

## Dietary Reference Intakes

### Equations to estimate energy requirement

<b>Infants and young children</b>	
Estimated Energy Requirement (kcal/day) = Total Energy Expenditure + Energy Deposition	
0-3 months	$EER = (89 \times \text{weight [kg]} - 100) + 175$
4-6 months	$EER = (89 \times \text{weight [kg]} - 100) + 56$
7-12 months	$EER = (89 \times \text{weight [kg]} - 100) + 22$
13-35 months	$EER = (89 \times \text{weight [kg]} - 100) + 20$
<b>Children and Adolescents 3-18 years</b>	
Estimated Energy Requirement (kcal/day) = Total Energy Expenditure + Energy Deposition	
<b>Boys</b>	
3-8 years	$EER = 88.5 - (61.9 \times \text{age [y]}) + PA \times \{ (26.7 \times \text{weight [kg]}) + (903 \times \text{height [m]}) \} + 20$
9-18 years	$EER = 88.5 - (61.9 \times \text{age [y]}) + PA \times \{ (26.7 \times \text{weight [kg]}) + (903 \times \text{height [m]}) \} + 25$
<b>Girls</b>	
3-8 years	$EER = 135.3 - (30.8 \times \text{age [y]}) + PA \times \{ (10.0 \times \text{weight [kg]}) + (934 \times \text{height [m]}) \} + 20$
9-18 years	$EER = 135.3 - (30.8 \times \text{age [y]}) + PA \times \{ (10.0 \times \text{weight [kg]}) + (934 \times \text{height [m]}) \} + 25$
<b>Adults 19 years and older</b>	
Estimated Energy Requirement (kcal/day) = Total Energy Expenditure	
<b>Men</b>	$EER = 662 - (9.53 \times \text{age [y]}) + PA \times \{ (15.91 \times \text{weight [kg]}) + (539.6 \times \text{height [m]}) \}$
<b>Women</b>	$EER = 354 - (6.91 \times \text{age [y]}) + PA \times \{ (9.36 \times \text{weight [kg]}) + (726 \times \text{height [m]}) \}$
<b>Pregnancy</b>	
Estimated Energy Requirement (kcal/day) = Non-pregnant EER + Pregnancy Energy Deposition	
1 <sup>st</sup> trimester	$EER = \text{Non-pregnant EER} + 0$
2 <sup>nd</sup> trimester	$EER = \text{Non-pregnant EER} + 340$
3 <sup>rd</sup> trimester	$EER = \text{Non-pregnant EER} + 452$
<b>Lactation</b>	
Estimated Energy Requirement (kcal/day) = Non-pregnant EER + Milk Energy Output – Weight Loss	
0-6 months postpartum	$EER = \text{Non-pregnant EER} + 500 - 170$
7-12 months postpartum	$EER = \text{Non-pregnant EER} + 400 - 0$

These equations provide an estimate of energy requirement. Relative body weight (i.e. loss, stable, gain) is the preferred indicator of energy adequacy.

### Physical Activity Coefficients (PA values) for use in EER equations

	<b>Sedentary</b> (PAL 1.0-1.39)	<b>Low Active</b> (PAL 1.4-1.59)	<b>Active</b> (PAL 1.6-1.89)	<b>Very Active</b> (PAL 1.9-2.5)
	Typical daily living activities (e.g., household tasks, walking to the bus)	Typical daily living activities PLUS 30 - 60 minutes of daily moderate activity (ex. walking at 5-7 km/h)	Typical daily living activities PLUS At least 60 minutes of daily moderate activity	Typical daily living activities PLUS At least 60 minutes of daily moderate activity PLUS An additional 60 minutes of vigorous activity or 120 minutes of moderate activity
Boys 3 - 18 y	1.00	1.13	1.26	1.42
Girls 3 - 18 y	1.00	1.16	1.31	1.56
Men 19 y +	1.00	1.11	1.25	1.48
Women 19 y +	1.00	1.12	1.27	1.45

## Dietary Reference Intakes Reference Values for Vitamins

	Vitamin A <sup>1,2</sup>						Vitamin D <sup>**</sup>						Vitamin E <sup>5</sup>			Vitamin K	
Unit	µg/day (RAE)			IU/day (RAE)			µg/day <sup>4</sup>			IU/day <sup>4</sup>			mg/day			µg/day	
	EAR	RDA/AI	UL <sup>3</sup>	EAR	RDA/AI	UL <sup>3</sup>	EAR	RDA/AI	UL	EAR	RDA/AI	UL	EAR	RDA/AI	UL <sup>6</sup>	AI	UL <sup>7</sup>
Infants																	
0-6 mo	ND	400*	600	ND	1333*	2000	ND	10*	25	ND	400*	1000	ND	4*	ND	2.0*	ND
7-12 mo	ND	500*	600	ND	1667*	2000	ND	10*	38	ND	400*	1500	ND	5*	ND	2.5*	ND
Children																	
1-3 y	210	<b>300</b>	600	700	<b>1000</b>	2000	10	<b>15</b>	63	400	<b>600</b>	2500	5	<b>6</b>	200	30*	ND
4-8 y	275	<b>400</b>	900	917	<b>1333</b>	3000	10	<b>15</b>	75	400	<b>600</b>	3000	6	<b>7</b>	300	55*	ND
Males																	
9-13 y	445	<b>600</b>	1700	1483	<b>2000</b>	5667	10	<b>15</b>	100	400	<b>600</b>	4000	9	<b>11</b>	600	60*	ND
14-18 y	630	<b>900</b>	2800	2100	<b>3000</b>	9333	10	<b>15</b>	100	400	<b>600</b>	4000	12	<b>15</b>	800	75*	ND
19-30 y	625	<b>900</b>	3000	2083	<b>3000</b>	10000	10	<b>15</b>	100	400	<b>600</b>	4000	12	<b>15</b>	1000	120*	ND
31-50 y	625	<b>900</b>	3000	2083	<b>3000</b>	10000	10	<b>15</b>	100	400	<b>600</b>	4000	12	<b>15</b>	1000	120*	ND
51-70 y	625	<b>900</b>	3000	2083	<b>3000</b>	10000	10	<b>15</b>	100	400	<b>600</b>	4000	12	<b>15</b>	1000	120*	ND
>70 y	625	<b>900</b>	3000	2083	<b>3000</b>	10000	10	<b>20</b>	100	400	<b>800</b>	4000	12	<b>15</b>	1000	120*	ND
Females																	
9-13 y	420	<b>600</b>	1700	1400	<b>2000</b>	5667	10	<b>15</b>	100	400	<b>600</b>	4000	9	<b>11</b>	600	60*	ND
14-18 y	485	<b>700</b>	2800	1617	<b>2333</b>	9333	10	<b>15</b>	100	400	<b>600</b>	4000	12	<b>15</b>	800	75*	ND
19-30 y	500	<b>700</b>	3000	1667	<b>2333</b>	10000	10	<b>15</b>	100	400	<b>600</b>	4000	12	<b>15</b>	1000	90*	ND
31-50 y	500	<b>700</b>	3000	1667	<b>2333</b>	10000	10	<b>15</b>	100	400	<b>600</b>	4000	12	<b>15</b>	1000	90*	ND
51-70 y	500	<b>700</b>	3000	1667	<b>2333</b>	10000	10	<b>15</b>	100	400	<b>600</b>	4000	12	<b>15</b>	1000	90*	ND
>70 y	500	<b>700</b>	3000	1667	<b>2333</b>	10000	10	<b>20</b>	100	400	<b>800</b>	4000	12	<b>15</b>	1000	90*	ND
Pregnancy																	
≤ 18 y	530	<b>750</b>	2800	1767	<b>2500</b>	9333	10	<b>15</b>	100	400	<b>600</b>	4000	12	<b>15</b>	800	75*	ND
19-30 y	550	<b>770</b>	3000	1833	<b>2567</b>	10000	10	<b>15</b>	100	400	<b>600</b>	4000	12	<b>15</b>	1000	90*	ND
31-50 y	550	<b>770</b>	3000	1833	<b>2567</b>	10000	10	<b>15</b>	100	400	<b>600</b>	4000	12	<b>15</b>	1000	90*	ND
Lactation																	
≤ 18 y	885	<b>1200</b>	2800	2950	<b>4000</b>	9333	10	<b>15</b>	100	400	<b>600</b>	4000	16	<b>19</b>	800	75*	ND
19-30 y	900	<b>1300</b>	3000	3000	<b>4333</b>	10000	10	<b>15</b>	100	400	<b>600</b>	4000	16	<b>19</b>	1000	90*	ND
31-50 y	900	<b>1300</b>	3000	3000	<b>4333</b>	10000	10	<b>15</b>	100	400	<b>600</b>	4000	16	<b>19</b>	1000	90*	ND

This table presents *Estimated Average Requirements (EARs)* in italics, **Recommended Dietary Allowances (RDAs)** in bold type and Adequate Intakes (AIs) in ordinary type followed by an asterisk (\*). Tolerable Upper Intake Levels (ULs) are in shaded columns.

<sup>\*\*</sup> New 2010 values have replaced previous 1997 values.

<sup>1</sup> As Retinol Activity Equivalents (RAE). See conversion factors for more details.

<sup>2</sup> No DRIs are established for beta-carotene or other carotenoids. However, existing recommendations for consumption of carotenoid-rich fruits and vegetables are supported.

<sup>3</sup> UL as preformed vitamin A only. Beta-carotene supplements are advised only to serve as a provitamin A source for individuals at risk of vitamin A deficiency.

<sup>4</sup> These reference values assume minimal sun exposure.

<sup>5</sup> EAR and RDA/AI as alpha-tocopherol (2R-stereoisomeric forms) only. See conversion factors for more details.

<sup>6</sup> The UL for vitamin E applies only to synthetic vitamin E (all isomeric forms) obtained from supplements, fortified foods, or a combination of the two.

<sup>7</sup> Due to lack of suitable data, a UL could not be established for vitamin K. This does not mean that there is no potential for adverse effects resulting from high intakes.

NOTE: These are reference values for normal, apparently healthy individuals eating a typical mixed North American diet. An individual may have physiological, health, or lifestyle characteristics that may require tailoring of specific nutrient values.

## Dietary Reference Intakes Reference Values for Vitamins

Unit	Vitamin C <sup>8</sup>			Thiamin			Riboflavin			Niacin <sup>10</sup>			Vitamin B6		
	mg/day			mg/day			mg/day			mg/day (NE)			mg/day		
	EAR	RDA/AI	UL	EAR	RDA/AI	UL <sup>9</sup>	EAR	RDA/AI	UL <sup>9</sup>	EAR	RDA/AI	UL <sup>11</sup>	EAR	RDA/AI	UL
Infants															
0-6 mo	<i>ND</i>	<b>40*</b>	ND	<i>ND</i>	<b>0.2*</b>	ND	<i>ND</i>	<b>0.3*</b>	ND	<i>ND</i>	<b>2* <sup>a</sup></b>	ND	<i>ND</i>	<b>0.1*</b>	ND
7-12 mo	<i>ND</i>	<b>50*</b>	ND	<i>ND</i>	<b>0.3*</b>	ND	<i>ND</i>	<b>0.4*</b>	ND	<i>ND</i>	<b>4*</b>	ND	<i>ND</i>	<b>0.3*</b>	ND
Children															
1-3 y	<i>13</i>	<b>15</b>	400	<i>0.4</i>	<b>0.5</b>	ND	<i>0.4</i>	<b>0.5</b>	ND	<i>5</i>	<b>6</b>	10	<i>0.4</i>	<b>0.5</b>	30
4-8 y	<i>22</i>	<b>25</b>	650	<i>0.5</i>	<b>0.6</b>	ND	<i>0.5</i>	<b>0.6</b>	ND	<i>6</i>	<b>8</b>	15	<i>0.5</i>	<b>0.6</b>	40
Males															
9-13 y	<i>39</i>	<b>45</b>	1200	<i>0.7</i>	<b>0.9</b>	ND	<i>0.8</i>	<b>0.9</b>	ND	<i>9</i>	<b>12</b>	20	<i>0.8</i>	<b>1.0</b>	60
14-18 y	<i>63</i>	<b>75</b>	1800	<i>1.0</i>	<b>1.2</b>	ND	<i>1.1</i>	<b>1.3</b>	ND	<i>12</i>	<b>16</b>	30	<i>1.1</i>	<b>1.3</b>	80
19-30 y	<i>75</i>	<b>90</b>	2000	<i>1.0</i>	<b>1.2</b>	ND	<i>1.1</i>	<b>1.3</b>	ND	<i>12</i>	<b>16</b>	35	<i>1.1</i>	<b>1.3</b>	100
31-50 y	<i>75</i>	<b>90</b>	2000	<i>1.0</i>	<b>1.2</b>	ND	<i>1.1</i>	<b>1.3</b>	ND	<i>12</i>	<b>16</b>	35	<i>1.1</i>	<b>1.3</b>	100
51-70 y	<i>75</i>	<b>90</b>	2000	<i>1.0</i>	<b>1.2</b>	ND	<i>1.1</i>	<b>1.3</b>	ND	<i>12</i>	<b>16</b>	35	<i>1.4</i>	<b>1.7</b>	100
>70 y	<i>75</i>	<b>90</b>	2000	<i>1.0</i>	<b>1.2</b>	ND	<i>1.1</i>	<b>1.3</b>	ND	<i>12</i>	<b>16</b>	35	<i>1.4</i>	<b>1.7</b>	100
Females															
9-13 y	<i>39</i>	<b>45</b>	1200	<i>0.7</i>	<b>0.9</b>	ND	<i>0.8</i>	<b>0.9</b>	ND	<i>9</i>	<b>12</b>	20	<i>0.8</i>	<b>1.0</b>	60
14-18 y	<i>56</i>	<b>65</b>	1800	<i>0.9</i>	<b>1.0</b>	ND	<i>0.9</i>	<b>1.0</b>	ND	<i>11</i>	<b>14</b>	30	<i>1.0</i>	<b>1.2</b>	80
19-30 y	<i>60</i>	<b>75</b>	2000	<i>0.9</i>	<b>1.1</b>	ND	<i>0.9</i>	<b>1.1</b>	ND	<i>11</i>	<b>14</b>	35	<i>1.1</i>	<b>1.3</b>	100
31-50 y	<i>60</i>	<b>75</b>	2000	<i>0.9</i>	<b>1.1</b>	ND	<i>0.9</i>	<b>1.1</b>	ND	<i>11</i>	<b>14</b>	35	<i>1.1</i>	<b>1.3</b>	100
51-70 y	<i>60</i>	<b>75</b>	2000	<i>0.9</i>	<b>1.1</b>	ND	<i>0.9</i>	<b>1.1</b>	ND	<i>11</i>	<b>14</b>	35	<i>1.3</i>	<b>1.5</b>	100
>70 y	<i>60</i>	<b>75</b>	2000	<i>0.9</i>	<b>1.1</b>	ND	<i>0.9</i>	<b>1.1</b>	ND	<i>11</i>	<b>14</b>	35	<i>1.3</i>	<b>1.5</b>	100
Pregnancy															
≤ 18 y	<i>66</i>	<b>80</b>	1800	<i>1.2</i>	<b>1.4</b>	ND	<i>1.2</i>	<b>1.4</b>	ND	<i>14</i>	<b>18</b>	30	<i>1.6</i>	<b>1.9</b>	80
19-30 y	<i>70</i>	<b>85</b>	2000	<i>1.2</i>	<b>1.4</b>	ND	<i>1.2</i>	<b>1.4</b>	ND	<i>14</i>	<b>18</b>	35	<i>1.6</i>	<b>1.9</b>	100
31-50 y	<i>70</i>	<b>85</b>	2000	<i>1.2</i>	<b>1.4</b>	ND	<i>1.2</i>	<b>1.4</b>	ND	<i>14</i>	<b>18</b>	35	<i>1.6</i>	<b>1.9</b>	100
Lactation															
≤ 18 y	<i>96</i>	<b>115</b>	1800	<i>1.2</i>	<b>1.4</b>	ND	<i>1.3</i>	<b>1.6</b>	ND	<i>13</i>	<b>17</b>	30	<i>1.7</i>	<b>2.0</b>	80
19-30 y	<i>100</i>	<b>120</b>	2000	<i>1.2</i>	<b>1.4</b>	ND	<i>1.3</i>	<b>1.6</b>	ND	<i>13</i>	<b>17</b>	35	<i>1.7</i>	<b>2.0</b>	100
31-50 y	<i>100</i>	<b>120</b>	2000	<i>1.2</i>	<b>1.4</b>	ND	<i>1.3</i>	<b>1.6</b>	ND	<i>13</i>	<b>17</b>	35	<i>1.7</i>	<b>2.0</b>	100

This table presents *Estimated Average Requirements (EARs) in italics*, **Recommended Dietary Allowances (RDAs) in bold type** and Adequate Intakes (AIs) in ordinary type followed by an asterisk (\*). Tolerable Upper Intake Levels (ULs) are in shaded columns.

<sup>8</sup> Because smoking increases oxidative stress and metabolic turnover of vitamin C, the requirement for smokers is increased by 35 mg/day.

<sup>9</sup> Due to lack of suitable data, ULs could not be established for thiamin and riboflavin. This does not mean that there is no potential for adverse effects resulting from high intakes.

<sup>10</sup> As Niacin Equivalents (NE). See conversion factors for more details.

<sup>11</sup> The UL for niacin applies only to synthetic forms obtained from supplements, fortified foods, or a combination of the two.

<sup>a</sup> As preformed niacin, not NE, for this age group.

NOTE: These are reference values for normal, apparently healthy individuals eating a typical mixed North American diet. An individual may have physiological, health, or lifestyle characteristics that may require tailoring of specific nutrient values.

## Dietary Reference Intakes Reference Values for Vitamins

	Folate <sup>12</sup>			Vitamin B12			Pantothenic Acid		Biotin		Choline <sup>15</sup>	
Unit	µg/day (DFE)			µg/day			mg/day		µg/day		mg/day	
	EAR	RDA/AI	UL <sup>13</sup>	EAR	RDA/AI	UL <sup>14</sup>	AI	UL <sup>14</sup>	AI	UL <sup>14</sup>	AI	UL
Infants												
0-6 mo	<i>ND</i>	65*	ND	<i>ND</i>	0.4*	ND	1.7*	ND	5*	ND	125*	ND
7-12 mo	<i>ND</i>	80*	ND	<i>ND</i>	0.5*	ND	1.8*	ND	6*	ND	150*	ND
Children												
1-3 y	120	<b>150</b>	300	0.7	<b>0.9</b>	ND	2*	ND	8*	ND	200*	1000
4-8 y	160	<b>200</b>	400	1.0	<b>1.2</b>	ND	3*	ND	12*	ND	250*	1000
Males												
9-13 y	250	<b>300</b>	600	1.5	<b>1.8</b>	ND	4*	ND	20*	ND	375*	2000
14-18 y	330	<b>400</b>	800	2.0	<b>2.4</b>	ND	5*	ND	25*	ND	550*	3000
19-30 y	320	<b>400</b>	1000	2.0	<b>2.4</b>	ND	5*	ND	30*	ND	550*	3500
31-50 y	320	<b>400</b>	1000	2.0	<b>2.4</b>	ND	5*	ND	30*	ND	550*	3500
51-70 y	320	<b>400</b>	1000	2.0	<b>2.4<sup>d</sup></b>	ND	5*	ND	30*	ND	550*	3500
>70 y	320	<b>400</b>	1000	2.0	<b>2.4<sup>d</sup></b>	ND	5*	ND	30*	ND	550*	3500
Females												
9-13 y	250	<b>300</b>	600	1.5	<b>1.8</b>	ND	4*	ND	20*	ND	375*	2000
14-18 y	330	<b>400<sup>b</sup></b>	800	2.0	<b>2.4</b>	ND	5*	ND	25*	ND	400*	3000
19-30 y	320	<b>400<sup>b</sup></b>	1000	2.0	<b>2.4</b>	ND	5*	ND	30*	ND	425*	3500
31-50 y	320	<b>400<sup>b</sup></b>	1000	2.0	<b>2.4</b>	ND	5*	ND	30*	ND	425*	3500
51-70 y	320	<b>400</b>	1000	2.0	<b>2.4<sup>d</sup></b>	ND	5*	ND	30*	ND	425*	3500
>70 y	320	<b>400</b>	1000	2.0	<b>2.4<sup>d</sup></b>	ND	5*	ND	30*	ND	425*	3500
Pregnancy												
≤ 18 y	520	<b>600<sup>c</sup></b>	800	2.2	<b>2.6</b>	ND	6*	ND	30*	ND	450*	3000
19-30 y	520	<b>600<sup>c</sup></b>	1000	2.2	<b>2.6</b>	ND	6*	ND	30*	ND	450*	3500
31-50 y	520	<b>600<sup>c</sup></b>	1000	2.2	<b>2.6</b>	ND	6*	ND	30*	ND	450*	3500
Lactation												
≤ 18 y	450	<b>500</b>	800	2.4	<b>2.8</b>	ND	7*	ND	35*	ND	550*	3000
19-30 y	450	<b>500</b>	1000	2.4	<b>2.8</b>	ND	7*	ND	35*	ND	550*	3500
31-50 y	450	<b>500</b>	1000	2.4	<b>2.8</b>	ND	7*	ND	35*	ND	550*	3500

This table presents *Estimated Average Requirements (EARs)* in italics, **Recommended Dietary Allowances (RDAs)** in bold type and Adequate Intakes (AIs) in ordinary type followed by an asterisk (\*). Tolerable Upper Intake Levels (ULs) are in shaded columns.

<sup>12</sup> As Dietary Folate Equivalents (DFE). See conversion factors for more details.

<sup>13</sup> The UL for folate applies only to synthetic forms obtained from supplements, fortified foods, or a combination of the two.

<sup>14</sup> Due to lack of suitable data, ULs could not be established for vitamin B12, pantothenic acid or biotin. This does not mean that there is no potential for adverse effects resulting from high intakes.

<sup>15</sup> Although AIs have been set for choline, there are few data to assess whether a dietary supply of choline is needed at all stages of the life cycle, and it may be that the choline requirement can be met by endogenous synthesis at some of these stages.

<sup>b</sup> In view of evidence linking the use of supplements containing folic acid before conception and during early pregnancy with reduced risk of neural tube defects in the fetus, it is recommended that all women capable of becoming pregnant take a supplement containing 400µg of folic acid every day, in addition to the amount of folate found in a healthy diet.

<sup>c</sup> It is assumed that women will continue consuming 400 µg folic acid from supplements until their pregnancy is confirmed and they enter prenatal care. The critical time for formation of the neural tube is shortly after conception.

<sup>d</sup> Because 10 to 30 percent of older people may malabsorb food-bound vitamin B12, it is advisable for those older than 50 years to meet the RDA mainly by consuming foods fortified with vitamin B12 or a supplement containing vitamin B12.

NOTE: These are reference values for normal, apparently healthy individuals eating a typical mixed North American diet. An individual may have physiological, health, or lifestyle characteristics that may require tailoring of specific nutrient values.

# Dietary Reference Intakes Reference Values for Elements

	Arsenic <sup>16</sup>		Boron		Calcium **			Chromium		Copper			Fluoride		Iodine		
Unit	N/A		mg/day		mg/day			µg/day		µg/day			mg/day		µg/day		
	AI	UL <sup>17</sup>	AI	UL	EAR	RDA/AI	UL	AI	UL <sup>17</sup>	EAR	RDA/AI	UL	AI	UL	EAR	RDA/AI	UL
Infants																	
0-6 mo	ND	ND	ND	ND	<i>ND</i>	200*	1000	0.2*	ND	<i>ND</i>	200*	ND	0.01*	0.7	<i>ND</i>	110*	ND
7-12 mo	ND	ND	ND	ND	<i>ND</i>	260*	1500	5.5*	ND	<i>ND</i>	220*	ND	0.5*	0.9	<i>ND</i>	130*	ND
Children																	
1-3 y	ND	ND	ND	3	<i>500</i>	<b>700</b>	2500	11*	ND	260	<b>340</b>	1000	0.7*	1.3	65	<b>90</b>	200
4-8 y	ND	ND	ND	6	<i>800</i>	<b>1000</b>	2500	15*	ND	340	<b>440</b>	3000	1*	2.2	65	<b>90</b>	300
Males																	
9-13 y	ND	ND	ND	11	<i>1100</i>	<b>1300</b>	3000	25*	ND	540	<b>700</b>	5000	2*	10	73	<b>120</b>	600
14-18 y	ND	ND	ND	17	<i>1100</i>	<b>1300</b>	3000	35*	ND	685	<b>890</b>	8000	3*	10	95	<b>150</b>	900
19-30 y	ND	ND	ND	20	<i>800</i>	<b>1000</b>	2500	35*	ND	700	<b>900</b>	10000	4*	10	95	<b>150</b>	1100
31-50 y	ND	ND	ND	20	<i>800</i>	<b>1000</b>	2500	35*	ND	700	<b>900</b>	10000	4*	10	95	<b>150</b>	1100
51-70 y	ND	ND	ND	20	<i>800</i>	<b>1000</b>	2000	30*	ND	700	<b>900</b>	10000	4*	10	95	<b>150</b>	1100
>70 y	ND	ND	ND	20	<i>1000</i>	<b>1200</b>	2000	30*	ND	700	<b>900</b>	10000	4*	10	95	<b>150</b>	1100
Females																	
9-13 y	ND	ND	ND	11	<i>1100</i>	<b>1300</b>	3000	21*	ND	540	<b>700</b>	5000	2*	10	73	<b>120</b>	600
14-18 y	ND	ND	ND	17	<i>1100</i>	<b>1300</b>	3000	24*	ND	685	<b>890</b>	8000	3*	10	95	<b>150</b>	900
19-30 y	ND	ND	ND	20	<i>800</i>	<b>1000</b>	2500	25*	ND	700	<b>900</b>	10000	3*	10	95	<b>150</b>	1100
31-50 y	ND	ND	ND	20	<i>800</i>	<b>1000</b>	2500	25*	ND	700	<b>900</b>	10000	3*	10	95	<b>150</b>	1100
51-70 y	ND	ND	ND	20	<i>1000</i>	<b>1200</b>	2000	20*	ND	700	<b>900</b>	10000	3*	10	95	<b>150</b>	1100
>70 y	ND	ND	ND	20	<i>1000</i>	<b>1200</b>	2000	20*	ND	700	<b>900</b>	10000	3*	10	95	<b>150</b>	1100
Pregnancy																	
≤ 18 y	ND	ND	ND	17	<i>1100</i>	<b>1300</b>	3000	29*	ND	785	<b>1000</b>	8000	3*	10	160	<b>220</b>	900
19-30 y	ND	ND	ND	20	<i>800</i>	<b>1000</b>	2500	30*	ND	800	<b>1000</b>	10000	3*	10	160	<b>220</b>	1100
31-50 y	ND	ND	ND	20	<i>800</i>	<b>1000</b>	2500	30*	ND	800	<b>1000</b>	10000	3*	10	160	<b>220</b>	1100
Lactation																	
≤ 18 y	ND	ND	ND	17	<i>1100</i>	<b>1300</b>	3000	44*	ND	985	<b>1300</b>	8000	3*	10	209	<b>290</b>	900
19-30 y	ND	ND	ND	20	<i>800</i>	<b>1000</b>	2500	45*	ND	1000	<b>1300</b>	10000	3*	10	209	<b>290</b>	1100
31-50 y	ND	ND	ND	20	<i>800</i>	<b>1000</b>	2500	45*	ND	1000	<b>1300</b>	10000	3*	10	209	<b>290</b>	1100

This table presents *Estimated Average Requirements (EARs) in italics*, **Recommended Dietary Allowances (RDAs) in bold type** and Adequate Intakes (AIs) in ordinary type followed by an asterisk (\*). Tolerable Upper Intake Levels (ULs) are in shaded columns.

\*\* New 2010 values have replaced previous 1997 values.

<sup>16</sup> Although a UL was not determined for arsenic, there is no justification for adding arsenic to food or supplements.

<sup>17</sup> Due to lack of suitable data, ULs could not be established for arsenic and chromium. This does not mean that there is no potential for adverse effects resulting from high intakes.

NOTE: These are reference values for normal, apparently healthy individuals eating a typical mixed North American diet. An individual may have physiological, health, or lifestyle characteristics that may require tailoring of specific nutrient values.

## Dietary Reference Intakes Reference Values for Elements

Unit	Iron <sup>18</sup>			Magnesium			Manganese		Molybdenum			Nickel		Phosphorus		
	mg/day			mg/day			mg/day		µg/day			mg/day		mg/day		
	EAR	RDA/AI	UL	EAR	RDA/AI	UL <sup>19</sup>	AI	UL	EAR	RDA/AI	UL	AI	UL	EAR	RDA/AI	UL
Infants																
0-6 mo	<i>ND</i>	0.27*	40	<i>ND</i>	30*	ND	0.003*	ND	<i>ND</i>	2*	ND	ND	ND	<i>ND</i>	100*	ND
7-12 mo	6.9	<b>11</b>	40	<i>ND</i>	75*	ND	0.6*	ND	<i>ND</i>	3*	ND	ND	ND	<i>ND</i>	275*	ND
Children																
1-3 y	3.0	<b>7</b>	40	65	<b>80</b>	65	1.2*	2	13	<b>17</b>	300	ND	0.2	380	<b>460</b>	3000
4-8 y	4.1	<b>10</b>	40	110	<b>130</b>	110	1.5*	3	17	<b>22</b>	600	ND	0.3	405	<b>500</b>	3000
Males																
9-13 y	5.9	<b>8</b>	40	200	<b>240</b>	350	1.9*	6	26	<b>34</b>	1100	ND	0.6	1055	<b>1250</b>	4000
14-18 y	7.7	<b>11</b>	45	340	<b>410</b>	350	2.2*	9	33	<b>43</b>	1700	ND	1.0	1055	<b>1250</b>	4000
19-30 y	6	<b>8</b>	45	330	<b>400</b>	350	2.3*	11	34	<b>45</b>	2000	ND	1.0	580	<b>700</b>	4000
31-50 y	6	<b>8</b>	45	350	<b>420</b>	350	2.3*	11	34	<b>45</b>	2000	ND	1.0	580	<b>700</b>	4000
51-70 y	6	<b>8</b>	45	350	<b>420</b>	350	2.3*	11	34	<b>45</b>	2000	ND	1.0	580	<b>700</b>	4000
>70 y	6	<b>8</b>	45	350	<b>420</b>	350	2.3*	11	34	<b>45</b>	2000	ND	1.0	580	<b>700</b>	3000
Females																
9-13 y	5.7 <sup>e</sup>	<b>8<sup>e</sup></b>	40	200	<b>240</b>	350	1.6*	6	26	<b>34</b>	1100	ND	0.6	1055	<b>1250</b>	4000
14-18 y	7.9 <sup>e</sup>	<b>15<sup>e</sup></b>	45	300	<b>360</b>	350	1.6*	9	33	<b>43</b>	1700	ND	1.0	1055	<b>1250</b>	4000
19-30 y	8.1 <sup>e</sup>	<b>18<sup>e</sup></b>	45	255	<b>310</b>	350	1.8*	11	34	<b>45</b>	2000	ND	1.0	580	<b>700</b>	4000
31-50 y	8.1 <sup>e</sup>	<b>18<sup>e</sup></b>	45	265	<b>320</b>	350	1.8*	11	34	<b>45</b>	2000	ND	1.0	580	<b>700</b>	4000
51-70 y	5 <sup>e</sup>	<b>8<sup>e</sup></b>	45	265	<b>320</b>	350	1.8*	11	34	<b>45</b>	2000	ND	1.0	580	<b>700</b>	4000
>70 y	5 <sup>e</sup>	<b>8<sup>e</sup></b>	45	265	<b>320</b>	350	1.8*	11	34	<b>45</b>	2000	ND	1.0	580	<b>700</b>	3000
Pregnancy																
< 18 y	23	<b>27</b>	45	335	<b>400</b>	350	2.0*	9	40	<b>50</b>	1700	ND	1.0	1055	<b>1250</b>	3500
19-30 y	22	<b>27</b>	45	290	<b>350</b>	350	2.0*	11	40	<b>50</b>	2000	ND	1.0	580	<b>700</b>	3500
31-50 y	22	<b>27</b>	45	300	<b>360</b>	350	2.0*	11	40	<b>50</b>	2000	ND	1.0	580	<b>700</b>	3500
Lactation																
< 18 y	7	<b>10</b>	45	300	<b>360</b>	350	2.6*	9	35	<b>50</b>	1700	ND	1.0	1055	<b>1250</b>	4000
19-30 y	6.5	<b>9</b>	45	255	<b>310</b>	350	2.6*	11	36	<b>50</b>	2000	ND	1.0	580	<b>700</b>	4000
31-50 y	6.5	<b>9</b>	45	265	<b>320</b>	350	2.6*	11	36	<b>50</b>	2000	ND	1.0	580	<b>700</b>	4000

This table presents *Estimated Average Requirements (EARs) in italics*, **Recommended Dietary Allowances (RDAs) in bold type** and Adequate Intakes (AIs) in ordinary type followed by an asterisk (\*). Tolerable Upper Intake Levels (ULs) are in shaded columns.

<sup>18</sup> The requirement for iron is 1.8 times higher for vegetarians due to the lower bioavailability of iron from a vegetarian diet.

<sup>19</sup> The UL for magnesium represents intake from a pharmacological agent only and does not include intake from food and water.

<sup>e</sup> For the EAR and RDA, it is assumed that girls younger than 14 years do not menstruate and that girls 14 years and older do menstruate. It is assumed that women 51 years and older are post-menopausal.

NOTE: These are reference values for normal, apparently healthy individuals eating a typical mixed North American diet. An individual may have physiological, health, or lifestyle characteristics that may require tailoring of specific nutrient values.

# Dietary Reference Intakes Reference Values for Elements

	Selenium			Silicon <sup>20</sup>		Vanadium <sup>22</sup>		Zinc <sup>23</sup>			Potassium <sup>24</sup>		Sodium <sup>25</sup>		Chloride <sup>26</sup>		Sulfate <sup>27</sup>	
Unit	µg/day			N/A		mg/day		mg/day			mg/day		mg/day		mg/day		N/A	
	EAR	RDA/AI	UL	AI	UL <sup>21</sup>	AI	UL	EAR	RDA/AI	UL	AI	UL <sup>21</sup>	AI	UL	AI	UL	AI	UL <sup>21</sup>
Infants																		
0-6 mo	<i>ND</i>	15*	45	ND	ND	ND	ND	<i>ND</i>	2*	4	400*	ND	120*	ND	180*	ND	ND	ND
7-12 mo	<i>ND</i>	20*	60	ND	ND	ND	ND	2.5	3	5	700*	ND	370*	ND	570*	ND	ND	ND
Children																		
1-3 y	17	20	90	ND	ND	ND	ND	2.5	3	7	3000*	ND	1000*	1500	1500*	2300	ND	ND
4-8 y	23	30	150	ND	ND	ND	ND	4.0	5	12	3800*	ND	1200*	1900	1900*	2900	ND	ND
Males																		
9-13 y	35	40	280	ND	ND	ND	ND	7.0	8	23	4500*	ND	1500*	2200	2300*	3400	ND	ND
14-18 y	45	55	400	ND	ND	ND	ND	8.5	11	34	4700*	ND	1500*	2300	2300*	3600	ND	ND
19-30 y	45	55	400	ND	ND	ND	1.8	9.4	11	40	4700*	ND	1500*	2300	2300*	3600	ND	ND
31-50 y	45	55	400	ND	ND	ND	1.8	9.4	11	40	4700*	ND	1500*	2300	2300*	3600	ND	ND
51-70 y	45	55	400	ND	ND	ND	1.8	9.4	11	40	4700*	ND	1300*	2300	2000*	3600	ND	ND
>70 y	45	55	400	ND	ND	ND	1.8	9.4	11	40	4700*	ND	1200*	2300	1800*	3600	ND	ND
Females																		
9-13 y	35	40	280	ND	ND	ND	ND	7.0	8	23	4500*	ND	1500*	2200	2300*	3400	ND	ND
14-18 y	45	55	400	ND	ND	ND	ND	7.3	9	34	4700*	ND	1500*	2300	2300*	3600	ND	ND
19-30 y	45	55	400	ND	ND	ND	1.8	6.8	8	40	4700*	ND	1500*	2300	2300*	3600	ND	ND
31-50 y	45	55	400	ND	ND	ND	1.8	6.8	8	40	4700*	ND	1500*	2300	2300*	3600	ND	ND
51-70 y	45	55	400	ND	ND	ND	1.8	6.8	8	40	4700*	ND	1300*	2300	2000*	3600	ND	ND
>70 y	45	55	400	ND	ND	ND	1.8	6.8	8	40	4700*	ND	1200*	2300	1800*	3600	ND	ND
Pregnancy																		
< 18 y	49	60	400	ND	ND	ND	ND	10.5	12	34	4700*	ND	1500*	2300	2300*	3600	ND	ND
19-30 y	49	60	400	ND	ND	ND	ND	9.5	11	40	4700*	ND	1500*	2300	2300*	3600	ND	ND
31-50 y	49	60	400	ND	ND	ND	ND	9.5	11	40	4700*	ND	1500*	2300	2300*	3600	ND	ND
Lactation																		
< 18 y	59	70	400	ND	ND	ND	ND	10.9	13	34	5100*	ND	1500*	2300	2300*	3600	ND	ND
19-30 y	59	70	400	ND	ND	ND	ND	10.4	12	40	5100*	ND	1500*	2300	2300*	3600	ND	ND
31-50 y	59	70	400	ND	ND	ND	ND	10.4	12	40	5100*	ND	1500*	2300	2300*	3600	ND	ND

This table presents *Estimated Average Requirements (EARs) in italics*, **Recommended Dietary Allowances (RDAs) in bold type** and Adequate Intakes (AIs) in ordinary type followed by an asterisk (\*). Tolerable Upper Intake Levels (ULs) are in shaded columns.

<sup>20</sup> Although silicon has not been shown to cause adverse effects in humans, there is no justification for adding silicon to supplements.

<sup>21</sup> Due to lack of suitable data, ULs could not be established for silicon, potassium, and sulfate. This does not mean that there is no potential for adverse effects resulting from high intakes.

<sup>22</sup> Although vanadium in food has not been shown to cause adverse effects in humans, there is no justification for adding vanadium to food and vanadium supplements should be used with caution. The UL is based on adverse effects in laboratory animals and this data could be used to set a UL for adults but not children and adolescents.

<sup>23</sup> The requirement for zinc may be as much as 50 percent greater for vegetarians, particularly for strict vegetarians whose major food staples are grains and legumes, due to the lower bioavailability of zinc from a vegetarian diet.

<sup>24</sup> The beneficial effects of potassium appear to be mainly from the forms of potassium found naturally in foods such as fruits and vegetables. Supplemental potassium should only be provided under medical supervision because of the well-documented potential for toxicity.

<sup>25</sup> Grams of sodium × 2.53 = grams of salt.

<sup>26</sup> Sodium and chloride are normally found in foods together as sodium chloride (table salt). For this reason, the AI and UL for chloride are set at a level equivalent on a molar basis to those for sodium, since almost all dietary chloride comes with sodium added during processing or consumption of foods.

<sup>27</sup> An AI for sulfate was not established because sulfate requirements are met when dietary intakes contain recommended levels of sulfur amino acids (protein).

NOTE: These are reference values for normal, apparently healthy individuals eating a typical mixed North American diet. An individual may have physiological, health, or lifestyle characteristics that may require tailoring of specific nutrient values.

# Dietary Reference Intakes Reference Values for Macronutrients

	Carbohydrate (Digestible)			Total Protein <sup>29</sup>				Total Fat		Linoleic Acid (n-6)		α-linolenic Acid (n-3)		Total Fibre <sup>31</sup>		Total Water <sup>33</sup>	
Unit	g/day			g/kg/day		g/day <sup>30</sup>		g/day		g/day		g/day		g/day		Litres/day	
	EAR	RDA/AI	UL <sup>28</sup>	EAR	RDA/AI	RDA/AI	UL <sup>28</sup>	AI	UL <sup>28</sup>	AI	UL <sup>28</sup>	AI	UL <sup>28</sup>	AI <sup>32</sup>	UL <sup>28</sup>	AI	UL <sup>28</sup>
Infants																	
0-6 mo	ND	60*	ND	ND	1.52*	9.1*	ND	31*	ND	4.4*	ND	0.5*	ND	ND	ND	0.7*	ND
7-12 mo	ND	95*	ND	1.0	1.2	11.0	ND	30*	ND	4.6*	ND	0.5*	ND	ND	ND	0.8*	ND
Children																	
1-3 y	100	130	ND	0.87	1.05	13	ND	ND	ND	7*	ND	0.7*	ND	19*	ND	1.3*	ND
4-8 y	100	130	ND	0.76	0.95	19	ND	ND	ND	10*	ND	0.9*	ND	25*	ND	1.7*	ND
Males																	
9-13 y	100	130	ND	0.76	0.95	34	ND	ND	ND	12*	ND	1.2*	ND	31*	ND	2.4*	ND
14-18 y	100	130	ND	0.73	0.85	52	ND	ND	ND	16*	ND	1.6*	ND	38*	ND	3.3*	ND
19-30 y	100	130	ND	0.66	0.80	56	ND	ND	ND	17*	ND	1.6*	ND	38*	ND	3.7*	ND
31-50 y	100	130	ND	0.66	0.80	56	ND	ND	ND	17*	ND	1.6*	ND	38*	ND	3.7*	ND
51-70 y	100	130	ND	0.66	0.80	56	ND	ND	ND	14*	ND	1.6*	ND	30*	ND	3.7*	ND
>70 y	100	130	ND	0.66	0.80	56	ND	ND	ND	14*	ND	1.6*	ND	30*	ND	3.7*	ND
Females																	
9-13 y	100	130	ND	0.76	0.95	34	ND	ND	ND	10*	ND	1.0*	ND	26*	ND	2.1*	ND
14-18 y	100	130	ND	0.71	0.85	46	ND	ND	ND	11*	ND	1.1*	ND	26*	ND	2.3*	ND
19-30 y	100	130	ND	0.66	0.80	46	ND	ND	ND	12*	ND	1.1*	ND	25*	ND	2.7*	ND
31-50 y	100	130	ND	0.66	0.80	46	ND	ND	ND	12*	ND	1.1*	ND	25*	ND	2.7*	ND
51-70 y	100	130	ND	0.66	0.80	46	ND	ND	ND	11*	ND	1.1*	ND	21*	ND	2.7*	ND
>70 y	100	130	ND	0.66	0.80	46	ND	ND	ND	11*	ND	1.1*	ND	21*	ND	2.7*	ND
Pregnancy																	
< 18 y	135	175	ND	0.88 <sup>f</sup>	1.1 <sup>f</sup>	71 <sup>f</sup>	ND	ND	ND	13*	ND	1.4*	ND	28*	ND	3.0*	ND
19-30 y	135	175	ND	0.88 <sup>f</sup>	1.1 <sup>f</sup>	71 <sup>f</sup>	ND	ND	ND	13*	ND	1.4*	ND	28*	ND	3.0*	ND
31-50 y	135	175	ND	0.88 <sup>f</sup>	1.1 <sup>f</sup>	71 <sup>f</sup>	ND	ND	ND	13*	ND	1.4*	ND	28*	ND	3.0*	ND
Lactation																	
≤ 18 y	160	210	ND	1.05	1.3	71	ND	ND	ND	13*	ND	1.3*	ND	29*	ND	3.8*	ND
19-30 y	160	210	ND	1.05	1.3	71	ND	ND	ND	13*	ND	1.3*	ND	29*	ND	3.8*	ND
31-50 y	160	210	ND	1.05	1.3	71	ND	ND	ND	13*	ND	1.3*	ND	29*	ND	3.8*	ND

This table presents *Estimated Average Requirements (EARs)* in italics, **Recommended Dietary Allowances (RDAs)** in bold type and Adequate Intakes (AIs) in ordinary type followed by an asterisk (\*). Tolerable Upper Intake Levels (ULs) are in shaded columns.

<sup>28</sup> Although a UL was not set for any of the macronutrients, the absence of definitive data does not signify that people can tolerate chronic intakes of these substances at high levels.

<sup>29</sup> Available evidence does not support recommending a separate protein requirement for vegetarians who consume complimentary mixtures of plant proteins, as these can provide the same quality of protein as that from animal proteins.

<sup>30</sup> Recommendations for total protein are determined as the amount needed per kg body weight multiplied by the reference weight.

<sup>31</sup> Total fibre is defined as the sum of dietary fibre and functional fibre. See definitions for further details.

<sup>32</sup> The AI for total fibre is based on 14 g/1000 kcal multiplied by the median usual daily energy intake from the Continuing Survey of Food Intakes by Individuals (CSFII 1994-1996, 1998).

<sup>33</sup> Total water includes drinking water, water in beverages, and water that is part of food.

<sup>f</sup> The EAR and RDA for pregnancy are only for the second half of pregnancy. For the first half of pregnancy, protein requirements are the same as those of the nonpregnant woman.

NOTE: These are reference values for normal, apparently healthy individuals eating a typical mixed North American diet. An individual may have physiological, health, or lifestyle characteristics that may require tailoring of specific nutrient values.





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# Executive Summary

The foods and beverages that people consume have a profound impact on their health. The scientific connection between food and health has been well documented for many decades, with substantial and increasingly robust evidence showing that a healthy lifestyle—including following a healthy dietary pattern—can help people achieve and maintain good health and reduce the risk of chronic diseases throughout all stages of the lifespan: infancy and toddlerhood, childhood and adolescence, adulthood, pregnancy and lactation, and older adulthood. The core elements of a healthy dietary pattern are remarkably consistent across the lifespan and across health outcomes.

Since the first edition was published in 1980, the *Dietary Guidelines for Americans* have provided science-based advice on what to eat and drink to promote health, reduce risk of chronic disease, and meet nutrient needs. Publication of the *Dietary Guidelines* is required under the 1990 National Nutrition Monitoring and Related

Research Act, which states that at least every 5 years, the U.S. Departments of Agriculture (USDA) and of Health and Human Services (HHS) must jointly publish a report containing nutritional and dietary information and guidelines for the general public. The statute (Public Law 101-445, 7 United States Code 5341 et seq.) requires that the *Dietary Guidelines* be based on the preponderance of current scientific and medical knowledge. The 2020-2025 edition of the *Dietary Guidelines* builds from the 2015 edition, with revisions grounded in the *Scientific Report of the 2020 Dietary Guidelines Advisory Committee* and consideration of Federal agency and public comments.

The *Dietary Guidelines* is designed for policymakers and nutrition and health professionals to help all individuals and their families consume a healthy, nutritionally adequate diet. The information in the *Dietary Guidelines* is used to develop, implement, and evaluate Federal food, nutrition, and health policies

and programs. It also is the basis for Federal nutrition education materials designed for the public and for the nutrition education components of USDA and HHS nutrition programs. State and local governments, schools, the food industry, other businesses, community groups, and media also use *Dietary Guidelines* information to develop programs, policies, and communication for the general public.

The aim of the *Dietary Guidelines* is to promote health and prevent disease. Because of this public health orientation, the *Dietary Guidelines* is not intended to contain clinical guidelines for treating chronic diseases. Chronic diseases result from a complex mix of genetic, biological, behavioral, socioeconomic, and environmental factors, and people with these conditions have unique health care requirements that require careful oversight by a health professional. The body of scientific evidence on diet and health reviewed to inform the *Dietary Guidelines* is representative of the U.S. population—it includes people who are healthy, people at risk for diet-related chronic conditions and diseases, such as cardiovascular disease, type 2 diabetes, and obesity, and some people who are living with one or more of these diet-related chronic illnesses. At the same time, it is essential that Federal agencies, medical organizations, and health professionals adapt the *Dietary Guidelines* to meet the specific needs of their patients as part of an individual, multifaceted treatment plan for the specific chronic disease.

## Consistent and Evolving

Although many recommendations have remained relatively consistent over time, the *Dietary Guidelines* also has built upon previous editions and evolved as scientific knowledge has grown. The *Dietary Guidelines for Americans, 2020-2025* reflects this in three important ways:

The first is its recognition that diet-related chronic diseases, such as cardiovascular disease, type 2 diabetes, obesity, and some types of cancer, are very prevalent among Americans and pose a major public health problem. Today, more than half of adults have one or more diet-related chronic diseases. As a result, recent editions of the *Dietary Guidelines* have focused on healthy individuals, as well as those with overweight or obesity and those who are at risk of

chronic disease. A fundamental premise of the *2020-2025 Dietary Guidelines* is that just about everyone, no matter their health status, can benefit from shifting food and beverage choices to better support healthy dietary patterns.

The second is its focus on dietary patterns. Researchers and public health experts, including registered dietitians, understand that nutrients and foods are not consumed in isolation. Rather, people consume them in various combinations over time—a dietary pattern—and these foods and beverages act synergistically to affect health. The *Dietary Guidelines for Americans, 2015-2020* puts this understanding into action by focusing its recommendations on consuming a healthy dietary pattern. The *2020-2025 Dietary Guidelines* carries forward this emphasis on the importance of a healthy dietary pattern as a whole—rather than on individual nutrients, foods, or food groups in isolation.

The third is its focus on a lifespan approach. This edition of the *Dietary Guidelines* highlights the importance of encouraging healthy dietary patterns at every life stage from infancy through older adulthood. It provides recommendations for healthy dietary patterns by life stage, identifying needs specific to each life stage and considering healthy dietary pattern characteristics that should be carried forward into the next stage of life. For the first time since the 1985 edition, the *2020-2025 Dietary Guidelines* includes recommendations for healthy dietary patterns for infants and toddlers.

## The Guidelines

The *2020-2025 Dietary Guidelines* provides four overarching Guidelines that encourage healthy eating patterns at each stage of life and recognize that individuals will need to make shifts in their food and beverage choices to achieve a healthy pattern. The Guidelines also explicitly emphasize that a healthy dietary pattern is not a rigid prescription. Rather, the Guidelines are a customizable framework of core elements within which individuals make tailored and affordable choices that meet their personal, cultural, and traditional preferences. Several examples of healthy dietary patterns that translate and integrate the recommendations in overall healthy ways to eat are provided. The Guidelines are supported by Key Recommendations that provide further guidance on healthy eating across the lifespan.

# The Guidelines

Make every bite count with the *Dietary Guidelines for Americans*. Here's how:

1

## Follow a healthy dietary pattern at every life stage.

At every life stage—infancy, toddlerhood, childhood, adolescence, adulthood, pregnancy, lactation, and older adulthood—it is never too early or too late to eat healthfully.

- **For about the first 6 months of life**, exclusively feed infants human milk. Continue to feed infants human milk through at least the first year of life, and longer if desired. Feed infants iron-fortified infant formula during the first year of life when human milk is unavailable. Provide infants with supplemental vitamin D beginning soon after birth.
- **At about 6 months**, introduce infants to nutrient-dense complementary foods. Introduce infants to potentially allergenic foods along with other complementary foods. Encourage infants and toddlers to consume a variety of foods from all food groups. Include foods rich in iron and zinc, particularly for infants fed human milk.
- **From 12 months through older adulthood**, follow a healthy dietary pattern across the lifespan to meet nutrient needs, help achieve a healthy body weight, and reduce the risk of chronic disease.

2

## Customize and enjoy nutrient-dense food and beverage choices to reflect personal preferences, cultural traditions, and budgetary considerations.

A healthy dietary pattern can benefit all individuals regardless of age, race, or ethnicity, or current health status. The *Dietary Guidelines* provides a framework intended to be customized to individual needs and preferences, as well as the foodways of the diverse cultures in the United States.

3

## Focus on meeting food group needs with nutrient-dense foods and beverages, and stay within calorie limits.

An underlying premise of the *Dietary Guidelines* is that nutritional needs should be met primarily from foods and beverages—specifically, nutrient-dense foods and beverages. Nutrient-dense foods provide vitamins, minerals, and other health-promoting components and have no or little added sugars, saturated fat, and sodium. A healthy dietary pattern consists of nutrient-dense forms of foods and beverages across all food groups, in recommended amounts, and within calorie limits.

The core elements that make up a healthy dietary pattern include:

- **Vegetables of all types**—dark green; red and orange; beans, peas, and lentils; starchy; and other vegetables
- **Fruits**, especially whole fruit
- **Grains**, at least half of which are whole grain
- **Dairy**, including fat-free or low-fat milk, yogurt, and cheese, and/or lactose-free versions and fortified soy beverages and yogurt as alternatives
- **Protein foods**, including lean meats, poultry, and eggs; seafood; beans, peas, and lentils; and nuts, seeds, and soy products
- **Oils**, including vegetable oils and oils in food, such as seafood and nuts

## Limit foods and beverages higher in added sugars, saturated fat, and sodium, and limit alcoholic beverages.

At every life stage, meeting food group recommendations—even with nutrient-dense choices—requires most of a person’s daily calorie needs and sodium limits. A healthy dietary pattern doesn’t have much room for extra added sugars, saturated fat, or sodium—or for alcoholic beverages. A small amount of added sugars, saturated fat, or sodium can be added to nutrient-dense foods and beverages to help meet food group recommendations, but foods and beverages high in these components should be limited. Limits are:

- **Added sugars**—Less than 10 percent of calories per day starting at age 2. Avoid foods and beverages with added sugars for those younger than age 2.
- **Saturated fat**—Less than 10 percent of calories per day starting at age 2.
- **Sodium**—Less than 2,300 milligrams per day—and even less for children younger than age 14.
- **Alcoholic beverages**—Adults of legal drinking age can choose not to drink, or to drink in moderation by limiting intake to 2 drinks or less in a day for men and 1 drink or less in a day for women, when alcohol is consumed. Drinking less is better for health than drinking more. There are some adults who should not drink alcohol, such as women who are pregnant.



### Terms to Know

Several terms are used throughout the *Dietary Guidelines* and are essential to understanding the Guidelines and putting them into action. These terms are defined here:

- **Dietary pattern:** It is the combination of foods and beverages that constitutes an individual’s complete dietary intake over time. This may be a description of a customary way of eating or a description of a combination of foods recommended for consumption.
- **Nutrient dense:** Nutrient-dense foods and beverages provide vitamins, minerals, and other health-promoting components and have little added sugars, saturated fat, and sodium. Vegetables, fruits, whole grains, seafood, eggs, beans, peas, and lentils, unsalted nuts and seeds, fat-free and low-fat dairy products, and lean meats and poultry—when prepared with no or little added sugars, saturated fat, and sodium—are nutrient-dense foods.

For most individuals, no matter their age or health status, achieving a healthy dietary pattern will require changes in food and beverage choices. Some of these changes can be accomplished by making simple substitutions, while others will require greater effort to accomplish. This edition of the *Dietary Guidelines* presents overall guidance on choosing nutrient-dense foods and beverages in place of less healthy choices and also discusses special nutrition considerations for individuals at each life stage—infants and toddlers, children and adolescents, adults, women who are pregnant or lactating, and older adults.

Although individuals ultimately decide what and how much to consume, their personal relationships; the settings in which they live, learn, work, play, and gather; and other contextual factors—including their ability to consistently access healthy and affordable food—strongly influence their choices. Health professionals, communities, businesses and industries, organizations, government, and other segments of society all have a role to play in supporting individuals and families in making choices that align with the *Dietary Guidelines* and ensuring that all people have access to a healthy and affordable food supply. Resources, including Federal programs that support households, regardless of size and make-up, in choosing a healthy diet and improving access to healthy food, are highlighted throughout this edition of the *Dietary Guidelines for Americans*.

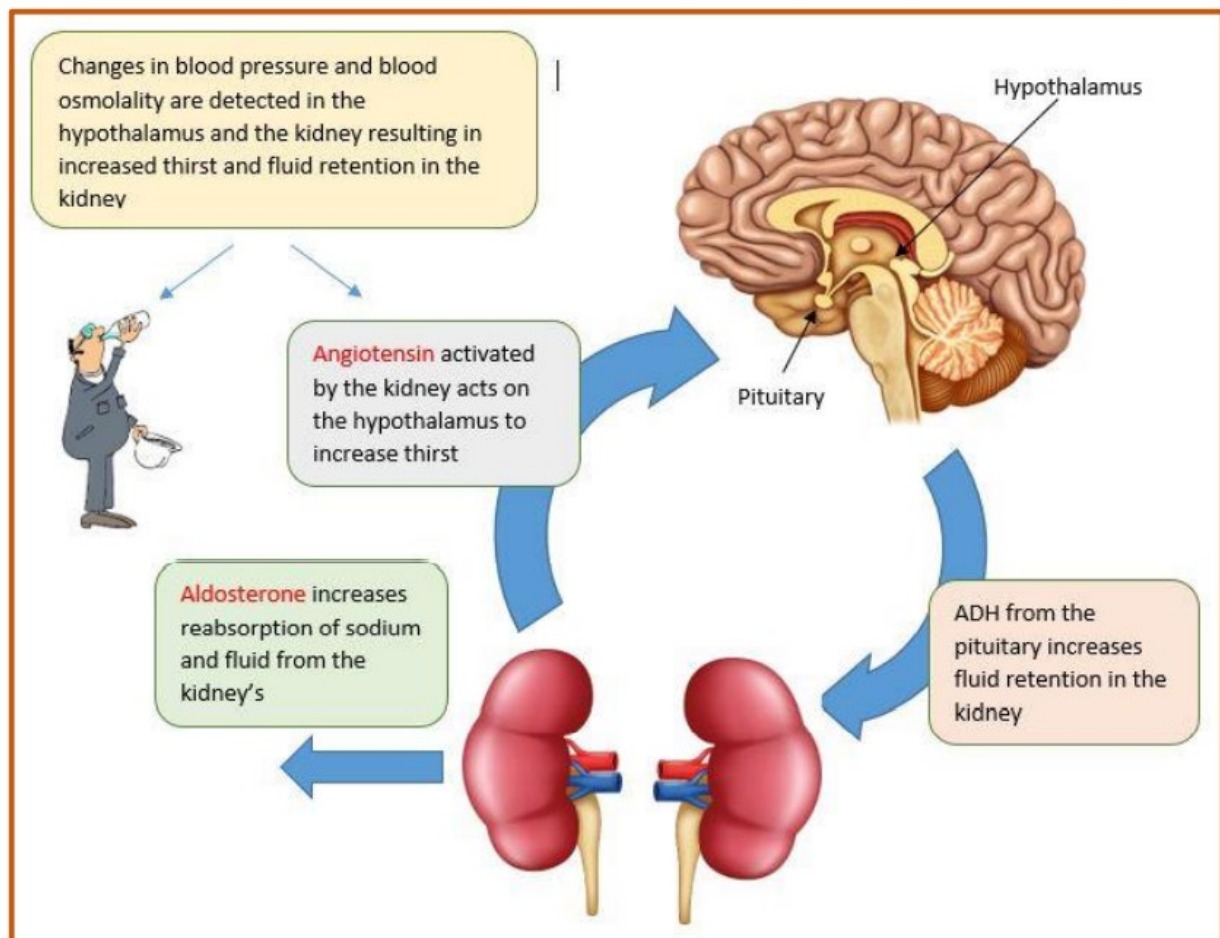


## Exam 3 - Tables from Principles of Nutrition

Label Descriptor	Definition
Sodium Free	Less than 5 mg of sodium per serving
Very Low Sodium	35 mg of sodium or less per serving
Low Sodium	140 mg of sodium or less per serving
Reduced Sodium	At least 25% less sodium than the regular product
Light/Lite	At least 50% less sodium than the regular product

Table 3: Sodium descriptors on labels<sup>5</sup>

Blood Pressure Category	Systolic (mm Hg)		Diastolic (mm Hg)
Normal	Less than 120	AND	Less than 80
Elevated	120-129	AND	Less than 80
High Blood Pressure (hypertension) Stage 1	130-139	OR	80-89
High Blood Pressure (hypertension) Stage 2	140 or Higher	OR	90 or higher



<b>Food Group</b>	<b>Recommendations</b>	<b>Serving Size Examples</b>
<b>Grains (whole grains are recommended)</b>	6-8 servings	1 slice (1 ounces) bread 1 ounce of dry cereal ½ cup cooked rice, pasta, or cereal
<b>Vegetables</b>	4-5 servings	1 cup raw leafy vegetables ½ cup raw or cooked vegetables ½ cup vegetable juice
<b>Fruits</b>	4-5 servings	¼ cup dried fruit ½ cup fresh, frozen or canned fruit ½ cup fruit juice
<b>Fat free or low-fat milk products</b>	2-3 servings	1 cup milk or yogurt 1 ½ ounces of cheese
<b>Lean meats, poultry, fish and eggs</b>	6 servings or less	1 ounce of cooked lean meats, or fish 1 egg
<b>Nuts, seeds and legumes</b>	4-5 servings per week	1/3 cup or 1 ½ ounces nuts 2 tablespoons peanut butter ½ cup cooked legumes (dry beans/peas)
<b>Fats and oils</b>	2-3 servings per day	1 teaspoon soft margarine 1 teaspoon vegetable oil 1 tablespoon mayonnaise
<b>Sweets and added sugars</b>	5 servings or less per week	1 tablespoon sugar 1 tablespoon jelly or jam 8 ounces lemonade

Table 5: **DASH** Eating Plan for the 2000 Calorie level<sup>12</sup>

## CALCITONIN AND PARATHYROID HORMONE (PTH) hormonal regulation of blood calcium levels

