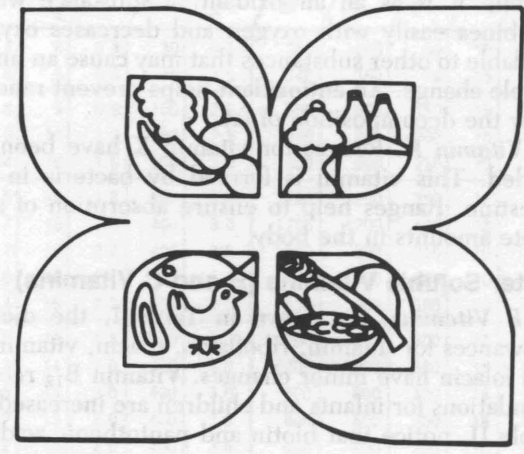


FACT SHEET

REVISED RECOMMENDED DIETARY ALLOWANCES

Mary K. Sweeten*



The Recommended Dietary Allowance, commonly known as the RDA, is a nutrition standard set forth by the Food and Nutrition Board, National Academy of Sciences, National Research Council. This guide was designed to safeguard the health of the entire United States population living in a moderate climate. Every 4 to 6 years this board of nutritionists meets to revise the Recommended Dietary Allowance.

RDA Revision

The 1980 Recommended Dietary Allowances included several important changes over the 1974 RDA. Slight modifications of weights for age and energy recommendations and minor adjustments of the recommendations for protein, thiamin, riboflavin and niacin, presumably for consistency with weight and energy changes, are made.

The revised RDA has the recommended energy intake in a separate table. In each age-sex category, there is a range of recommended energy levels. A new age category, 76 years and older, has been added. Generally the RDA's for certain vitamins, vitamin C, vitamin B₁₂, vitamin B₆ and iodine are increased.

Slight decreases are presented in recommendations for infants for folacin, magnesium and phosphorus; but other than that, recommendations for those nutrients as well as for vitamin A, calcium, iron and zinc are unchanged.

*Extension foods and nutrition specialist, The Texas A&M University System.

The most substantial revision is the inclusion of a new table, "Estimated safe and adequate daily dietary intakes of additional selected vitamins and minerals." Estimates for 12 nutrients — vitamin K, biotin, pantothenic acid, copper, manganese, fluoride, chromium, selenium, molybdenum, sodium, potassium and chloride — are presented. Ranges of safe and adequate intakes are listed for most of these nutrients.

Kilocalories (Calories)

Energy is expressed in kilocalories (calories), and is now included in a separate table (Table III). Notice its new standards for height and weight, the declining recommended energy levels for progressive age groups including 76 years and older, and wider range of energy needs given for age-sex groupings. A discussion of the sources of energy in the diet (protein, carbohydrates and fat) and dietary fiber are included in this revision.

Protein

The recommendation for protein allowances have not changed. Men require 56 grams of protein and women 46 grams of protein per day. Pregnant women require an additional 30 grams of protein daily. Protein is necessary for building and repairing all body tissues.

Fat Soluble Vitamins (A, D, E and K)

Vitamin A. No changes in the recommended allowances are made. Vitamin A will only be given in µg retinol equivalents.

Vitamin D. A vitamin D recommendation of 5 μ g is presented for adults. Prior to this revision the recommendation for adults was not given. This change emphasizes the need to maintain body calcium, directly affected by the presence of vitamin D, throughout adult life.

Vitamin E. Vitamin E recommendations are expressed in mg. with allowances decreasing to about two-thirds of the 1974 level. The main function of vitamin E is as an antioxidant, a substance which combines easily with oxygen and decreases oxygen available to other substances that may cause an undesirable change. An antioxidant helps prevent rancidity or the decomposition of fat.

Vitamin K. Ranges for vitamin K have been included. This vitamin is formed by bacteria in the intestine. Ranges help to ensure absorption of adequate amounts in the body.

Water Soluble Vitamins (B and C Vitamins)

B Vitamins. As shown in Table I, the dietary allowances for thiamin, riboflavin, niacin, vitamin B₆ and folacin have minor changes. Vitamin B₁₂ recommendations for infants and children are increased. In Table II, notice that biotin and pantothenic acid are added.

Vitamin C. The standard level of ascorbic acid, commonly referred to as vitamin C, is increased from 45 mg. to 60 mg. per day, a 25 percent increase. Vitamin C helps the body absorb iron. Excessive intake of vitamin C is not recommended unless prescribed by a physician.

Minerals

Calcium, phosphorus and magnesium remain the same as the 1974 RDA. Iron levels remain unchanged. Consumers are advised to eat vitamin C food sources along with foods containing iron. Food iron sources include two forms: *heme iron* from meat, poultry and fish; and *nonheme iron* from grains, vegetables and fruits. Consuming heme iron and ascorbic acid (vitamin C) during the same meal increases the rate of absorption of nonheme iron as much as four times.

Allowances for zinc remain unchanged but the iodine recommendations are up across the board.

Trace Minerals

Trace minerals have undergone major revision and addition. As shown in Table II, ranges now are given for copper, manganese, fluorine, chromium, selenium and molybdenum. Trace minerals tend to be toxic in the upper levels of the ranges. For this reason, these larger amounts of trace minerals should not be taken habitually.

Electrolytes

A major addition is the section shown in Table II for ranges of intakes of the electrolytes — sodium, potassium and chloride. Adults require 3 to 8 grams of salt (sodium chloride) daily. Consumers should limit the amount of salt they eat to reduce the possibility of hypertension.

Meal Planning

For the RDA to be meaningful, it must be translated into food groups. Insure that you obtain the Recommended Dietary Allowances each day by eating the recommended foods from the Daily Food Guide.

The Daily Food Guide recommends that adults eat two 2½- to 3-ounce servings from the Meat Group, two or more servings from the Milk Group daily (four if lactating), and four or more servings from the Fruit-Vegetable and Bread-Cereal Groups. Servings from the Other Group (fats or sweets) would depend on the number of calories you require.

References

1. Harper, Alfred E., "The Recommended Dietary Allowances," *Nutrition News*, April 1974, Vol. 37, No. 2.
2. Johnson, Paul E., "Recommended Dietary Allowances," *Food and Nutrition News*, December-January 1973-74, Vol. 45, No. 2.
3. *Journal of Nutrition Education*, Vol. 11, No. 4, October-December 1979, pp. 183.
4. Munro, Hamish H., "The Ninth Edition of the Recommended Dietary Allowances, Revised 1980," *Food and Nutrition News*, February 1980, Vol. 51, No. 3.

Table I.

**Food and Nutrition Board, National Academy of Sciences-National Research Council
RECOMMENDED DAILY DIETARY ALLOWANCES,^a Revised 1980
Designed for the maintenance of good nutrition of practically all healthy people in the U.S.A.**

	Age (years)	Weight		Height		Protein (g)	Fat-Soluble Vitamins				Water-Soluble Vitamins						Minerals					
		(kg)	(lbs)	(cm)	(in)		Vitamin A (μg R.E.) ^b	Vitamin D (μg/c)	Vitamin E (mg α T.E.) ^d	Vitamin C (mg)	Thiamin (mg)	Riboflavin (mg)	Niacin (mg N.E.) ^e	Vitamin B6 (mg)	Folic acid (μg)	Vitamin B12 (μg)	Calcium (mg)	Phosphorus (mg)	Magnesium (mg)	Iron (mg)	Zinc (mg)	Iodine (μg)
Infants	0.0-0.5	6	13	60	24	kg x 2.2	420	10	3	35	0.3	0.4	6	0.3	30	0.5 ^g	360	240	50	10	3	40
	0.5-1.0	9	20	71	28	kg x 2.0	400	10	4	35	0.5	0.6	8	0.6	45	1.5	540	360	70	15	5	50
Children	1-3	13	29	90	35	23	400	10	5	45	0.7	0.8	9	0.9	100	2.0	800	800	150	15	10	70
	4-6	20	44	112	44	30	500	10	6	45	0.9	1.0	11	1.3	200	2.5	800	800	200	10	10	90
	7-10	28	62	132	52	34	700	10	7	45	1.2	1.4	16	1.6	300	3.0	800	800	250	10	10	120
Males	11-14	45	99	157	62	45	1000	10	8	50	1.4	1.6	18	1.8	400	3.0	1200	1200	350	18	15	150
	15-18	66	145	176	69	56	1000	10	10	60	1.4	1.7	18	2.0	400	3.0	1200	1200	400	18	15	150
	19-22	70	154	177	70	56	1000	7.5	10	60	1.5	1.7	19	2.2	400	3.0	800	800	350	10	15	150
	23-50	70	154	178	70	56	1000	5	10	60	1.4	1.6	18	2.2	400	3.0	800	800	350	10	15	150
	51+	70	154	178	70	56	1000	5	10	60	1.2	1.4	16	2.2	400	3.0	800	800	350	10	15	150
Females	11-14	46	101	157	62	46	800	10	8	50	1.1	1.3	15	1.8	400	3.0	1200	1200	300	18	15	150
	15-18	55	120	163	64	46	800	10	8	60	1.1	1.3	14	2.0	400	3.0	1200	1200	300	18	15	150
	19-22	55	120	163	64	44	800	7.5	8	60	1.1	1.3	14	2.0	400	3.0	800	800	300	18	15	150
	23-50	55	120	163	64	44	800	5	8	60	1.0	1.2	13	2.0	400	3.0	800	800	300	18	15	150
	51+	55	120	163	64	44	800	5	8	60	1.0	1.2	13	2.0	400	3.0	800	800	300	10	15	150
Pregnant						+30	+200	+5	+2	+20	+0.4	+0.3	+2	+0.6	+400	+1.0	+400	+400	+150	^h	+5	+25
Lactating						+20	+400	+5	+3	+40	+0.5	+0.5	+5	+0.5	+100	+1.0	+400	+400	+150	^h	+10	+50

- ^a The allowances are intended to provide for individual variations among most normal persons as they live in the United States under usual environmental stresses. Diets should be based on a variety of common foods in order to provide other nutrients for which human requirements have been less well defined. See text for detailed discussion of allowances and of nutrients not tabulated. See Table III (p. 4) for weights and heights by individual year of age. See Table III (p. 4) for suggested average energy intakes.
- ^b Retinol equivalents. 1 retinol equivalent = 1 μg retinol or 6 μg β-carotene. See text for calculation of vitamin A activity of diets as retinol equivalents.
- ^c As cholecalciferol. 10 μg cholecalciferol = 400 I.U. vitamin D.
- ^d α tocopherol equivalents. 1 mg d-α-tocopherol = 1 α T.E. See text for variation in allowances and calculation of vitamin E activity of the diet as α tocopherol equivalents.
- ^e 1 N.E. (niacin equivalent) is equal to 1 mg of niacin or 60 mg of dietary tryptophan.

- ^f The folic acid allowances refer to dietary sources as determined by *Lactobacillus casei* assay after treatment with enzymes ("conjugases") to make polyglutamyl forms of the vitamin available to the test organism.
- ^g The RDA for vitamin B12 in infants is based on average concentration of the vitamin in human milk. The allowances after weaning are based on energy intake (as recommended by the American Academy of Pediatrics) and consideration of other factors such as intestinal absorption; see text.
- ^h The increased requirement during pregnancy cannot be met by the iron content of habitual American diets nor by the existing iron stores of many women; therefore the use of 30-60 mg of supplemental iron is recommended. Iron needs during lactation are not substantially different from those of nonpregnant women, but continued supplementation of the mother for 2-3 months after parturition is advisable in order to replenish stores depleted by pregnancy.

Table II.

**Estimated Safe and Adequate Daily Dietary Intakes
of Additional Selected Vitamins and Minerals^a**

	Age (years)	Vitamins			Trace Elements ^b						Electrolytes		
		Vitamin K (μg)	Biotin (μg)	Pantothenic Acid (mg)	Copper (mg)	Manganese (mg)	Fluoride (mg)	Chromium (mg)	Selenium (mg)	Molybdenum (mg)	Sodium (mg)	Potassium (mg)	Chloride (mg)
Infants	0-0.5	12	35	2	0.5-0.7	0.5-0.7	0.1-0.5	0.01-0.04	0.01-0.04	0.03-0.06	115-350	350-925	275-700
	0.5-1	10-20	50	3	0.7-1.0	0.7-1.0	0.2-1.0	0.02-0.06	0.02-0.06	0.04-0.08	250-750	425-1275	400-1200
Children and Adolescents	1-3	15-30	65	3	1.0-1.5	1.0-1.5	0.5-1.5	0.02-0.08	0.02-0.08	0.05-0.1	325-975	550-1650	500-1500
	4-6	20-40	85	3-4	1.5-2.0	1.5-2.0	1.0-2.5	0.03-0.12	0.03-0.12	0.06-0.15	450-1350	775-2325	700-2100
Adults	7-10	30-60	120	4-5	2.0-2.5	2.0-3.0	1.5-2.5	0.05-0.2	0.05-0.2	0.1-0.3	600-1800	1000-3000	925-2775
	11+	50-100	100-200	4-7	2.0-3.0	2.5-5.0	1.5-2.5	0.05-0.2	0.05-0.2	0.15-0.5	900-2700	1525-4575	1400-4200

^a Because there is less information on which to base allowances, these figures are not given in the main table of the RDA and are provided here in the form of ranges of recommended intakes.

^b Since the toxic levels for many trace elements may be only several times usual intakes, the upper levels for the trace elements given in this table should not be habitually exceeded.

Table III.

Mean Heights and Weights and Recommended Energy Intake

Category	Age (years)	Weight		Height		Energy Needs (with range)	
		(kg)	(lb)	(cm)	(in)	(kcal)	(MJ)
Infants	0.0 - 0.5	6	13	60	24	kg X 115 (95-145)	kg X .48
	0.5 - 1.0	9	20	71	28	kg X 105 (80-135)	kg X .44
Children	1 - 3	13	29	90	35	1300 (900 - 1800)	5.5
	4 - 6	20	44	112	44	1700 (1300 - 2300)	7.1
	7 - 10	28	62	132	52	2400 (1650 - 3300)	10.1
Males	11 - 14	45	99	157	62	2700 (2000 - 3700)	11.3
	15 - 18	66	145	176	69	2800 (2100 - 3900)	11.8
	19 - 22	70	154	177	70	2900 (2500 - 3300)	12.2
	23 - 50	70	154	178	70	2700 (2300 - 3100)	11.3
	51 - 75	70	154	178	70	2400 (2000 - 2800)	10.1
	76 +	70	154	178	70	2050 (1650 - 2450)	8.6
Females	11 - 14	46	101	157	62	2200 (1500 - 3000)	9.2
	15 - 18	55	120	163	64	2100 (1200 - 3000)	8.8
	19 - 22	55	120	163	64	2100 (1700 - 2500)	8.8
	23 - 50	55	120	163	64	2000 (1600 - 2400)	8.4
	51 - 75	55	120	163	64	1800 (1400 - 2200)	7.6
	76 +	55	120	163	64	1600 (1200 - 2000)	6.7
Pregnancy						+ 300	
Lactation						+ 500	

The data in this table have been assembled from the observed median heights and weights of children shown in Table I, together with desirable weights for adults given in Table II for the mean heights of men (70 inches) and women (64 inches) between the ages of 18 and 34 years as surveyed in the U.S. population (HEW/NCHS data).

The energy allowances for the young adults are for men and women doing light work. The allowances for the two older age groups represent mean energy needs over these age spans, allowing for a 2% decrease in basal (resting) metabolic rate per decade and a reduction in activity of 200 kcal/day for men and women between 51 and 75 years, 500 kcal for men over 75 years and 400 kcal for women over 75 (see text). The customary range of daily energy output is shown for adults in parentheses, and is based on a variation in energy needs of ± 400 kcal at any one age (see text and Garrow, 1978), emphasizing the wide range of energy intakes appropriate for any group of people.

Energy allowances for children through age 18 are based on median energy intakes of children these ages followed in longitudinal growth studies. The values in parentheses are 10th and 90th percentiles of energy intake, to indicate the range of energy consumption among children of these ages (see text).

Tables I, II, and III from: *Recommended Dietary Allowances, Revised 1980*, Food and Nutrition Board, National Academy of Sciences-National Research Council, Washington, D.C.

Appreciation is given to Rose Tindall Postel and Marilyn Haggard, Extension foods and nutrition specialists, in preparation of this publication.

Educational programs conducted by the Texas Agricultural Extension Service serve people of all ages regardless of socio-economic level, race, color, sex, religion or national origin.

Cooperative Extension Work in Agriculture and Home Economics, The Texas A&M University System and the United States Department of Agriculture cooperating. Distributed in furtherance of the Acts of Congress of May 8, 1914, as amended, and June 30, 1914.
20M—11-80, Revised