males				Females			
Age etc.	EAR	RDA	AI	UL ²	EAR	RDA	AI	UL ²
0-5 months ³	—	—	2	—	—	—	2	—
6-11 months	—	—	3	—	—	—	3	—
1-2 years	5	5	—	60(15)	4	5	—	60(15)
3-5 years	6	7	—	80(20)	6	7	—	80(20)
6-7 years	7	9	—	100(30)	7	8	—	100(25)
8-9 years	9	11	—	150(35)	8	10	—	150(35)
10-11 years	11	13	—	200(45)	10	12	—	200(45)
12-14 years	12	15	—	250(60)	12	14	—	250(60)
15-17 years	14	16	—	300(75)	11	13	—	250(65)
18-29 years	13	15	—	300(80)	9	11	—	250(65)
30-49 years	13	15	—	350(85)	10	12	—	250(65)
50-69 years	12	14	—	350(80)	9	11	—	250(65)
70+ years	11	13	—	300(75)	8	10	—	250(60)
Pregnant women (additional)					—	—	—	—
Lactating women (additional)					+3	+3	—	—

NE = niacin equivalent = niacin + 1/60 tryptophan.

¹ Calculated using estimated energy requirement for PAL II.

² Quantity as nicotinamide (mg). Values in parentheses are quantities as nicotinic acid (mg).
Calculated using the reference weight.

³ The unit is mg/day.

DRI for Vitamin B₆ (mg/day)¹

Gender	Males				Females			
Age etc.	EAR	RDA	AI	UL ²	EAR	RDA	AI	UL ²
0-5 months	—	—	0.2	—	—	—	0.2	—
6-11 months	—	—	0.3	—	—	—	0.3	—
1-2 years	0.4	0.5	—	10	0.4	0.5	—	10
3-5 years	0.5	0.6	—	15	0.5	0.6	—	15
6-7 years	0.7	0.8	—	20	0.6	0.7	—	20
8-9 years	0.8	0.9	—	25	0.8	0.9	—	25
10-11 years	1.0	1.2	—	30	1.0	1.2	—	30
12-14 years	1.2	1.4	—	40	1.1	1.3	—	40
15-17 years	1.2	1.5	—	50	1.1	1.3	—	45
18-29 years	1.2	1.4	—	55	1.0	1.2	—	45
30-49 years	1.2	1.4	—	60	1.0	1.2	—	45
50-69 years	1.2	1.4	—	55	1.0	1.2	—	45
70+ years	1.2	1.4	—	50	1.0	1.2	—	40
Pregnant women (additional)					+0.2	+0.2	—	—
Lactating women (additional)					+0.3	+0.3	—	—

¹ Calculated using RDAs in DRIs for proteins (excludes additional values for pregnant or lactating women).

² Quantity as pyridoxine, not as dietary vitamin B₆.

DRI for Vitamin B₁₂ (µg/day)

Gender	Males			Females		
Age etc.	EAR	RDA	AI	EAR	RDA	AI
0-5 months	—	—	0.4	—	—	0.4
6-11 months	—	—	0.5	—	—	0.5
1-2 years	0.7	0.9	—	0.7	0.9	—
3-5 years	0.8	1.0	—	0.8	1.0	—
6-7 years	1.0	1.3	—	1.0	1.3	—
8-9 years	1.2	1.5	—	1.2	1.5	—
10-11 years	1.5	1.8	—	1.5	1.8	—
12-14 years	1.9	2.3	—	1.9	2.3	—
15-17 years	2.1	2.5	—	2.1	2.5	—
18-29 years	2.0	2.4	—	2.0	2.4	—
30-49 years	2.0	2.4	—	2.0	2.4	—
50-69 years	2.0	2.4	—	2.0	2.4	—
70+ years	2.0	2.4	—	2.0	2.4	—
Pregnant women (additional)				+0.3	+0.4	—
Lactating women (additional)				+0.7	+0.8	—

DRIs for Folic Acid ($\mu\text{g}/\text{day}$)¹

Gender	Males				Females			
Age etc.	EAR	RDA	AI	UL ²	EAR	RDA	AI	UL ²
0-5 months	—	—	40	—	—	—	40	—
6-11 months	—	—	60	—	—	—	60	—
1-2 years	70	90	—	200	70	90	—	200
3-5 years	80	100	—	300	80	100	—	300
6-7 years	100	130	—	400	100	130	—	400
8-9 years	120	150	—	500	120	150	—	500
10-11 years	150	180	—	700	150	180	—	700
12-14 years	190	230	—	900	190	230	—	900
15-17 years	220	250	—	900	220	250	—	900
18-29 years	200	240	—	900	200	240	—	900
30-49 years	200	240	—	1,000	200	240	—	1,000
50-69 years	200	240	—	1,000	200	240	—	1,000
70+ years	200	240	—	900	200	240	—	900
Pregnant women (additional)					+200	+240	—	—
Lactating women (additional)					80	+100	—	—

¹ In order to reduce the risk of neural tube closure, an additional intake of 400 $\mu\text{g}/\text{day}$ of pteroylmonoglutamic acid is recommended for women who are planning to become pregnant or may be pregnant.

² Quantity as pteroylmonoglutamic acid contained in dietary supplement and vitamin-enriched food.

DRI for Pantothenic Acid (mg/day)

Gender	Males	Females
Age etc.	AI	AI
0-5 months	4	4
6-11 months	3	3
1-2 years	3	3
3-5 years	4	4
6-7 years	5	5
8-9 years	5	5
10-11 years	6	6
12-14 years	7	6
15-17 years	7	5
18-29 years	5	4
30-49 years	5	4
50-69 years	5	5
70+ years	5	5
Pregnant women	/	5
Lactating women		5

DRIs for Biotin ($\mu\text{g}/\text{day}$)

Gender	Males	Females
Age etc.	AI	AI
0-5 months	4	4
6-11 months	10	10
1-2 years	20	20
3-5 years	20	20
6-7 years	25	25
8-9 years	30	30
10-11 years	35	35
12-14 years	50	50
15-17 years	50	50
18-29 years	50	50
30-49 years	50	50
50-69 years	50	50
70+ years	50	50
Pregnant women		50
Lactating women		50

DRI for Vitamin C (mg/day)

Gender	Males			Females		
Age etc.	EAR	RDA	AI	EAR	RDA	AI
0-5 months	—	—	40	—	—	40
6-11 months	—	—	40	—	—	40
1-2 years	30	35	—	30	35	—
3-5 years	35	40	—	35	40	—
6-7 years	45	55	—	45	55	—
8-9 years	50	60	—	50	60	—
10-11 years	60	75	—	60	75	—
12-14 years	80	95	—	80	95	—
15-17 years	85	100	—	85	100	—
18-29 years	85	100	—	85	100	—
30-49 years	85	100	—	85	100	—
50-69 years	85	100	—	85	100	—
70+ years	85	100	—	85	100	—
Pregnant women (additional)				+10	+10	—
Lactating women (additional)				+40	+45	—

Notice: EARs are calculated from cardiovascular disease prevention effects and antioxidative effects, not from intake sufficient enough to avoid scurvy.

Macrominerals

DRI for Sodium (mg/day. Values in parentheses are salt equivalent [g/day])

Gender	Males			Females		
Age etc.	EAR	AI	DG	EAR	AI	DG
0-5 months	—	100(0.3)	—	—	100(0.3)	—
6-11 months	—	600(1.5)	—	—	600(1.5)	—
1-2 years	—	—	(<3.0)	—	—	(<3.5)
3-5 years	—	—	(<4.0)	—	—	(<4.5)
6-7 years	—	—	(<5.0)	—	—	(<5.5)
8-9 years	—	—	(<5.5)	—	—	(<6.0)
10-11 years	—	—	(<6.5)	—	—	(<7.0)
12-14 years	—	—	(<8.0)	—	—	(<7.0)
15-17 years	—	—	(<8.0)	—	—	(<7.0)
18-29 years	600(1.5)	—	(<8.0)	600(1.5)	—	(<7.0)
30-49 years	600(1.5)	—	(<8.0)	600(1.5)	—	(<7.0)
50-69 years	600(1.5)	—	(<8.0)	600(1.5)	—	(<7.0)
70+ years	600(1.5)	—	(<8.0)	600(1.5)	—	(<7.0)
Pregnant women				—	—	—
Lactating women				—	—	—

DRI for Potassium (mg/day)

Gender	Males		Females	
Age etc.	AI	DG	AI	DG
0-5 months	400	—	400	—
6-11 months	700	—	700	—
1-2 years	900	—	800	—
3-5 years	1,100	—	1,000	—
6-7 years	1,300	≥1,800	1,200	≥1,800
8-9 years	1,600	≥2,000	1,500	≥2,000
10-11 years	1,900	≥2,200	1,800	≥2,000
12-14 years	2,400	≥2,600	2,200	≥2,400
15-17 years	2,800	≥3,000	2,100	≥2,600
18-29 years	2,500	≥3,000	2,000	≥2,600
30-49 years	2,500	≥3,000	2,000	≥2,600
50-69 years	2,500	≥3,000	2,000	≥2,600
70+ years	2,500	≥3,000	2,000	≥2,600
Pregnant women			2,000	—
Lactating women			2,200	—

DRI for Calcium (mg/day)

Gender	Males				Females			
Age etc.	EAR	RDA	AI	UL	EAR	RDA	AI	UL
0-5 months	—	—	200	—	—	—	200	—
6-11 months	—	—	250	—	—	—	250	—
1-2 years	350	450	—	—	350	400	—	—
3-5 years	500	600	—	—	450	550	—	—
6-7 years	500	600	—	—	450	550	—	—
8-9 years	550	650	—	—	600	750	—	—
10-11 years	600	700	—	—	600	750	—	—
12-14 years	850	1,000	—	—	700	800	—	—
15-17 years	650	800	—	—	550	650	—	—
18-29 years	650	800	—	2,500	550	650	—	2,500
30-49 years	550	650	—	2,500	550	650	—	2,500
50-69 years	600	700	—	2,500	550	650	—	2,500
70+ years	600	700	—	2,500	550	650	—	2,500
Pregnant women	/				—	—	—	—
Lactating women					—	—	—	—

DRIs for Magnesium (mg/day)

Gender	Males				Females			
Age etc.	EAR	RDA	AI	UL ¹	EAR	RDA	AI	UL ¹
0-5 months	—	—	20	—	—	—	20	—
6-11 months	—	—	60	—	—	—	60	—
1-2 years	60	70	—	—	60	70	—	—
3-5 years	80	100	—	—	80	100	—	—
6-7 years	110	130	—	—	110	130	—	—
8-9 years	140	170	—	—	140	160	—	—
10-11 years	180	210	—	—	180	220	—	—
12-14 years	250	290	—	—	240	290	—	—
15-17 years	300	360	—	—	260	310	—	—
18-29 years	280	340	—	—	230	270	—	—
30-49 years	310	370	—	—	240	290	—	—
50-69 years	290	350	—	—	240	290	—	—
70+ years	270	320	—	—	220	270	—	—
Pregnant women (additional)					+30	+40	—	—
Lactating women (additional)					—	—	—	—

¹ No UL is developed for dietary intake from normal food. For dietary intake from sources other than normal food, ULs of 350 mg/day and 5 mg/kg body weight/day are set for adults and children, respectively.

DRI for Phosphorus (mg/day)

Gender	Males		Females	
Age etc.	AI	UL	AI	UL
0-5 months	120	—	120	—
6-11 months	260	—	260	—
1-2 years	500	—	500	—
3-5 years	800	—	600	—
6-7 years	900	—	900	—
8-9 years	1,000	—	900	—
10-11 years	1,100	—	1,000	—
12-14 years	1,200	—	1,100	—
15-17 years	1,200	—	900	—
18-29 years	1,000	3,000	800	3,000
30-49 years	1,000	3,000	800	3,000
50-69 years	1,000	3,000	800	3,000
70+ years	1,000	3,000	800	3,000
Pregnant women			800	—
Lactating women			800	—

Microminerals

DRIs for Iron (mg/day) ¹

Gender Age etc.	Males				Females					
	EAR	RDA	AI	UL	Not menstruating		Menstruating		AI	UL
					EAR	RDA	EAR	RDA		
0-5 months	—	—	0.5	—	—	—	—	—	0.5	—
6-11 months	3.5	5.0	—	—	3.5	4.5	—	—	—	—
1-2 years	3.0	4.5	—	25	3.0	4.5	—	—	—	20
3-5 years	4.0	5.5	—	25	3.5	5.0	—	—	—	25
6-7 years	4.5	6.5	—	30	4.5	6.5	—	—	—	30
8-9 years	6.0	8.0	—	35	6.0	8.5	—	—	—	35
10-11 years	7.0	10.0	—	35	7.0	10.0	10.0	14.0	—	35
12-14 years	8.5	11.5	—	50	7.0	10.0	10.0	14.0	—	50
15-17 years	8.0	9.5	—	50	5.5	7.0	8.5	10.5	—	40
18-29 years	6.0	7.0	—	50	5.0	6.0	8.5	10.5	—	40
30-49 years	6.5	7.5	—	55	5.5	6.5	9.0	10.5	—	40
50-69 years	6.0	7.5	—	50	5.5	6.5	9.0	10.5	—	40
70+ years	6.0	7.0	—	50	5.0	6.0	—	—	—	40
Pregnant women (additional)	/									
Early stage					+2.0	+2.5	—	—	—	—
Mid to late stage					+12.5	+15.0	—	—	—	—
Lactating women (additional)	/				+2.0	+2.5	—	—	—	—

¹ Developed excluding persons with menorrhagia (menstrual blood loss of 80mL/period or more).

DRI for Zinc (mg/day)

Gender	Males				Females			
Age etc.	EAR	RDA	AI	UL	EAR	RDA	AI	UL
0-5 months	—	—	2	—	—	—	2	—
6-11 months	—	—	3	—	—	—	3	—
1-2 years	3	3	—	—	3	3	—	—
3-5 years	3	4	—	—	3	4	—	—
6-7 years	4	5	—	—	4	5	—	—
8-9 years	5	6	—	—	5	5	—	—
10-11 years	6	7	—	—	6	7	—	—
12-14 years	8	9	—	—	7	8	—	—
15-17 years	9	10	—	—	6	8	—	—
18-29 years	8	10	—	40	6	8	—	35
30-49 years	8	10	—	45	6	8	—	35
50-69 years	8	10	—	45	6	8	—	35
70+ years	8	9	—	40	6	7	—	35
Pregnant women (additional)					+1	+2	—	—
Lactating women (additional)					+3	+3	—	—

DRI for Copper (mg/day)

Gender	Males				Females			
Age etc.	EAR	RDA	AI	UL	EAR	RDA	AI	UL
0-5 months	—	—	0.3	—	—	—	0.3	—
6-11 months	—	—	0.4	—	—	—	0.4	—
1-2 years	0.2	0.3	—	—	0.2	0.3	—	—
3-5 years	0.3	0.4	—	—	0.3	0.4	—	—
6-7 years	0.4	0.5	—	—	0.4	0.5	—	—
8-9 years	0.4	0.6	—	—	0.4	0.5	—	—
10-11 years	0.5	0.7	—	—	0.5	0.7	—	—
12-14 years	0.7	0.8	—	—	0.6	0.8	—	—
15-17 years	0.8	1.0	—	—	0.6	0.8	—	—
18-29 years	0.7	0.9	—	10	0.6	0.8	—	10
30-49 years	0.7	1.0	—	10	0.6	0.8	—	10
50-69 years	0.7	0.9	—	10	0.6	0.8	—	10
70+ years	0.7	0.9	—	10	0.6	0.7	—	10
Pregnant women (additional)	/				+0.1	+0.1	—	—
Lactating women (additional)					+0.5	+0.5	—	—

DRI for Manganese (mg/day)

Gender	Males		Females	
Age etc.	AI	UL	AI	UL
0-5 months	0.01	—	0.01	—
6-11 months	0.5	—	0.5	—
1-2 years	1.5	—	1.5	—
3-5 years	1.5	—	1.5	—
6-7 years	2.0	—	2.0	—
8-9 years	2.5	—	2.5	—
10-11 years	3.0	—	3.0	—
12-14 years	4.0	—	4.0	—
15-17 years	4.5	—	3.5	—
18-29 years	4.0	11	3.5	11
30-49 years	4.0	11	3.5	11
50-69 years	4.0	11	3.5	11
70+ years	4.0	11	3.5	11
Pregnant women			3.5	—
Lactating women			3.5	—

DRIs for Iodine ($\mu\text{g}/\text{day}$)

Gender	Males				Females			
Age etc.	EAR	RDA	AI	UL	EAR	RDA	AI	UL
0-5 months	—	—	100	250	—	—	100	250
6-11 months	—	—	130	250	—	—	130	250
1-2 years	35	50	—	250	35	50	—	250
3-5 years	45	60	—	350	45	60	—	350
6-7 years	55	75	—	500	55	75	—	500
8-9 years	65	90	—	500	65	90	—	500
10-11 years	80	110	—	500	80	110	—	500
12-14 years	100	140	—	1,200	100	140	—	1,200
15-17 years	100	140	—	2,000	100	140	—	2,000
18-29 years	95	130	—	3,000	95	130	—	3,000
30-49 years	95	130	—	3,000	95	130	—	3,000
50-69 years	95	130	—	3,000	95	130	—	3,000
70+ years	95	130	—	3,000	95	130	—	3,000
Pregnant women (additional)					+75	+110	—	— ¹
Lactating women (additional)					+100	+140	—	—

¹ UL of pregnant women is determined to be 2,000 $\mu\text{g}/\text{day}$.

DRI for Selenium ($\mu\text{g}/\text{day}$)

Gender	Males				Females			
Age etc.	EAR	RDA	AI	UL	EAR	RDA	AI	UL
0-5 months	—	—	15	—	—	—	15	—
6-11 months	—	—	15	—	—	—	15	—
1-2 years	10	10	—	80	10	10	—	70
3-5 years	10	15	—	110	10	10	—	110
6-7 years	15	15	—	150	15	15	—	150
8-9 years	15	20	—	190	15	20	—	180
10-11 years	20	25	—	240	20	25	—	240
12-14 years	25	30	—	330	25	30	—	320
15-17 years	30	35	—	400	20	25	—	350
18-29 years	25	30	—	420	20	25	—	330
30-49 years	25	30	—	460	20	25	—	350
50-69 years	25	30	—	440	20	25	—	350
70+ years	25	30	—	400	20	25	—	330
Pregnant women (additional)					+5	+5	—	—
Lactating women (additional)					+15	+20	—	—

DRI for Chromium ($\mu\text{g}/\text{day}$)

Gender	Males	Females
Age etc.	AI	AI
0-5 months	0.8	0.8
6-11 months	1.0	1.0
1-2 years	—	—
3-5 years	—	—
6-7 years	—	—
8-9 years	—	—
10-11 years	—	—
12-14 years	—	—
15-17 years	—	—
18-29 years	10	10
30-49 years	10	10
50-69 years	10	10
70+ years	10	10
Pregnant women	/	10
Lactating women		10

DRIs for Molybdenum ($\mu\text{g}/\text{day}$)

Gender	Males				Females			
Age etc.	EAR	RDA	AI	UL	EAR	RDA	AI	UL
0-5 months	—	—	2	—	—	—	2	—
6-11 months	—	—	10	—	—	—	10	—
1-2 years	—	—	—	—	—	—	—	—
3-5 years	—	—	—	—	—	—	—	—
6-7 years	—	—	—	—	—	—	—	—
8-9 years	—	—	—	—	—	—	—	—
10-11 years	—	—	—	—	—	—	—	—
12-14 years	—	—	—	—	—	—	—	—
15-17 years	—	—	—	—	—	—	—	—
18-29 years	20	25	—	550	20	20	—	450
30-49 years	25	30	—	550	20	25	—	450
50-69 years	20	25	—	550	20	25	—	450
70+ years	20	25	—	550	20	20	—	450
Pregnant women (additional)					—	—	—	—
Lactating women (additional)					+3	+3	—	—