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Choosing Food for Health – a guide to Nutrition

Michigan State University

Cooperative Extension Service

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# Choosing Food for Health — a guide to nutrition

BY ANITA DEAN

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COOPERATIVE EXTENSION SERVICE — MICHIGAN STATE UNIVERSITY

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## How Do You Feel About Food?

### ARE YOU NUTRITION-CONSCIOUS?

IF YOU'RE LIKE THE REST of us, you enjoy eating. It's a pleasant experience; and it leaves us feeling satisfied. While enjoying tasty food most people seldom think how vital it is to health and well being. But, we *are* becoming more nutrition-conscious — concerned whether we are eating what we need for health, and we're attempting to change our buying, cooking and eating patterns in the interest of our health. At the same time we are con-

fused by the conflicting research reports from a variety of sources, highly-publicized diets and bits of information we see and hear daily in print and on radio and television. This bombardment of information constantly reminds us that we need to know about the nutritive content of foods, which ones are the best sources of essential nutrients and how to combine them into tasty, healthful meals and snacks.

## Everyone Needs to be Nutrition-Conscious

### MOMS, DADS AND OTHERS

You bear the major responsibility for feeding your families. Although others share it with you when shopping and preparing foods, you control, to a large extent, what food comes into your homes, goes into the refrigerator, and on your tables.

We all want our families to eat foods they need for proper growth and development. We want to protect our family's health. We can do this only when we understand our family's food needs and plan and prepare appetizing, nourishing meals.

Over the years, the daily meals we serve provide a model our children can follow throughout their lives. Example can teach children to enjoy a wide variety of foods without their even thinking about it. Chances are your family "eats out" more often today than you once did. Does everyone in the family know how to choose a balanced meal in a fast-food restaurant or cafeteria? Do their choices fit their total energy needs? The more they know about foods and nutrition, the easier it is for them to make such choices.

Daily food guides such as the "Basic 4" or the "Basic 7" are very adaptable to our needs. (These guides are outlined on page 4.) Each of us can choose foods in the amounts required to meet individual needs — provided we are nutrition-conscious and know what is needed.

### INFANTS AND YOUNG CHILDREN

The saying "As the twig is bent, the tree inclines," doesn't apply only to trees. Lifelong eating habits are formed early. The first year of life is a period of very rapid growth. Even to the infant, food is of enormous importance socially and psychologically. Growth rates slow down during the preschool years, and appetites decrease accordingly. That is when young children are more likely to develop good food habits for life, if Mother adjusts regular family foods to their special tastes and needs. Enjoying a variety of foods is a primary requirement in developing good eating habits.



## TEENAGERS

Teenagers grow at a faster rate than at any other time except infancy. Nutritional needs are high, and appetites are huge. There is nothing nutritionally bad about teen favorites — hamburgers, hot dogs, pizzas, etc. But, encourage your teenager to supplement these with other foods that supply other nutrients.

Show them how to select a salad in place of, or along with, french fries, milk in place of lunchtime soft drink, or a piece of fruit instead of a sweet dessert. If they learn at home, they will be more likely to remain nutrition-conscious when they're sharing snacks with friends outside the home.

## YOUNG ADULTS

You are on your own — studying, working, preparing for your future, enjoying life in general. You like to eat well, and you're inclined to take health and nutrition for granted. Remember — you are over the threshold into the longest span of your life. Good food is as important now as it ever was.

## OLDER ADULTS

All the foods of the Basic 4 (page 4) are essential for active good health in the later years. The form and type of food selected may change, but foods from each group are still needed daily. The need for energy (calories) decreases somewhat as you get older and less active, so fit your diet to the amount of energy you use.

## THE CHOICE IS YOURS

You have a fantastic range of foods to choose from at your supermarket. How do you make your way through the maze of foods — milk, meat, vegetables and fruits, breads and cereals in their countless forms, next to endless rows of tempting snacks, beverages, desserts and baked goods.

Many of these are "convenience foods" which slash the time required for preparation. Some cost less than the homemade product; most cost more. How much are you spending for convenience? Do you know the nutritive value of the convenience foods you buy? Do they taste as good as your homemade product? How much would it cost you to prepare this same food at home?

# *Foods, Foods & Still More Food: An Advantage or Not?*

## WHAT IS AN ADEQUATE DIET? A BALANCED DIET?

If we are nutrition-conscious, we can easily select a variety of foods which will supply our bodies with all the necessary nutrients required for health without too many calories. Regardless of age, everyone needs the same nutrients but in different amounts. By paying close attention to the number and size of the servings, and the method of preparation, we can vary the amount of essential nutrients and calories consumed.

Take a variety of basic foods — poultry, fish, meat, milk, eggs, vegetables and fruits, and whole grain and enriched cereals and breads. Select something from each of these kinds of food and eat them in proper amounts and you will get the nutrients you need for good health. Handle foods carefully and prepare them to conserve nutrients.

A lively concern for nutrition need never take the joy out of cooking and eating. No one food is absolutely essential. Another may be substituted to furnish essential nutrients. It is the nutrients — vitamins, minerals, protein, carbohydrates, and fats — that we need for health. You can retain family customs, habits and preferences by serving nutritious foods in a variety in interesting combinations.

## NUTRIENTS — PLUS

Besides the nutrients they supply, whole grain cereals, fruits and vegetables provide fiber necessary for bowel regularity. Although experiments in humans are far from conclusive, evidence suggests a beneficial effect of fiber in the diet in relation to cholesterol and bile acid metabolism. Like other dietary constituents, moderation is advisable since fiber alters mineral availability. For more information on fiber in the diet, see Extension Bulletin E-901, "Dietary Fiber."

Water makes up from one-half to three-fourths (depending on age and body fat) of our body weight. It transports nutrients and hormones to the body cells and carries waste products, such as carbon dioxide, ammonia, and compounds of sodium and potassium, to the lungs, skin or kidney for excretion. Water also helps regulate body temperature and the breakdown and use of other nutrients. Most adults need about 2½ to 3 quarts per day. A large percentage of this is contained in prepared foods. The table on page 14 shows the percentage of water in some common foods. Thirst is usually an adequate guide for water intake except for infants and the sick.



## Putting It All Together

- nutrients
  - foods
  - meals & snacks
- {YOUR HEALTH

### CHECK DAILY FOOD GUIDES

The reliable food guides are known as the "Basic 4" and the "Basic 7." Each guide classifies all the different kinds of foods into broad groups on the basis of their similarity in nutritive composition and value. Charts on page 4 show the similarity of the two guides and the nutrients in each food group. Each person in the family needs the same basic foods. The amounts depend upon age, activity, and physical condition.

The easiest way to be sure your daily meals furnish adequate balanced nutrition is to follow the suggested servings from the food groups. The minimum number of daily servings suggested in the Basic 4 provide most nutrients essential to good health. The calories will vary considerably, depending upon the choices within each group, the number and size of servings, and the additional calories selected from an extra group of foods which contain foods high in sugar and fats. With care, you can limit the calories to as low as 1,200 to 1,400 per day. With such a variety of good foods available at such a low calorie cost, it is foolish to follow faddish reducing diets. Additional servings improve diet quality and add calories.

### FOLLOW MEAL PATTERNS

Picture yourself as the chef of a famous restaurant. You offer a variety of tastes and flavors, colors and textures, treatments and styles, patterns and designs of food that people will buy and like. As a chef, you can combine the knowledge of a nutritionist with the skill of an artist. With foods and nutrients you create balanced patterns and designs for appetizing, nutritious, appealing meals.

So too at home. Be an artist with foods and nutrients. Serve a variety of foods in appealing combinations. Create your own patterns and designs for eating. Patterns for light, moderate and heavy breakfasts, lunches, and dinners are listed on page 5. At first these patterns may appear unimaginative. But creative interpretation of such terms

as "bread", "protein main dish" and "beverage" will result in interesting and nutritious meals. The same luncheon pattern might be interpreted in two very different ways; for example,

<i>Scrambled Eggs</i>	<i>Cheese Souffle</i>
<i>Whole Wheat Toast</i>	<i>Fresh Fruit Salad</i>
<i>Sliced Tomatoes</i>	<i>Bran Muffins</i>
<i>Fresh Apple Cookie</i>	<i>Preserves Tea</i>
<i>Coffee - Milk</i>	

A man may interpret "protein food", "cereal" and "beverage" at breakfast as a poached egg on toast and coffee. His young son might choose a hamburger with a glass of milk. Either breakfast provides essential protein, vitamins and minerals.

These patterns illustrate how the same types of foods can be combined into quite different types of meals to suit a variety of tastes.

No particular pattern is best and right. In most cases, it isn't possible to follow a particular pattern rigidly. Each family has certain familiar and well-liked foods and combinations and is inclined to prefer their pattern. Traditional dishes add interest to family and guest meals. Since there is no "one way" to eat for health, many different combinations of foods can give us the essentials of an adequate diet.

Think of patterns as flexible guides. You may prefer a "breakfast type" meal at the end of the day. Keep in mind that each meal should supply 1/4 to 1/3 of the calories and nutrients required daily. And include some good quality protein at each meal.

Don't judge single meals by themselves. Consider the entire day's intake whether eaten in regular meals, on-the-run or as snacks. Foods eaten under these circumstances can result in an adequate balance of nutrients if selected with care. For instance, a morning snack of an orange could replace the fruit that you overlooked at breakfast. Regular meals generally result in better nutrition.



# Comparison of FOOD GUIDES

**BASIC  
7**

**BASIC  
4**

FOOD GROUPS	COMMON ESSENTIAL FOODS	IMPORTANT NUTRIENTS SUPPLIED	FOOD GROUPS
<b>1</b> 2 or more servings daily	Beef, veal, pork, lamb, game, poultry, fish, cheese, and eggs, (dried beans, peas, peanut butter and nuts as alternates)	Protein, iron, B vitamins (niacin, thiamine, riboflavin), plus other minerals and vitamins	<b>1</b> 2 or more servings daily
<b>2</b> 1 or more servings daily	Citrus fruits or juice, cantaloupe, fresh strawberries, or vegetables such as tomatoes, cabbage, broccoli, greens, peppers, and potatoes.	Ascorbic acid or Vitamin C, plus other vitamins and minerals	<b>2</b> 4 or more servings daily
<b>3</b> 1 or more servings daily	Dark green or deep yellow vegetables and fruits	Carotene which body converts to Vitamin A, plus other vitamins and minerals	
<b>4</b> 2 or more servings daily	Other vegetables and fruits including potatoes	Vitamins and minerals	
<b>5</b> 2 cups or more daily	Milk or equivalent in cheese and ice cream	Calcium, phosphorus, riboflavin, Vitamin A, and protein	<b>3</b> 2 cups or more daily
<b>6</b> 4 servings daily	Bread and cereal, whole grain, enriched, or restored	Thiamine, iron, niacin, protein, vitamins, and minerals	<b>4</b> 4 servings daily
<b>7</b> No. of servings vary according to energy needs	Sugar, syrup, jelly, jam, honey, and candy Butter, margarine, cooking fats, and oils, fish liver oils, salad oils, bacon, meat fat, cream, peanut butter, nuts, and avocado	Carbohydrate  Fats, Vitamin A*, and essential fatty acids* (*Amount varies with fat)	<b>+</b> <b>HIGH CALORIE FOODS</b> To balance energy needs

*The minimum number of servings of these basic foods furnishes about 1,400 calories per day. To balance your energy needs, select additional servings among all the groups. Keep in mind that fats are necessary for health but also furnish over twice as many calories as proteins and carbohydrates.*

**Average Serving:** one-half cup of fruit, vegetable or juice; one ounce of ready-to-eat cereal; one-fourth cup granola; one-half cup bran; one cup flaked or puffed cereal; one slice of bread; two ounces of cooked lean meat. In place of one-half serving of meat you can use one-half cup dried beans or peas or one ounce of cheese; one egg; or two tablespoons peanut butter.



# MEAL PATTERNS

	LIGHT	MEDIUM	HEAVY
BREAKFAST	Fruit or juice Cereal and milk, Egg or cheese Bread Beverage	Fruit or juice Cereal and milk, or bread Protein main dish Bread Beverage	Fruit or juice Cereal Protein main dish Potatoes Bread Beverage
LUNCH	Cheese or egg dish Bread Beverage Fresh fruit or Clear soup Protein salad Bread Beverage or Protein sandwich Vegetable salad Beverage Light dessert	Vegetable plate with egg or cheese Bread Beverage Light dessert or Soup Protein sandwich Fruit or vegetable salad Beverage or Protein salad or soup Bread Beverage Substantial dessert	Main dish Green salad Bread Beverage Substantial dessert or Meat or fish Potatoes Vegetable salad Bread Beverage Light dessert
DINNER	Protein main dish Vegetable or salad Bread Beverage Light dessert	Light appetizer Protein main dish Potatoes or other starchy food Green vegetable Beverage Substantial dessert or Protein main dish 1 or 2 vegetables Salad Bread Beverage Light dessert	Soup Protein main dish Potatoes or other starchy foods 1 or 2 vegetables Bread Beverage Light dessert or Light appetizer Protein main dish 1 or 2 vegetables Salad Bread Beverage Substantial dessert

NOTE: Under "Beverage" in each meal pattern, include milk as needed to complete requirements.



# Nutrition Guidelines

## 1. NRC RDA's\* (*see Chart 1, Page 7.*)

*For scientific and professional use in estimating food needs of different groups by age and sex.*

Knowledge of nutrition and the important elements in food can help you choose a well-balanced diet for yourself and others. The diet will supply the 40 to 45 important nutrients you need to grow, reproduce, and lead a healthy life. This basic knowledge will help you evaluate nutrition information and interpret diet recommendations.

### \*1. THE NRC RDA's

Recommended daily dietary allowances (RDAs) are published every five or six years by the Food and Nutrition Board of the National Academy of Sciences, National Research Council. They are carefully drawn up by a selected group of leading food and nutrition scientists, and they are reviewed by another expert group before publication.

The RDA's are the amounts of essential nutrients that should be adequate to meet the known nutritional needs of practically all healthy persons in the United States. Scientists recognize that present knowledge of nutritional needs is incomplete; requirements for many nutrients known to be essential have not been established. Therefore, they recommend that you eat a variety of ordinary foods daily to ensure that possibly unrecognized nutritional needs are met.

The 1974 table of RDA allowances lists the recommendations for energy, protein, 10 vitamins and 6 minerals for 17 categories of individuals according to age, sex and physical condition. These are liberal standards which offer a large margin of safety to cover differences in individual requirements. Several other nutrients known to be essential are not included in this table because recommended allowances cannot be stated at this time or because the nutrient is amply provided by an ordinary mixed diet.

Energy (calorie) intakes of individuals must be adjusted for the age, height, body size and structure, and activity of that individual. The degree to which body weight deviates from the recommended weight for height is a good indication of whether you have been consuming too many calories.

The recommended allowances are reevaluated periodically and revised as new information warrants it. The latest revision (1974) is presented on page 7. The RDA's are used as a basis for the U.S.

## 2. U.S. RDA's\*\* (*see Chart 2, page 8.*)

*For food label information for consumers.*

Recommended Daily Allowances of the Food and Drug Administration's nutrition labeling regulations, for determining the contents of menus in the school lunch program and for determining the funds and foods for people on welfare.

### \*\*2. US RDA's

The US RDA should be familiar to every consumer interested in nutrition and good health. It is the standard developed by the Food and Drug Administration for nutrition labeling. The US RDA's are based on the 1968 tables of Recommended Dietary Allowances published by the Food and Nutrition Board. They represent the amounts of vitamins and minerals and other nutrients from food that a person should eat every day to stay healthy, plus an excess of 30 to 50 percent to allow for individual variations.

There are four US RDA's

1. For adults and children over 4 years (on labels of majority of food products)
2. For children under 4 years (labels on junior foods)
3. For infants under 12 months (labels on baby foods)
4. For pregnant and nursing women.

### READ FOOD LABELS

Reading food product labels is an easy way to learn about the nutritional value of food. The nutrition labeling panel on a food product label or package is identified as "Nutrition Information".

All nutrient information listed on the panel is on the basis of a serving. The label tells the size of a serving and number of servings in the container. Immediately below are listed the number of calories, and the amounts of protein, carbohydrates, and fat in a serving. The lower part of the nutrition label gives the percentages of the US RDA of protein and seven vitamins and minerals in a serving of the product. A label may say, for example:

Percentage of US RDA's are: Protein, 30; Vitamin A, 35; Vitamin C, 10; Thiamin, 15; Riboflavin, 15; Niacin, 25; Calcium, 2; and Iron, 25.

Some labels will list other vitamins and minerals as well as polyunsaturated and saturated fats, cholesterol, and sodium.



# NUTRITION CHART 1: NRC RDA'S

FOOD and NUTRITION BOARD, NATIONAL ACADEMY of SCIENCES — NATIONAL RESEARCH COUNCIL  
RECOMMENDED DAILY DIETARY ALLOWANCES, REVISED 1974 (NRC - RDA)

*Designed for the maintenance of good nutrition of practically all healthy people in the U.S.A.*

	Fat-Soluble Vitamins										Water-Soluble Vitamins										Minerals				
	Age		Weight	Height		Energy	Protein	Vita- min A	Vita- min D	Vita- min E	Ascor- bic	Folia- cin <sup>f</sup>	Nia- cin <sup>g</sup>	Ribo- flavin	Thia- min	Vita- B <sub>6</sub>	Vita- B <sub>12</sub>	Cal- cium	Phos- phorus	Iodine	Iron	Mag- nesium	Zinc		
	(years)	(kg)	(lbs)	(cm)	(in)	(kcal) <sup>e</sup>	(g)	(ae) <sup>e</sup>	(iu)	(iu)	(mg)	(μg)	(mg)	(mg)	(mg)	(mg)	(μg)	(mg)	(mg)	(μg)	(mg)	(mg)	(mg)		
Infants	0.0-0.5	6	14	60	24	kg × 117	kg × 2.2	420 <sup>a</sup>	1,400	400	4	35	50	5	0.4	0.3	0.3	0.3	360	240	35	10	60	3	
	0.5-1.0	9	20	71	28	kg × 108	kg × 2.0	400	2,000	400	5	35	50	8	0.6	0.5	0.4	0.3	540	400	45	15	70	5	
Children	1-3	13	28	86	34	1,300	23	400	2,000	400	7	40	100	9	0.8	0.7	0.6	1.0	800	800	60	15	150	10	
	4-6	20	44	110	44	1,800	30	500	2,500	400	9	40	200	12	1.1	0.9	0.9	1.5	800	800	80	10	200	10	
	7-10	30	66	135	54	2,400	36	700	3,300	400	10	40	300	16	1.2	1.2	1.2	2.0	800	800	110	10	250	10	
Males	11-14	44	97	158	63	2,800	44	1,000	5,000	400	12	45	400	18	1.5	1.4	1.6	3.0	1,200	1,200	130	15	350	15	
	15-18	61	134	172	69	3,000	54	1,000	5,000	400	15	45	400	20	1.8	1.5	2.0	3.0	1,200	1,200	150	18	400	15	
	19-22	67	147	172	69	3,000	54	1,000	5,000	400	15	45	400	20	1.8	1.5	2.0	3.0	800	800	140	10	350	15	
	23-50	70	154	172	69	2,700	56	1,000	5,000	400	15	45	400	18	1.6	1.4	2.0	3.0	800	800	130	10	350	15	
	51+	70	154	172	69	2,400	56	1,000	5,000	400	15	45	400	16	1.5	1.2	2.0	3.0	800	800	110	10	350	15	
	11-14	44	97	155	62	2,400	44	800	4,000	400	12	45	400	16	1.3	1.2	1.6	3.0	1,200	1,200	115	18	300	15	
	15-18	54	119	162	65	2,100	48	800	4,000	400	12	45	400	14	1.4	1.1	2.0	3.0	1,200	1,200	115	18	300	15	
Females	19-22	58	128	162	65	2,100	46	800	4,000	400	12	45	400	14	1.4	1.1	2.0	3.0	800	800	100	18	300	15	
	23-50	58	128	162	65	2,000	46	800	4,000	400	12	45	400	13	1.2	1.0	2.0	3.0	800	800	80	10	300	15	
	51+	58	128	162	65	1,800	46	800	4,000	400	12	45	400	12	1.1	1.0	2.0	3.0	800	800	80	10	300	15	
Pregnant						+300	+30	1,000	5,000	400	15	60	800	+2	+0.3	+0.3	2.5	4.0	1,200	1,200	125	18+	450	20	
Lactating						+500	+20	1,200	6,000	400	15	80	600	+4	+0.5	+0.3	2.5	4.0	1,200	1,200	150	18	450	25	

\* 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 more detailed discussion of allowances and of nutrients not tabulated. See Table I (p. 6) for weights and heights by individual year of age.

<sup>b</sup> Kilocalories (KJ) = 4.2 X kcal.

<sup>c</sup> Retinol equivalents.

<sup>d</sup> Assumed to be all as retinol in milk during the first six months of life. All subsequent intakes are assumed to be half as retinol and half as  $\beta$ -carotene when calculated from international units. As retinol equivalents, three fourths are as retinol and one fourth as  $\beta$ -carotene.

<sup>e</sup> Total vitamin E activity, estimated to be 80 percent as  $\alpha$ -tocopherol and 20 percent other tocopherols. See text for variation in allowances.

<sup>f</sup> The folic acid allowances refer to dietary sources as determined by *Lactobacillus casei* assay. Pure forms of folic acid may be effective in doses less than one fourth of the recommended dietary allowance.

<sup>g</sup> Although allowances are expressed as niacin, it is recognized that on the average 1 mg of niacin is derived from each 60 mg of dietary tryptophan.

<sup>h</sup> This increased requirement cannot be met by ordinary diets; therefore, the use of supplemental iron is recommended.



## NUTRITION CHART 2: US RDA's

### U.S. RECOMMENDED DAILY ALLOWANCE (US RDA)

Designed for use in NUTRITION LABELING OF FOODS, including vitamin and mineral supplements

	Adults and Children Over 4 Yrs.	Children Under 4 Yrs.	Infants Under 13 Months	Pregnant or Lactating Women
Protein.....	65 g*	28 g*	25 g*	65 g*
Vitamin A.....	5,000 IU	2,500 IU	2,500 IU	8,000 IU
Vitamin C.....	60 mg	40 mg	40 mg	60 mg
Thiamin.....	1.5 mg	0.7 mg	0.7 mg	1.7 mg
Riboflavin.....	1.7 mg	0.8 mg	0.8 mg	2.0 mg
Niacin.....	20 mg	9.0 mg	9.0 mg	20 mg
Calcium.....	1.0 g	0.8 g	0.8 g	1.3 g
Iron.....	18 mg	10 mg	10 mg	18 mg
Vitamin D.....	400 IU	400 IU	400 IU	400 IU
Vitamin E.....	30 IU	10 IU	10 IU	30 IU
Vitamin B <sub>6</sub> .....	2.0 mg	0.7 mg	0.7 mg	2.5 mg
Folacin.....	0.4 mg	0.2 mg	0.2 mg	0.8 mg
Vitamin B <sub>12</sub> .....	6 mcg	3 mcg	3 mcg	8 mcg
Phosphorus.....	1.0 g	0.8 g	0.8 g	1.3 g
Iodine.....	150 mcg	70 mcg	70 mcg	150 mcg
Magnesium.....	400 mg	200 mg	200 mg	450 mg
Zinc.....	15 mg	8 mg	8 mg	15 mg
Copper.....	2 mg	1 mg	1 mg	2 mg
Biotin.....	0.3 mg	0.15 mg	0.15 mg	0.3 mg
Pantothenic acid...	10 mg	5 mg	5 mg	10 mg

\*If protein efficiency ratio of protein is equal to or better than that of casein (the protein of milk), U.S. RDA is 45 g for adults and pregnant or lactating women, 20 g for children under 4 years of age and 18 g for infants.

The NRC RDA's for 1968 are used as a basis for the Food and Drug Administration's U.S.RDA's for nutritional labeling.



# Key Nutrients: \* where they come from and what they do

NUTRIENTS	WHY NEEDED	SOME IMPORTANT SOURCES
PROTEIN	Builds and maintains all body tissues. Forms an important part of enzymes, hormones, and body fluids. Responsible for regulating body functions such as growth and digestion. Helps form antibodies to fight infection. Supplies energy.	<b>Animal sources</b> — lean meat, poultry, fish, seafoods, eggs, milk and milk products, yogurt, cheese. <b>Plant sources</b> — Dried beans and peas, peanut butter and nuts, cereals, breads.
CARBOHYDRATE	Supplies food energy. Helps body use fat and other nutrients. Spare protein for purpose of body building and repair.	<b>Starches</b> — breads, cereals, rice, spaghetti, macaroni, noodles, corn, grits, potatoes. <b>Sugars</b> — honey, molasses, syrups, sugar, soft drinks, candy, cakes, cookies, and other sweets, and to lesser extent in fruits and vegetables.
FAT	Supplies a concentrated amount of energy in small amounts of food. Some supply essential fatty acids and fat soluble vitamins A, D, E, and K. Helps body use certain other nutrients. Helps satisfy hunger feelings. Needed for healthy skin.	Cooking fats and oils, butter, margarine, salad dressings and oils, visible fat in meat, whole milk, cream, cheese, ice cream, nuts, chocolate, avocados.
VITAMIN A and Carotene, which the body converts to Vitamin A.	Protects against night blindness. Helps eyes adjust to dim light. Needed for normal vision. Helps keep lining of mouth, nose, throat and digestive tract healthy and resistant to infection. Promotes growth and development.	Liver; dark green and deep yellow vegetables such as broccoli, turnips, dark green leafy greens, carrots, pumpkin, corn, sweet potatoes, winter squash, apricots, cantaloups; butter, fortified margarine, whole milk, cream, cheese, eggs.
VITAMIN C (ascorbic acid)	Helps make cementing materials that bind body cells together. Strengthens walls of blood vessels. Promotes growth and tissue repair including healing of wounds and cuts. Helps body to build bones and teeth. Needed for healthy gums.	Citrus fruits and juices, strawberries, cantaloupe; butter, fortified margarine, whole pers, broccoli, cauliflower, cabbage, fresh potatoes, green leafy vegetables.
VITAMIN B <sub>1</sub> (thiamin)	Needed in certain enzymes which help change food into energy. Needed for carbohydrate metabolism. Helps keep the nervous system healthy. Promotes normal appetite and digestion. Necessary for normal growth, fertility, and lactation.	Lean pork, heart, kidney, liver, dried beans and peas, whole grain and enriched breads and cereals, some nuts like peanuts and pinenuts, wheat germ, seeds like sunflower and sesame.
VITAMIN B <sub>2</sub> (riboflavin)	Helps cells use oxygen to release energy from food. Helps maintain good vision. Needed for smooth skin. Helps prevent scaling and cracking of skin around mouth and nose.	Milk, cheese, liver, kidney, heart, lean meat, eggs, dark leafy greens, enriched and whole grain bread.
NIACIN (nicotinic acid)	Promotes normal appetite and digestion. Needed in certain enzymes which help change food into energy. Helps to maintain health of skin, tongue, digestive tract, and nervous system. The amino acid tryptophan can be converted to niacin in the body.	Lean meats, organ meats, liver, eggs, poultry, fish, leafy greens, peanuts and peanut butter, beans and peas, wheat germ, whole grain and enriched breads and cereals, nuts, seeds, rice.

\*Daily allowances for key nutrients are listed in the chart on page 7.



# Key Nutrients: \* *where they come from and what they do*

NUTRIENTS	WHY NEEDED	SOME IMPORTANT SOURCES
CALCIUM	Helps build strong bones and teeth. Helps blood to clot. Helps nerves, muscles and heart to function properly. Needed to activate certain enzymes which help change food into energy.	Milk — whole, skim, buttermilk — fresh, dried, canned; cheese, yogurt, ice cream, ice milk; dark green leafy vegetables such as kale, broccoli, artichokes, collards, turnip, mustard; dried peas and beans; canned sardines and salmon; sesame seeds.
IRON	Combines with protein to make hemoglobin, the red substance of blood which carries oxygen from lungs to cells, and myoglobin which stores oxygen in muscles. Helps cells use oxygen. Needed to prevent iron deficiency anemia.	Liver, kidney, heart, oysters, lean meats, egg yolk, dried peas and beans, nuts, dark green leafy vegetables, dried fruits, whole grain and enriched bread and cereals, molasses.
VITAMIN D (calciferol)	Helps body absorb calcium and phosphorus which build strong bones and teeth; important in growing children and during pregnancy and lactation.	Vitamin D fortified milk, fish liver oil, canned fatty fish, sardines, herring, salmon, tuna, egg yolk, direct exposure of skin to sunlight.
VITAMIN E (the tocopherols)	Acts as an antioxidant which helps to prevent oxygen from destroying other substances. Needed for red blood cell formation and maintenance of cell wall structure. Improves absorption of iron.	Vegetable oils — cottonseed, safflower, sunflower, soybean, vegetable shortening, margarine; whole grain cereals, wheat germ, rice germ; green leafy vegetables, seeds, almonds, peanuts, asparagus; liver.
FOLIC ACID (folacin)	Helps to manufacture red blood cells. Essential in normal metabolism to convert food for energy.	Liver, dry beans, black eye peas, soy flour; dark green, leafy and yellow vegetables; asparagus, broccoli; nuts, fresh oranges, whole wheat products, yeast.
VITAMIN B <sub>6</sub> (pyridoxine-pyridoxal-pyridoxamine)	Works with enzymes in metabolism of protein. Essential for proper growth and maintenance of body functions. Essential for conversion of tryptophan to niacin.	Meat, poultry, fish, shellfish; liver; dark green leafy vegetables, whole grain cereals, dry beans; potatoes, bananas, eggs, nuts, prunes, raisins.
VITAMIN B <sub>12</sub> (cobalamin)	Necessary for normal development of red blood cells and the functioning of all cells, particularly in the bone marrow, nervous system and intestines. Helps prevent certain forms of anemia. Coenzyme necessary for synthesis of nucleic acids and for synthesis of at least one amino acid, aspartic acid.	Found only in foods of animal origin — milk and milk products, cheese, fish, shellfish, oysters, clams, meats, liver, kidney, eggs, poultry.
PHOSPHORUS	Helps build strong bones and teeth. Helps regulate muscular nerve action. Needed by certain enzymes which help change food into energy. Vital for metabolism.	Liver, meat, fish; milk, cheese, ice cream, eggs, beans, whole grain cereals.

\*Daily allowances for key nutrients are listed in the chart on page 7.



## Key Nutrients: \* where they come from and what they do

NUTRIENTS	WHY NEEDED	SOME IMPORTANT SOURCES
IODINE	Necessary for proper functioning of thyroid gland. Prevents some forms of goiter.	Seafoods, iodized salt, many processed foods.
MAGNESIUM	Helps body use food for energy. Promotes healthy bones and teeth. Promotes conduction of nerve impulses for normal muscular contraction. Plays very important role in metabolism, and enzymatic reactions affecting protein synthesis. Needed to promote the oxidation and detoxification of alcohol in the liver.	Nuts, whole grain products, dry beans and peas, dark green leafy vegetables, spinach, cocoa, molasses, clams, cornmeal. Fair sources include oysters, crab, fresh peas, liver, beef, eggs, seafood, oysters; peas, milk, whole wheat grain cereals, oatmeal, maple syrup.
ZINC	Helps heal wounds. Needed for the mobilization of Vitamin A from liver stores. Constituent of many enzymes involved in digestion and energy and protein metabolism. Necessary for the activity of insulin. Plays a role in bone metabolism. Deficiency associated with retarded growth and delayed sexual maturity. Needed to maintain pregnancy and for normal fetal development. Essential to brain growth in intrauterine development.	Seafood, oysters, meat, fats and oils, nuts, peanuts, nonfat dry milk, cheese, eggs, whole wheat cereals, oats, legumes, lima and green beans.

\*Daily allowances for key nutrients are listed in the chart on page 7.

## Trace Elements: requirements and sources

(Trace elements are nutrients required in very minute amounts.)

**Chromium** — Meats and other animal proteins (except fish), and whole grains.

**Copper** — Organ meats, shellfish, nuts, dried beans, peas and other legumes, cocoa, raisins, copper cooking utensils, beef liver.

**Fluorine\*** — Municipal water supplies (fluoridated at one part per million); tea, small fish eaten with bones.

**Iodine\*** — Iodized salt, seafood, plants grown in iodine-rich soil

**Iron\*** — Liver, meats, eggs, green leafy vegetables, legumes, nuts, whole-grain and enriched breads, flours and cereals, dried fruits, cast-iron cooking utensils.

**Manganese** — Nuts, whole grains, vegetables, fruits.

**Molybdenum** — Organ meats, legumes, some cereal grains.

**Nickel** — Whole grains, legumes, vegetables, fruits.

**Selenium** — Seafoods, meats, whole grains grown on selenium-rich soil

**Silicon** — Traces present in all foods.

**Tin** — Meats and other animal products, whole grains, legumes, vegetables and fruits, acidic juices into which tin has leached from the can (most cans are now lacquered, but these amounts do not appear to be toxic.

**Vanadium** — Widely distributed in foods. Normal diets contain about 100 times the estimated requirement — still well below the toxic level.

**Zinc\*** — Meat, liver, eggs, seafood (particularly oysters), milk, whole grains.

\*Recommended Daily Allowances established by National Research Council, National Academy of Sciences, 1974.



# Calories in Food

## CALORIES DO COUNT!

Food produces energy for the body — energy which is needed to live, to breathe, to work — in fact, for everything we do. Children and youth need energy for growth. This energy is measured in heat units called *calories*.

Only three kinds of nutrients in food can supply us with energy or calories. Their chemical names are carbohydrates, proteins and fats. These substances contain the elements carbon, hydrogen, and oxygen. Proteins contain nitrogen, too, which gives them special importance in the body. You will note in the chart below that fats contribute more than twice as many calories as carbohydrates and proteins. The number of calories in food depends on how much protein, fat and carbohydrates it contains. Alcohol also adds calories.

### Calories furnished by certain nutrients and alcohol when oxidized or burned in the body;

	per ounce	per gram
Proteins and carbohydrates furnish	113	4
Fats furnish	255	9
Alcohol furnishes	198	7

When foods eaten provide more energy than the body needs, the extra energy is stored as fat. If you eat too much, you will gain weight. If you do not eat enough to provide the energy the body needs, your body will be forced to use stored fat and you will lose weight. If all reserve fatty tissues are used up and you continue to give the body a short supply of food, the body uses its other tissues for energy.

One out of five adults in the United States is overweight. Underweight is apparently less prevalent among adults. It has been suggested that one's *desirable* weight at age 25 should be maintained throughout life.

## Calories in Milk — Dairy Products

	Calories per cup
Skim or Non-Fat milk	86
Skim or Non-Fat milk — with Non-Fat milk solids added	90
Milk, dry, nonfat, instantized	244
Canned, evaporated — skim milk	198
Canned, evaporated — whole milk	338
Buttermilk (cultured fluid)	99
Yogurt made from skim milk (plain, unflavored)	80
Yogurt (from Low-Fat milk) (fruit varieties)	225 to 239
Yogurt made from whole milk (plain, unflavored)	139
Low Fat (1%) fortified milk	104
Low Fat (2%) fortified milk	125
Whole milk 3.2% fat, fluid	150

*Food and Your Weight* is the title of an excellent publication designed to help persons maintain normal weight. To order it, ask for *Home and Garden Bulletin No. 74*, Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. — price 35 cents.

## Calories in Vegetables (Cooked without adding fat)

### 1. Vegetables that provide little carbohydrate, protein and fat in amounts ordinarily used:

Asparagus	Greens*	Peppers*, Chilies
Beansprouts	Beet greens	Radishes
Broccoli*	Chard	Rhubarb
Brussels sprouts	Collards	Sauerkraut
Cabbage	Dandelion	String beans, young
Cauliflower	Kale	Summer squash
Celery	Mustard	Tomatoes*
Chicory*	Poke, Romaine	Tomato juice, ½ cup
Cucumbers	Spinach	Vegetable juice cocktail
Eggplant	Turnip greens	Watercress*
Escarole*	Lettuce	Zucchini, ½ cup
	Mushrooms	
	Okra	
	Parsley	

### 2. Vegetables that provide about 35 calories (7 grams of carbohydrate and 2 grams of protein) per half cup serving:

Beets	Pea pods	Tomato puree, canned
Carrots*	Pumpkin	Vegetables, frozen mixed
Onions	Rutabagas	
	Squash, winter*	
	Turnips	

### 3. Starchy vegetables which are equal in calorie value to 1 slice of bread (70 calories, 15 grams of carbohydrate) include to following:

Baked beans, no pork	¼ cup
Beans, peas, lentils — dried, cooked	½ cup
Corn	⅓ cup or 1 ear
Parsnips	cup
Peas (blackeyed, split, etc) dry, cooked	½ cup
Peas, green	½ cup
Potatoes, white, baked or boiled (small)	1
Potatoes, white, mashed	½ cup
Sweet potatoes or yams	¼ cup
Pumpkin*	¾ cup
Winter squash*	½ cup

\*Rich in Vitamin A



## Fruits About Equal in Calories (no sugar added)

*Fruits in the amounts listed furnish about 40 calories and 10 grams of carbohydrate.*

Amount		Amount		Amount	
Apple (2-inch diameter)	1 small	Dates	2	Orange juice*	½ cup
Applesauce (unsweetened)	½ cup	Figs, fresh	1	Papaya	¾ cup
Apricots, fresh	2 medium	Figs, dried	1	Peach	1 medium
Apricots, dried	4 halves	Grapefruit*	½	Pear	1 small
Banana	½ small	Grapefruit juice*	½ cup	Persimmon (native)	1 medium
Blackberries	½ cup	Grapes	12	Pineapple	½ cup
Blueberries	½ cup	Grape juice	¼ cup	Pineapple, juice	⅓ cup
Raspberries	½ cup	Guava	1 small	Plums	2 medium
Strawberries*	¾ cup	Honeydew melon, 7-inch	⅛ medium	Prunes,	2 medium
Cantaloupe*	¼ small	Mango	½ small	Prune juice	¼ cup
Cherries	10 large	Nectarine	1 small	Raisins	2 tablespoons
Cider, apple juice	⅓ cup	Orange*	1 small	Tangerine*	1 medium
Cranberries	(see below)			Watermelon	1 cup or 1 slice, (3x1½ in.)

NOTE: Cranberries may be used as desired if no sugar is added. \*Rich in Vitamin C

### Foods High in Carbohydrates

*Foods in these amounts furnish about 70 calories and 15 grams of carbohydrates, 2 grams protein.*

Bagel	½ small
+ Biscuit, roll (2-inches diameter)	1
Bread, ½ inch thick	1 slice
Cereal	
cooked	½ cup
dry (flakes or puffed)	¾ cup
rice or grits, cooked	½ cup
+ Corn bread (1½-inch cube)	1
Crackers	
arrowroot	3
graham (2½-inches square)	2
oysterettes (½ cup)	20
saltines (2-inches square)	6
soda (2½-inches square)	4
rye wafers (2" x 3½")	3
Flour	2½ level tablespoons
Hamburger or frankfurter bun	½
Matzo, 6-inch square	1
+ Muffin (2-inches diam., plain, small)	1
+ Pizza (⅓ of small)	1 piece
Potatoes	
+ French fried (2" to 3½")	8
white (baked or broiled, 2-inch diameter)	1
white, mashed	½ cup
sweet or yams	¼ cup
Pretzels (3⅛" x ⅛" diameter)	26
Spaghetti, macaroni, and noodles, cooked	½ cup
Tortilla (6 inch diameter)	1
Vegetables (prepared without sugar or additional fat)	
baked beans (canned, no pork)	¼ cup
beans, peas, lentils (dried, cooked)	¾ cup
lima, fresh	½ cup
peas, green (canned or frozen)	½ cup
parsnips	⅔ cup
corn, sweet	small ear or ⅓ cup
popcorn, popped, no fat added	3 cups
pumpkin	¾ cup
winter squash	⅔

+Omit fat choice. (See chart, page 14).

### Calories in High-Protein Foods

The amount of each selection listed yields 75 calories. In the "meat and poultry" example, one ounce yields 75 calories. A serving of three ounces, therefore, would yield three times as much or 225 calories. Calories consumed will vary according to serving size.

Each choice in the list also provides 7 grams of high-quality protein and 5 grams of fat.

Meat and poultry, (lean), beef, lamb, pork, veal, liver, chicken, ham, etc. (Cooked size 3 x 2 x ½ inch)	1 ounce
Cold cuts, 4½ inch round, ⅛ inch thick	1 slice
Frankfurter (small)	1
Fish (flounder, halibut, lox, trout, whitefish, etc.) (2 x 2 x 1 inch)	1 slice
Salmon, tuna, crab, lobster	¼ cup
Sausage (3 x ⅛ inch)	2
Scallops (12 per pound)	1
Chitlins (2½ inch square)	1
Tripe (2½ inch square)	1
Oysters, shrimp, clams	5 medium
Sardines, drained	3 medium

Soybeans	¼ cup
Cheese, cheddar, American, Swiss (3½ x 1½ x ¼ inch)	1 slice
Cheese, cottage, parmesan, roquefort	¼ cup
Egg	1
Peanut butter	1 tablespoon

### ALMOST CALORIE-FREE

*(Insignificant carbohydrate and calories. Serve as much as you wish)*

All raw vegetables from the list on page 14, coffee, tea, clear broth (no fat), bouillon (fat free), lemon, gelatin (unsweetened), rennet tablets, cranberries (unsweetened), mustard (dry), pickle (unsweetened), pepper and other spices, vinegar, seasonings, soft drinks without sugar, horseradish.



## High-Fat Foods and Fats About Equal in Calories

*Foods in these amounts furnish about 45 calories and 5 grams of fat.*

Avocado (4 inch diameter) .....	1/8
Butter, margarine (soft, tub or stick) .....	1 teaspoon
Bacon, crisp, or bacon fat .....	1 slice or 1 teaspoon
Chocolate, unsweetened, melted .....	2 teaspoons
Cream, light, sweet or sour .....	2 tablespoons
Cream, heavy .....	1 tablespoon
Cream cheese .....	1 tablespoon
Drippings or lard .....	1 teaspoon
French dressing, Italian dressing .....	1 tablespoon
Mayonnaise .....	1 teaspoon
Salad dressing, mayonnaise type .....	2 teaspoons
Oil or cooking fat .....	1 teaspoon
Olives, green or ripe .....	5 small
Peanut butter .....	1 teaspoon
Pig's feet .....	1
Salt pork .....	3/4 cube
Shortening, vegetable .....	1 teaspoon
Tartar sauce .....	1 1/2 teaspoon
Almonds .....	10 whole
Pecans .....	2 large, whole
Peanuts, Spanish .....	20 whole
Peanuts, Virginia .....	10 whole
Walnuts and others .....	6 small

## Percentage of Water in Some Common Foods

Lettuce (iceberg) .....	96
Snapbeans, radishes, celery .....	94
Watermelon .....	93
Cabbage (raw) .....	92
Broccoli, carrots, beets, collards .....	91
Orange .....	88
Milk .....	87
Cereals (cooked) .....	87
Apples .....	85
Potatoes (boiled) .....	80
Bananas .....	76
Eggs .....	74
Corn .....	74
Chicken (boiled) .....	71
Fish (baked) .....	68
Prunes (cooked) .....	66
Beef (lean) .....	60
Cheese .....	40
Bread .....	36
Cake (sponge) .....	32
Butter, margarine .....	16
Nuts .....	5
Soda crackers, dry cereals .....	4
Sugar (white) .....	trace
Oils, cooking fats .....	0

*From Nutritive Value of Foods, U.S. Department of Agriculture, Home Garden Bull. No. 72, revised 1976.*

## Nutrient Content of Foods

### Foods Rich in Vitamin C

*An average serving unless otherwise stated is 1/2 cup*

*Recommended daily Vitamin C allowance: Adults - 45 milligrams*

<i>Excellent Sources</i>	<i>Good Sources</i>	<i>Fair Sources</i>
<b>Fruits:</b> (milligrams)	<b>Fruits:</b> (milligrams)	<b>Fruits:</b> (milligrams)
Cantaloupe, 1/2 medium .....	Lemon, 1/2 medium .....	Pineapple, fresh .....
Orange, 1 medium .....	20	Pineapple juice† .....
Orange juice, fresh† .....		Blueberries, fresh .....
Orange juice, frozen	<b>Vegetables:</b>	
concentrated, dilluted† .....	Sweet potato, cooked fresh,	
Orange juice, canned† .....	1 medium .....	<b>Vegetables:</b>
Strawberries, fresh .....	Spinach, cooked fresh .....	Spinach, canned .....
Grapefruit juice, canned† .....	Asparagus, cooked fresh .....	Peas, frozen .....
Grapefruit, 1/2 medium .....	Cabbage, cooked fresh or raw ...	Lima beans, fresh or frozen .....
	Potato, boiled,	Peas, canned .....
	1 medium .....	Summer squash .....
<b>Vegetables:</b>	Tomatoes, canned or juice .....	Lima beans, canned .....
Broccoli .....	Asparagus, canned .....	Snap green beans, fresh .....
Brussels sprouts .....	Turnips, cooked .....	Snap green beans, canned .....
Kale .....	Sauerkraut .....	Snap green beans, frozen .....
Turnip greens .....		
Raw green pepper .....		
Cauliflower, cooked fresh .....		
Raw tomato, 1 medium .....		

†4 ounces



### Quick Estimate of Protein

Recommended daily protein allowance: Adult woman 46 grams; Adult man 56 grams; Teenagers, larger amounts\*

Foods	Average Serving	Grams
Meat, fish, poultry (lean, no bone)	4 ounces raw or 3 ounces cooked	24
Dried beans, peas (pulses) Mature seeds—cooked	1 cup	15
Cottage cheese	½ cup	15
Milk, whole, skimmed, reconstituted dry	8 ounces	9
Peanuts, shelled	1 ounce	7
Pizza	⅛ (14-inch)	7
Cheese	1 ounce	7
Frankfurter	1 (2-ounce)	7
Egg	1	6
Bagel	1	6
Walnuts, English, shelled	1 ounce	4
Peanut butter	1 tablespoon	4
Milk puddings	½ cup	4
Luncheon meat	1 ounce (2 slices)	4
Muffin, Cake	Average serving	4
Legumes, immature (peas and beans)	Average serving	4
Spaghetti, macaroni, noodles	½ cup	3
Cooked cereals: oatmeal, wheat, corn, rice	1 serving	3
Ice cream	½ cup	3
Bacon	2 slices	3
Pecans, shelled	1 ounce	3
Dry cereals	1 ounce	2
Bread, rolls, biscuits, doughnuts, pancakes	1 serving	2
Gelatin dessert	½ cup	2
Vegetables (not legumes)	Average serving	1
Fruits		1
Crackers and cookies	2 (2-inch)	1
Pastry, single crust	Average piece	1

\*See National Research Council recommended daily allowances on page 7.

### Foods In These Amounts Are Approximately Equal in Protein

Each supplies about 24 grams of protein

Lean, cooked meat, fish, poultry	3 ounces
Cooked dry beans or peas	1½ cups
Peanut butter	6 tablespoons
American type cheese	3 ounces
Cottage cheese	¾ cup
Eggs	3
Milk	2¾ cups

### Foods Rich in Calcium

Adults recommended daily calcium allowance is 800 milligrams; teenagers, higher amounts. \*One cup of milk furnishes about ⅓ adults daily allowance for calcium.

Milk (whole or skimmed)	Foods about equal in calcium
1 cup	¼ cup non fat dry milk solids
1 cup	½ cup evaporated milk
1 cup	1½ oz. cheddar cheese
⅔ cup	1 oz. cheddar cheese (1 slice or 1-inch cube)
1 cup	1½ cups cottage cheese
⅓ cup	½ cup cottage cheese
1 cup	1½ cups ice cream
⅓ cup	½ cup ice cream
1 tablespoon	2 tablespoons cream cheese

\*See NRC RDA's on page 7.

### Foods Rich in Vitamin A or Carotene

Recommended daily Vitamin A allowances: Females 4,000 International Units; Males 5,000 International Units.

Excellent Sources	Good Sources
1 serving (½ cup) furnishes entire day's adult require- ment	1 serving (½ cup) furnishes significant amounts
MEAT: Liver**	VEGETABLES: Broccoli Pumpkin* Kale* Peppers, sweet, red, raw Tomatoes, raw, cooked or juice
GREEN AND YELLOW VEGETABLES: Carrots** Sweet potatoes, yellow Squash, winter, yellow**	YELLOW FRUITS: Apricots, raw or cooked* Peaches, fresh or canned
LEAFY VEGETABLES: Greens: beet, turnip,** mustard, dandelion** Spinach** Kale* Collards** Chard, leaves** Lettuce: dark green forms such as escarole and chicory	DAIRY PRODUCTS: Whole milk Cream Butter Cheese made from whole milk or cream Ice Cream Margarine enriched with Vitamin A Eggs
FRUIT: Cantaloupe**	MEAT AND POULTRY: Kidney Poultry, dark meat Fish, certain varieties

\*Furnishes at least one-half adult daily requirement

\*\*Furnishes more than adult daily requirement



## Cholesterol in Selected Foods

Cholesterol is synthesized in the body and is a normal body component with a number of important functions. It is a structural part of certain organs, for example, in the insulating coverings of nerve fibers. It is used in synthesizing male and female sex hormones, the hormones of the adrenal cortex and the bile acids which emulsify fat in the intestinal tract. Vitamin D is produced in the body from cholesterol.

If the cholesterol content of a food is shown on a food label (this is optional), a statement must be added: "Information on the cholesterol content is provided for individuals who, on the advice of a physician, are modifying their total dietary intake of cholesterol."

If cholesterol content is listed, it must show to the nearest 5 milligrams as milligrams of cholesterol per serving, or as milligrams of cholesterol per 100 grams of food.

Food Groups	Amount	(Milligrams)
<b>Bread and Cereals*</b>	None (Unless prepared with butter, milk or other cholesterol-containing food)	
<b>Meat</b>		
Oysters, salmon, scallops	3 ounces, cooked	40
Clam, halibut, tuna	3 ounces, cooked	55
Chicken, turkey, light meat	3 ounces, cooked	67
Beef, pork, lobster, chicken, turkey, dark meat	3 ounces, cooked	75
Lamb, veal, crab	3 ounces, cooked	85
Shrimp	3 ounces, cooked	130
Heart, beef	3 ounces, cooked	230
Egg	1 yolk or 1 egg	250
Liver, beef, calf, hog, lamb	3 ounces, cooked	370
Kidney	3 ounces, cooked	680
Brains	3 ounces, raw	more than 1,700
Sardines, canned in oil, drained solids	3¼ ounces (1 can)	129
Milk, skim, fluid or reconstituted, dry, buttermilk from skim	1 cup	5
Milk, 2% (nonfat milk solids added)	1 cup	20
Milk, whole	1 cup	34
Cream, light table	1 fluid ounce	20
Cream, half and half	¼ cup	23
Cream, whipped	1 tablespoon	21
Cottage cheese, low fat (2%)	½ cup	9
Cottage cheese, dry	½ cup	5
Cottage cheese, creamed	½ cup	17
Cheese, cheddar	1 ounce	30
Ice cream, regular (about 10% fat)	½ cup	27
Ice cream, rich	½ cup	43
Frozen custard	½ cup	43
Yogurt	1 cup	12
Sour cream	1 cup	152

Food Groups	Amount	(Milligrams)
<b>Vegetable-Fruit*</b>	None (if prepared and served without butter, cream, lard or suet)	
<b>Miscellaneous</b>		
Lard	1 tablespoon	12
Butter	1 tablespoon	31
Margarine (made from vegetable oil)		0
Vegetable oils	1 tablespoon	0
Sugars, syrups, jams, jellies		0

*\*Cholesterol occurs only in foods of animal origin. Foods from vegetable sources such as vegetable-oil margarines, fruits, vegetables, cereal grains, legumes, and nuts do not contain cholesterol.*

*Source: Cholesterol Content of Foods, R.M. Feeley, P.E. Criner, and B.R. Watt, Journal of the American Dietetics Association, 61:134, 1972, and Agr. Info. Bulletin 361 USDA, Fats in Food and Diet. Also USDA Agricultural Handbook No. 8-1, 1976.*

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