



Republic of the Philippines  
Department of Health  
**BUREAU OF FOOD AND DRUGS**  
Filinvest Corporate City  
Alabang, Muntinlupa City

Administrative Order  
No. 4-A s. 1995

## **GUIDELINES ON MICRONUTRIENT FORTIFICATION OF PROCESSED FOODS**



### **SECTION I. AUTHORITY**

This Order is issued pursuant to Article 7, 17, 21, and 22 of R.A. 7394 known as the Consumer Act of the Philippines.

### **SECTION II. OBJECTIVES**

1. The Department of Health issues these guidelines to improve the nutritional quality of the nation's food supply.
  - 1.1. These guidelines shall serve as a basis for the rational addition of nutrient(s) to processed foods, so that the nutritional quality of the Filipino diet can be improved and maintained.
  - 1.2. These guidelines are intended to avoid over-or-under fortification that may create imbalance in the diet as well as avoid misleading label claims to gain competitive marketing advantage.

### **SECTION III. DEFINITION OF TERMS**

For purposes of these Guidelines, the following definitions shall apply:

1. Fortification shall mean the addition of nutrients to processed foods at levels above the natural state.
2. Processed food shall refer to food that has been subjected to some degree of processing (e.g. milling, drying, concentrating, canning, etc) which partially or completely changes the physico-chemical and/or sensory characteristics of the raw material.
3. Unprocessed food shall refer to food that has not undergone any treatment resulting in substantial change in the original state but which may have been divided, boned, skinned, peeled, ground, cut, cleaned, trimmed, fresh frozen or chilled.
4. Department means Department of Health.
5. RDA means Recommended Dietary Allowances.
6. BFAD means the Bureau of Food and Drugs

#### **SECTION IV. STATEMENT OF POLICIES**

1. Food fortification shall be vital where there is a demonstrated need to increase the intake of an essential nutrient by one or more population groups as manifested in dietary, biochemical or clinical evidences of deficiency. It shall also be considered important to compensate for nutrient losses due to processing storage.
2. The Department recognizes that the nutritional deficiency problems in the Philippines based on recent nutrition surveys include deficiencies in energy, iron, vitamin A, thiamin, riboflavin, and iodine (Annex A). The Filipino diet is also deficient in ascorbic acid, calcium and folate to a minor extent Food fortification shall thus be mainly carried out to fill up these inadequacies in Filipino diets, based on present-day needs as measured using the more recent RDAs (Annex B)
3. Food fortification shall not be encouraged in alcoholic beverages and candies because excessive consumption as a result of undue promotion of these fortified products may lead to health problems.
4. Food fortification shall be highly encouraged for foods that are widely consumed particularly by at-risk population groups. Examples of such foods are:
  - cereals (e.g. wheat flour, milled rice, corn grits) and cereal-based products (e.g. snack foods, instant noodles) ..... with iron and B complex vitamins
  - juices, flavored drinks and food gels ..... with vitamin C
  - filled milk, cooking oil and margarine ..... with vitamin A
  - salt ..... With iodine
5. Fortification shall be recommended for processed foods replace or simulate traditional foods to compensate for nutritional inferiority due to use of substitute ingredients.

#### **SECTION V. COVERAGE**

These Guidelines shall apply to all fortified foods except dietary supplements and foods for which established standards include specifications for nutrient composition or levels of fortification, e.g. breastmilk substitutes, follow-up formula.

#### **SECTION VI. FOOD FORTIFICATION GUIDELINES**

1. A nutrient shall be considered an appropriate fortificant only when the nutrient:
  - a. is stable in the food vehicle under normal conditions of storage, distribution and use;
  - b. is physiologically available from the food;
  - c. is present at a level at which there is a reasonable assurance that consumption of the food containing the added nutrient(s) will not result in an excessive intake of the nutrient(s), considering cumulative amounts from other sources in the diets; and
  - d. is suitable for its intended purpose and in compliance with applicable provisions of R.A. 3720\*<sup>1</sup> and regulations governing the safety of substances in foods.
2. Processed foods may be fortified with nutrients that are not considered deficient in the Filipino diet if the purpose is to restore losses in the food due to processing or to preserve/maintain a balance of nutrients in the processed food.
3. Fortification is appropriate when essential nutrient(s) is (are) added in proportion to the total caloric content of food.  
Processed foods that contain at least 40 kilocalories per normal serving (that is, 2% of a daily intake of 2000 kilocalories) may be fortified to balance the nutrient-caloric content of the food.

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<sup>1</sup> Food, Drug and Devices, and Cosmetic Act, as amended

4. Processed foods that are consumed not for its caloric contribution to the diet (e.g. condiments, seasoning/spices) may be fortified only with essential nutrients that are deficient in the Filipino diet, PROVIDED such foods are appropriate vehicles for the particular nutrient(s) and are widely consumed by the general population or are intended for intervention programs to address micronutrient deficiency in specific target populations.
5. The fortification level shall be in accordance with the following principles, unless otherwise provided in a separate guideline/standard for specific processed food.
  - 5.1. For essential nutrients that are deficient in the Filipino diet, the added nutrients shall supply at least 1/3 of the RDA of the target consumer (refer to Annex E, Table 1), except that vitamin C shall be supplied at not less than 100% of the RDA in fortified juices/flavored drinks. These levels shall be uniformly distributed in the total number of servings likely to be consumed in a day.

Hence, the minimum fortification level shall be computed in the following manner:

$$\text{Fortification level per 100 g} = (A/(B \times C)) \times 100$$

Where A = 1/3 RDA of the target consumer

B = no. of servings like to be consumed per day

C = serving size (amount of food normally eaten at one time)

To get fortification level per serving, divide A by B. In the case of processed foods that will be cooked before consumption, the losses due to the prescribed cooking directions may be compensated accordingly when determining the amount of nutrient(s) to be added.

Examples of fortification levels computed as above:

Ready-to-eat flour-based products (e.g. bread, snack food) fortified with iron and B-complex vitamins - assuming 2 servings are like to be consumed by a male adult (20-39y, 56 kg) in a day, and at 30 grams/serving, shall be fortified as follows:

Thiamin	-	0.22 mg/serving (=0.72 mg/100g)
Riboflavin	-	0.22 mg/serving (=0.72 mg/100g)
Iron	-	2.0 mg/serving (=6.7 mg/100g)

Margarine fortified with vitamin A and thiamin - assuming 2 servings are likely to be consumed by a male adult (20-39y, 56 kg) in a day, and at 15 grams/serving, shall be fortified as follows:

Vitamin A	-	87.4 ug RE/serving (=583 ug RE/100g)
Thiamin	-	0.21 mg/serving (=1.4 mg/100g)

Packaged fruit-flavored drinks fortified with vitamin C - assuming 2 servings are likely to be consumed by a male adult (20-39y, 56 kg) in a day, and at 250 mL per serving, shall be fortified as follows:

Vitamin C	-	38 mg/serving (=30 mg/200 mL serving)
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- 5.2. For nutrients that are essential but have not been established to be deficient in the Filipino diet, the added nutrients shall supply at least 1/5 (or 20%) of the RDA of the target consumer (refer to Annex E, Table 2)
- 5.3. For nutrients that are essential but have no established RDA, the added nutrients shall supply at least 20% of the estimated safe and adequate levels for daily intake as recommended by the Food and Nutrition Board of the U.S. National Research Council. (refer to Annex E, Table 2)

- 5.4. For processed foods to be fortified with nutrient(s) with known toxicity (e.g. vitamins A, D, E, K, Zn, Se), the level of such nutrient(s) in the food shall not exceed 150% of the RDA for the target consumer per prescribed serving(s) likely to be consumed per day.
- 5.5. For essential amino acids, fortification levels shall be in accordance with the recommendations of the Joint FAO/WHO/UNU Expert Consultation on Energy and Protein Requirements. (WHO TRS 724, 1985) Food manufacturers who wish to fortify their products with amino acids are required to consult a qualified professional with expertise in human nutrition and shall submit a certificate of such consultation.
- 5.6. For nutrients that have not been established as essential for humans fortification with such nutrients shall be at a significant level above the natural state as determined by the precision of the analytical method at its lowest detection limit.
- 5.7. The reference RDAs to be used in compliance with the above fortification guidelines are shown in the tables in Annex E.
- 5.8. For nutrients with Philippine RDA, the reference RDA shall be those of a Filipino male adult, 20-39y, 56 kg.
- 5.9. For nutrients without established Philippine RDA, the USRDA shall be used, particularly of the male adult, 19-24, 72 kg.
- 5.10. For processed foods specifically intended for children (after infancy and below 10 years), the reference RDA shall be that of a child in the 4 to 6 years age group.
- 5.11. Where no RDA has been prescribed for a nutrient, safety considerations shall be applied and the safety of the use of such nutrient in a particular food shall be supported by the user/claimant (producer/distributor)

## **SECTION VII. LABELING OF FORTIFIED PROCESSED FOODS**

The following label declarations shall be required for fortified processed foods, in addition to other requirements under BFAD's food labeling regulations.

1. Only when the levels of fortification provided in Section 6 are met and when the nutrient content analysis, at any point in time within the shelf-life of the product, show at least 80% to 90% of the claimed fortification level depending on the nutrient analyzed and the precision of the analytical methods used, shall the claim "FORTIFIED" be considered valid.
2. Fortification claims shall be based on the processed food as packaged and purchased by the consumer.
3. The fortification level shall be appropriately presented on the label indicating the following information:

- |  |
|--|
| <ul style="list-style-type: none"><li>• Number of servings per container/package</li><li>• Serving Size by weight or volume*</li><li>• Calories per serving (kcal)</li><li>• Nutrients added and their corresponding amount expressed as % RDA per serving</li></ul> |
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\*by weight for solid food and volume for liquid food

- 3.1. If the food as packaged is not ready-to-eat and will be consumed after simply mixing with water (or other edible liquid), the amount of nutrient fortificant shall be declared in terms of %RDA per the specified amount needed to make one serving of the ready-to-eat food.
- 3.2. If the food is not ready-to-eat as packaged and is used as an ingredient for the preparation of another food, the amount of the nutrient fortificant added shall be

declared as %RDA per 100 grams of the packaged food and, optionally, as %RDA per specified amount used in a given product recipe.

- 3.3. The %RDA per 100 kcal of the packaged food may also be declared on the label when such food contains at least 40 kcal per serving.
4. The terms "enriched", "added with", "supplemented with" and other similar terms shall be equivalent to the term "fortified". Descriptive terms like "rich in", "good source of", "excellent source of" shall not necessarily imply fortification and shall be used in accordance with BFAD's food labeling regulations.

#### **SECTION VIII. COMPLIANCE AND ADMINISTRATIVE SANCTIONS**

1. These guidelines shall be applied in the registration of fortified processed food products in the BFAD.
2. The BFAD itself or BFAD in coordination with the recognized agencies or institutions listed in Annex "F" shall monitor the micronutrient of fortified processed food.
3. A processed food claiming fortification shall be considered mislabelled unless the fortification levels comply with these guidelines except when the deviation from the fortification levels herein set are just and are properly declared in the labelling.
4. The BFAD, after notice and hearing, may impose any or all of the following administrative sanctions in case of non-compliance with these guidelines.
  - 4.1. Order the recall of the products declared/found as mislabelled fortified food
  - 4.2. Order the correction of the labeling of the fortified food products
  - 4.3. Impose administrative fines provided for by existing laws
  - 4.4. Suspend or cancel the registration of the product.

#### **SECTION IX. TRANSITION PERIOD**

1. All the manufacturers or food processors are given six (6) months from effectivity to comply with these guidelines.
2. All food products that are not otherwise adulterated or mislabelled produced before the expiration of this 6-month period shall be allowed to stay in the market up to the expiration of their shelf-life.

#### **SECTION X. EFFECTIVITY**

This Order shall be effective after its publication in two newspapers of general circulation at least once a week for a period of not less than one (1) month pursuant to Art. 8 of RA 7394.

**(Sgd) JAIME Z. GALVES-TAN, M.D., M.P.H.**  
Acting Secretary of Health

RECOMMENDING APPROVAL

**(Sgd) QUINTIN L. KINTANAR, M.D., Ph.D., CESO I**  
Director

**Annex A**

## Percent Adequacy of Per Capita Daily Nutrient Intake Philippines 1987

<b>Nutrient</b>	<b>Intake</b>	<b>RDA</b>	<b>% Adequacy</b>
Energy (kcal)	1,753	2,013	87.1
Protein (g)	49.7	50.6	98.2
Iron (mg)	10.7	11.7	91.5
Calcium (mg)	0.42	0.56	75.0
Retinol Equivalent (ug)	390.0	513.6	75.9
Thiamin (mg)	0.68	1.02	66.7
Riboflavin (mg)	0.56	1.03	54.4
Niacin (mg)	16.3	13.6	119.9
Ascorbic acid (mg)	53.6	67.6	80.0

**Recognized Agencies or Institutions with Analytical Laboratories  
that offer services for nutrient analysis to the food industry**

**Government Agencies or Institutions**

**Department of Agriculture**

Bureau of Plant Industry  
Laboratory Services Division  
San Andres, Malate, Manila

Philippine Coconut Authority  
Analytical Laboratories  
Don Mariano Marcos Avenue  
Diliman, Quezon City

Food Development Center  
FTI Complex, Taguig  
Metro Manila

**Department of Health**

Bureau of Food and Drugs  
Laboratory Services Division  
Alabang, Muntinlupa, Manila

**University of the Philippines at Diliman**

Natural Science Research Institute  
Analytical Services Laboratories

Institute of Chemistry  
Analytical Services Laboratories

**University of the Philippines at Los Banos**

Institute of Chemistry  
Analytical Services Laboratories

**Department of Science and Technology**

Food and Nutrition Research Institute  
Food Quality and Safety Section  
Bicutan, Taguig, Metro Manila

Industrial Technology Development Institute  
Standards and Testing Division  
Bicutan, Taguig, Metro Manila

Private Institutions and Laboratories  
Philippine Institute of Pure and Applied Chemistry (PIPAC)  
Ateneo de Manila University  
Loyola Heights, Quezon City

SGS Phils Testing and Control Services  
Agricultural Laboratory  
Don Tim Bldg., South Superhighway, Makati

Annex D

**NUTRIENT FOR FORTIFICANTS FOR PROCESSED FOODS**

VITAMINS/PROVITAMINS

<b>Vitamin A</b>	:	Retinol acetate, retinol palmitate
<b>Pro-Vitamin A</b>	:	Beta carotene
<b>Vitamin B1</b>	:	Thiamin Hydrochloride Thiamin Mononitrate
<b>Vitamin B2</b>	:	Riboflavin Riboflavin-5-phosphate (sodium salt of)
<b>Vitamin B3</b>	:	Niacin or nicotinic acid Niacinamide or nicotinamide Niacinamide ascorbate
<b>Vitamin B6</b>	:	Pyridoxine Hydrochloride
<b>Vitamin B12</b>	:	Cyanocobalamin
<b>Other B Vitamins</b>	:	Folic acid Pantothenic acid (calcium salt of), panthenol
<b>Vitamin C</b>	:	Ascorbic acid (calcium/ sodium salt of)
<b>Vitamin D2</b>	:	Ergocalciferol
<b>Vitamin D3</b>	:	Cholecalciferol
<b>Vitamin E</b>	:	DL-alpha-tocopherol D-alpha-tocopherol DL-alpha-tocopheryl acetate D-alpha-tocopheryl acetate Tocopherols, mixed concentrate
<b>Vitamin H</b>	:	Biotin
<b>Vitamin K</b>	:	Phytonadione

MINERALS

<b>Calcium</b>	:	Calcium (non-calcinated or calcinated) Calcium carbonate Calcium chloride Calcium citrate Calcium lactate Calcium oxide Calcium phosphate (mono,di-,and tri-basic,glycero-, pyro-)
<b>Copper</b>	:	Copper Gluconate Copper Sulfate
<b>Iodine</b>	:	Copper Iodine Potassium Iodine Potassium Iodate (for table salt only)



**Iron:**  
Ferric ammonium citrate  
Ferric phosphate  
Ferric pyrophosphate  
Ferric sodium pyrophosphate  
Ferrous fumarate  
Ferrous gluconate  
Ferrous lactate  
Ferrous sulfate  
Iron, reduced elemental  
Sodium iron edta

**Magnesium:**  
Magnesium carbonate  
Magnesium chloride  
Magnesium lactate  
Magnesium oxide  
Magnesium phosphate, (di- and tribasic)  
Magnesium sulfate

**Manganese:**  
Manganese chloride  
Manganese citrate  
Manganese gluconate  
Manganese glycerophosphate  
Manganese sulfate

**Zinc:**  
Zinc chloride  
Zinc gluconate  
Zinc oxide  
Zinc stearate  
Zinc sulfate :

## REFERENCE RDA VALUES

**Table 1. Essential nutrients that are deficient in the Filipino diet**

NUTRIENT	RDA (Adult)	1/3 RDA	RDA (Adult)	1/3 RDA
Vitamin A and Provitamin a, ug RE	525	175	375	125
Vitamin C, mg	75	25	45	15
Thiamin, mg	1.3	0.43	0.8	0.27
Riboflavin, mg	1.3	0.43	0.8	0.27
Folate, ug	170	56.7	60	20
*Calcium, mg	500	167	600	200
Iron, mg	12	4	10	3.3
Iodine, mg	120	40	65	22

\*Calcium and phosphorous should be present in 1:1 proportion

Note: Vitamin A and Iodine are nutrients with known toxicity.

**Table 2. Essential nutrients that have not been established as deficient in the Filipino diet**

NUTRIENT	RDA (Adult)	1/5 RDA (20%)	RDA (Child)	1/5 RDA (20%)
Niacin, mg	25	5	12	2.4
Vitamin B6, mg	2	0.4	1.1	0.22
Vitamin B12, ug	2	0.4	1.0	0.20
Vitamin D, ug CF	10	2	10	2.0
Vitamin E, mg TE	10	2	7	1.4
Vitamin K, ug	70	14	20	4.0
Magnesium, mg	350	70	120	24
Zinc, mg	15	3	10	2.0
Selenium, ug	70	14	30	14

Note: Vitamins D, E, K, zinc and selenium are nutrients with known toxicity.

**Table 3. Estimated safe and adequate daily intake of essential nutrients that have no established RDA\***

Age Group (years)	Biotin (ug)	Pantothenic Acid (mg)	Copper (mg)	Manganese (mg)
Infants 0 - 0.5	10	2	0.4-0.6	0.3-0.6
0.5 - 1.0	15	3	0.6-0.7	0.6-1.0
Children/Adolescents				
1 - 3	20	3	0.7-1.0	1.0-1.5
4 - 6	25	3-4	1.0-1.5	1.5-2.0
7 - 10	30	4-5	1.0-2.0	2.0-3.0
11+	30-100	4-7	1.5-2.5	2.0-5.0
Adults	30-100	4-7	1.5-3.0	2.0-5.0

\*Reference: Recommended Dietary Allowances, 10<sup>th</sup> edition

Food and Nutrition Board, National Research Council, Washington, D.C.

**Recognized agencies or institutions with analytical laboratories  
that offer services for nutrient analysis to the food industry**

*Government Agencies or Institutions*

**DEPARTMENT OF AGRICULTURE**

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**DEPARTMENT OF HEALTH**

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Laboratory Services Division  
Alabang, Muntinlupa, Manila

**UNIVERSITY OF THE PHILIPPINES at Diliman**

Natural Science Research Institute  
Analytical Services Laboratories

Institute of Chemistry  
Analytical Services Laboratories

**UNIVERSITY OF THE PHILIPPINES at Los Baños**

Institute of Chemistry  
Analytical Services Laboratories

**DEPARTMENT OF SCIENCE AND TECHNOLOGY**

Food and Nutrition Research Institute  
Food Quality and Safety Section  
Bicutan, Taguig, Metro Manila  
*Private Institutions or laboratories*

Industrial Technology Development Inst.  
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## ANNEX B

Food and Nutrition Research Institute: Recommended Dietary Allowances  
for Filipinos for Energy and Specific Nutrients (Average per Day), 1989 Edition

Designed to maintain health and provide reasonable levels of reserves in body tissues of nearly all healthy persons in the population.

Age (y)	Weight kg	Energy (Kcal)	Protein g	Vit. A ug RE	Vit. C mg	Thiamin mg	Riboflavin mg	Niacin mg NE	Folate ug	Calcium mg	Iron mg	Iodine ug
Infants: 3-<6 mo.	6	620	8	325	30	0.3	0.3	5	20	300	10	40
6-<12 mo.	9	880	14	325	30	0.4	0.4	8	30	400	15	50
Children: 1-3 yrs.	13	1350	27	350	35	0.7	0.7	13	40	600	9	55
4-6	18	1600	32	375	45	0.8	0.8	15	60	600	10	65
7-9	24	1740	35	400	55	0.9	0.9	17	80	600	12	70
Males: 10-12	32	2090	45	425	65	1.0	1.0	20	100	700	16	85
13-15	44	2340	60	475	75	1.2	1.2	22	140	700	18	105
16-19	55	2580	69	525	90	1.3	1.3	25	170	700	17	120
20-39	56	2570	60	525	75	1.3	1.3	25	170	500	12	120
40-49	56	2440	60	525	75	1.2	1.2	23	170	500	12	120
50-59	56	2320	60	525	75	1.2	1.3	22	170	500	12	120
60-69	56	2090	60	525	75	1.0	1	20	170	500	12	120
70+	56	1880	60	525	75	0.9	0.9	18	170	500	12	120
Females: 10-12	35	1910	49	400	70	1.0	1	18	110	700	17	80
13-15	44	2010	56	425	75	1.0	1	19	140	700	(21)b	100
16-19	48	2020	56	450	80	1.0	1	19	150	700	(25)b	100
20-39	49	1900	52	450	70	1	1	18	150	500	(26)b	100
40-49	49	1800	52	450	70	0.9	0.9	17	150	500	(26)b	100
50-59	49	1710	52	450	70	0.8	0.8	16	150	500	11	100
60-69	49	1540	52	450	70	0.8	0.8	15	150	500	11	100
70+	49	1390	52	450	70	0.7	0.7	13	150	500	11	100
Pregnancy												
1st trimester		+000	+9	+25	+10	+0.0	+0.0	+0	+200	+400	(41)b	+25
2nd trimester		+300	+9	+25	+10	+0.3	+0.6	+3	+200	+400	(41)b	+25
3rd trimester		+300	+9	+25	+10	+0.3	+0.6	+3	+200	+400	(41)b	+25
Lactation:												
1st 6 mo		+500	+16	+325	+35	+0.4	+0.4	+0.5	+100	+400	(23)b	+50
2nd 6 mo		+500	+12	+275	+30	+0.4	+0.4	+0.5	+100	+400	(23)b	+50

a- Will be met if energy needs are met. See text.

b - These recommended dietary allowance cannot be met by the usual diet, thus, supplementation is recommended.

**FOOD AND NUTRITION BOARD, NATIONAL ACADEMY OF SCIENCES-  
NATIONAL RESEARCH COUNCIL, RECOMMENDED DIETARY ALLOWANCES, Revised 1989**

Designed for maintenance of good nutrition of practically all healthy people in the United States

Category	Age (y)/ Condition	Weight		Height		Protein (g)	Fat-Soluble Vitamins					Water-Soluble Vitamins						Minerals						
		(kg)	(lbs)	(cm)	(in)		Vit. A (mcg RE)	Vit. D (mcg)	Vit. E (mcg TE)	Vit. K (mcg)	Vit. C (mcg)	Thiamin (mg)	Riboflavin (mg)	Niacin (mg NE)	Vit B6 (mg)	Folate (mcg)	Vit. B12 (mcg)	Calcium (mg)	Phosphorus (mg)	Magnesium (mg)	Iron (mg)	Zinc (mg)	Iodine (mcg)	Selenium (mcg)
Infants	0.0-0.5	6	13	60	24	13	375	7.5	3	5	30	0.3	0.4	5	0.3	25	0.3	400	300	40	6	5	40	10
	0.5-1.0	9	20	71	28	14	375	10	7	10	35	0.4	0.5	6	0.6	35	0.5	600	500	60	10	5	50	15
Children	1-3	13	29	90	35	16	400	10	6	15	40	0.7	0.8	9	1	50	0.7	800	800	80	10	10	70	20
	4-6	20	44	112	44	24	500	10	7	20	45	0.9	1.1	12	1.1	75	1	800	800	120	10	10	90	20
	7-10	28	62	132	52	28	700	10	7	30	45	1	1.2	13	1.4	100	1.4	800	800	170	10	10	120	30
Males	11-14	45	99	157	62	45	1000	10	10	45	50	1.3	1.5	17	1.7	150	2	1200	1200	270	12	15	150	40
	15-18	66	145	176	69	59	1000	10	10	65	60	1.5	1.8	20	2	200	2	1200	1200	400	12	15	150	50
	19-24	72	160	177	70	58	1000	10	10	70	60	1.5	1.7	19	2	200	2	1200	1200	350	10	15	150	70
	25-50	79	174	176	70	63	1000	5	10	80	60	1.5	1.7	19	2	200	2	800	800	350	10	15	150	70
	51+	77	170	173	68	63	1000	5	10	80	60	1.2	1.4	15	2	200	2	800	800	350	10	15	150	70
Females	11-14	46	101	157	62	46	800	10	8	45	50	1.1	1.3	15	1.4	150	2	1200	1200	280	15	12	150	45
	15-18	55	120	163	64	44	800	10	8	55	60	1.1	1.3	15	1.5	180	2	1200	1200	300	15	12	150	50
	19-24	58	128	164	65	46	800	10	8	60	60	1.1	1.3	15	1.6	180	2	1200	1200	280	15	12	150	55
	25-50	63	138	163	64	50	800	5	8	65	60	1.1	1.3	15	1.6	180	2	800	800	280	15	12	150	55
	51+	65	143	160	63	50	800	5	8	65	60	1	1.2	13	1.6	180	2	800	800	280	10	12	150	55
Pregnant						60	800	10	10	65	70	1.5	1.6	17	2.2	400	2.2	1200	1200	300	30	15	175	65
Lactating	1st 6 mos					65	1300	10	12	65	95	1.6	1.8	20	2.1	280	2.6	1200	1200	355	15	19	200	75
	2nd 6 mos					62	1200	10	11	65	90	1.6	1.7	20	2.1	260	2.6	1200	1200	340	15	16	200	75

The allowances, expressed as average daily intakes overtime, are intended to provide for individual variations among most normal persons as they live in the United States under usual environment 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 weights and heights of Reference Adults are actual medians for the U.S. population of the designated age, as reported by NHANES II. The median weights and heights of those under nineteen years of age were taken from Hamil et al. (1979) (see page 16-17). The use of

this figure does not imply that the height-to-weight ratios are ideal. C. Retinol equivalent. One retinol equivalent = 1 ug retinol or 6 ug beta-carotene. See text for calculation of vitamin A activity of diets as retinol equivalents. D. As cholecalciferol. 10 ug cholecalciferol = 40 IU of vitamins D