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Nutrient Content of the National Food Supply

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Over the past year, several small changes have occurred in the nutrient content of the Nation's food supply. Compared with a year earlier, 1980 levels are 1 to 4 percent higher for food energy (calories) and five nutrients—vitamin B₁₂, vitamin A, ascorbic acid, fat, and thiamin; and 1 percent lower for two minerals—calcium and magnesium. Levels for the other seven nutrients remain unchanged.

Vitamin B₁₂ shows the largest increase—4 percent. Near-record use of edible offals accounts for almost all of this increase. Offals, which include liver and some other organ meats, are also excellent sources of vitamin A, consumption of which increased 2 percent. Greater consumption of some fruits and vegetables contributed to the rise in total vitamin A; but decreased consumption of sweet potatoes, another excellent source of vitamin A, offset some of the increase in this vitamin.

Ascorbic acid in the food supply is 2 percent higher due to a record-high consumption of frozen orange juice and increased use of fresh oranges. Citrus products are now the leading source of ascorbic acid in the food supply, providing almost 30 percent of the total.

Small (1 percent) increases are indicated for food energy, for fat, and for thiamin—all currently at peak levels—3,520 calories, 168 g, and 2.2 mg per capita per day, respectively. Increases in food energy and fat come from use of 7 percent more pork and slightly higher use of shortening and salad and cooking oils. More calories were also provided by increased use of fruits, grain, and sugar and sweeteners. However, fewer calories came from fresh and frozen potatoes due to their slightly decreased per capita consumption. Pork, a good source of thiamin, was the major contributor to the higher level of this vitamin.

The 1-percent decline in calcium is due to shifts in the use of dairy products, the major source of this mineral. Decreased use of fluid whole milk and nonfat dry milk accounts for this decline despite increased use of fluid lowfat milks. The lower magnesium level is also due to shifts in the use of dairy products, the leading source of magnesium in the food supply. In addition, decreased use of

potatoes, chiefly fresh and frozen, and coffee contributed to the decline in magnesium.

For the seven nutrients which remained at 1979 levels, gains from increased use of some foods were offset by decreased use of others. For example, the protein level was increased from the rise in the use of pork and, to a lesser degree, poultry; but was decreased by declines in the use of beef, certain dairy products, eggs, and potatoes.

Greater use of pork and offals contributed to small gains for riboflavin, niacin, vitamin B₆, and iron which were offset by decreased use of other foods, primarily potatoes. More phosphorous was contributed by increases in consumption of pork, offals, lowfat milks, fruits, vegetables (other than potatoes), and grain products. Less phosphorous was contributed by nonfat dry milk, fluid whole milk, and beef which decreased in consumption. The increased amount of carbohydrate provided by use of more fruits, vegetables, and grain products was balanced by decreased use of potatoes.

Since 1967

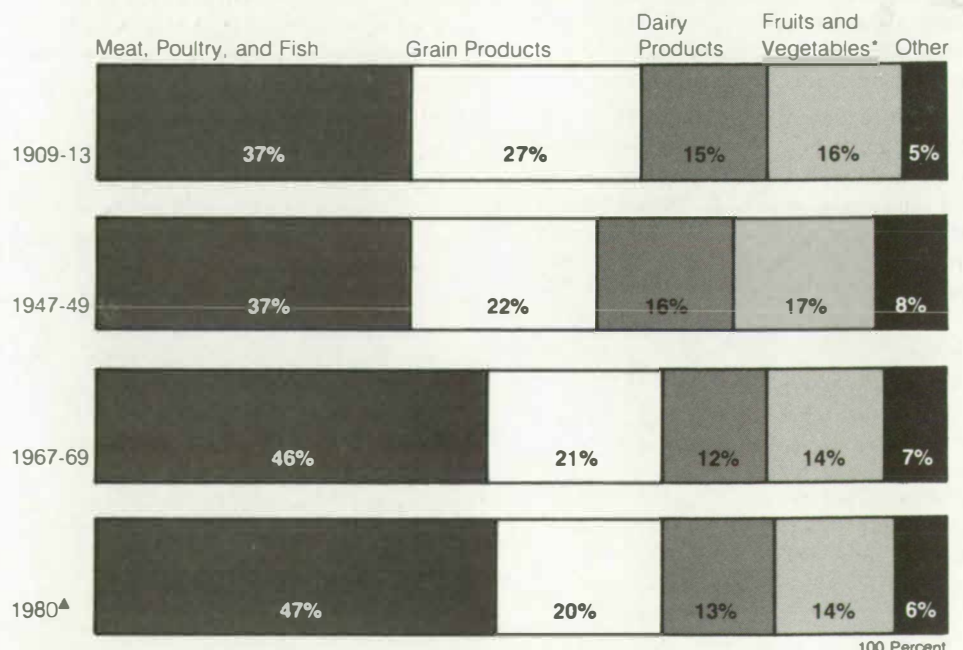
Current levels for food energy and 12 nutrients are 1-17 percent higher than in 1967, the level for calcium is 6 percent lower, and the level for phosphorous is unchanged.

The ascorbic acid level shows the largest increase, 17 percent. Citrus products, particularly chilled and frozen orange juice, with smaller contributions of ascorbic acid from vegetables and fortification of fruit juices and drinks, account for this large increase.

Higher levels for thiamin, niacin, and riboflavin (16, 15 and 4 percent, respectively), are largely due to the higher standards of enrichment for white flour, set in 1975. A large part of the increase in riboflavin from enrichment was offset by the downward trend in consumption of dairy products, primarily fluid whole milk. Contributions of thiamin, riboflavin, and niacin also came from increased consumption of pork and poultry, which rose 17 and 42 percent, respectively during this period.

Current levels are higher than in 1967 for

US. Food Supply: Contributions of Zinc by Major Food Groups



[▲]Preliminary.

*Includes Potatoes and Drybeans, Peas, Nuts and Soy Products

iron and vitamin B₆ (7 percent), protein (4 percent), and vitamin B₁₂ and magnesium (1 percent). Grain products, consumption of which increased 10 pounds per capita since 1967, were the chief sources of the increase in iron and contributed to higher levels for vitamin B₆, protein, vitamin B₁₂, and magnesium as well. Vitamin B₁₂ from grain products came solely from enrichment and fortification because this vitamin occurs naturally only in foods of animal origin.

Increased use of pork and poultry also provided iron, but use of these foods primarily accounted for the higher levels of protein, magnesium, vitamin B₆, and vitamin B₁₂. The vitamin A level is 5 percent higher than in 1967 due primarily to the expanded use of some canned tomato products, although offals and poultry also contributed substantially.

The 10-percent higher level for fat resulted chiefly from increased use of salad and cooking oils, with smaller contributions provided by increased pork consumption. The 8-percent higher carbohydrate level is attributed to the sharp increase in use of high-fructose corn sirup (HFCS). Use was first reported in 1970 and now is about 25 pounds per capita per year exceeding that of regular (glucose) corn sirup. Substantially higher levels for two energy-yielding nutrients—fat and carbohydrate—raised the level for food energy 9 percent.

A decline is indicated for only one nutrient—calcium, which is 6 percent lower than in 1967. Consumption of dairy products, in terms of the calcium equivalent of a quart of whole milk, declined from 231 to 204 quarts per capita per year since 1967. Decreased use of fluid whole milk and nonfat

dry milk (40 to 60 percent, respectively) was responsible for this decline, despite the more than twofold increase in use of fluid lowfat milk and a two-thirds increase in use of cheese. The decline in use of whole and nonfat dry milk also provided less phosphorus, which was offset by increased contributions from pork, poultry, and some grain products.

Zinc

Estimates of the zinc content of the national food supply are presented for the first time. Since 1909-13, the level of this mineral has fluctuated between 11 and 13 mg per capita per day. The current level of zinc is 12.5 mg per capita per day, approximately the same as at the beginning of the century.

Zinc is a mineral known to be essential for cell growth and repair. The National

Contribution of Major Food Groups to Nutrient Supplies¹

Food group	Food energy	Protein	Fat	Carbohy- drate	Cal- cium	Phos- phor- us	Iron	Magne- sium	Vita- min A value	Thia- min	Ribo- flavin	Nia- cin	Vita- min B ₆	Vita- min B ₁₂	Ascor- bic acid	Percent	
1967																	
Meat (including pork fat cuts), poultry, and fish.....	20.6	40.5	35.9	0.1	3.7	25.9	31.1	12.6	22.8	28.6	22.4	47.1	39.4	68.4	2.1		
Eggs.....	2.3	5.9	3.4	.1	2.6	6.0	6.3	1.4	6.7	2.6	5.8	.2	2.6	9.6	0		
Dairy products, excluding butter....	11.8	22.6	13.3	7.3	76.0	36.7	2.3	22.5	12.3	9.7	42.8	1.7	11.8	21.2	4.8		
Fats and oils, including butter....	16.9	.1	40.3	(²)	.4	.2	0	.4	8.3	0	0	0	.1	0	0		
Citrus fruits.....	.8	.4	.1	1.7	.9	.7	.8	2.0	1.3	2.5	.5	.8	1.4	0	25.8		
Other fruits.....	2.3	.6	.2	5.0	1.2	1.1	3.8	3.9	6.1	1.9	1.6	1.8	6.6	0	10.6		
Potatoes and sweetpotatoes....	2.8	2.3	.1	5.3	1.0	3.5	4.2	7.1	5.8	5.0	1.6	6.5	10.7	0	16.1		
Dark green and deep yellow vegetables..	.2	.4	(²)	.5	1.4	.6	1.7	2.0	20.0	.8	1.0	.6	1.9	0	8.5		
Other vegetables, including tomatoes.	2.5	3.3	.4	4.6	4.7	4.8	9.7	10.3	15.1	6.7	4.5	5.9	10.6	0	30.7		
Dry beans and peas, nuts, soya flour and grits.....	3.0	5.0	3.6	2.2	2.6	5.7	6.8	11.0	(²)	5.4	1.8	6.5	4.9	0	(²)		
Grain products.....	20.1	18.4	1.4	36.5	3.4	12.6	29.6	18.2	.4	36.7	17.3	23.6	9.8	.9	0		
Sugar and other sweeteners.....	16.1	(²)	0	36.0	1.1	.2	.7	.2	0	(²)	.1	(²)	.1	0	(²)		
Miscellaneous ³.....	.8	.4	1.3	.7	1.0	1.9	2.9	8.4	1.2	.1	.8	5.3	.1	0	1.5		

¹Percentages for food groups are based on total nutrient data in table entitled "Nutrients Available for Consumption."

²Less than .05 percent.

Academy of Sciences (1980) has recommended a daily allowance (RDA) of 15 mg for children over the age of 10 and adults. However, they have stated that there is evidence suggesting marginal zinc nutrition in segments of the U.S. population. Although not directly comparable to the RDA, the level of zinc in the food supply may provide additional evidence for this statement.

Over the years, the sources of zinc have changed markedly due to changes in the consumption of foods from three major food groups. The meat, poultry, fish group has remained the leading source of zinc in the food supply. It currently provides almost half of all the zinc compared with less than 38 percent before 1947-49. This increase reflects primarily the rise in beef consumption.

Since 1909-13, dairy products have moved

Zinc Content of the U.S. Food Supply, Per Capita Per Day Civilian Consumption

Food Group	1909-13	1935-39	1957-59	1967-69	1975	1980 ¹
	milligrams					
Meat, poultry, and fish	4.7	3.8	4.8	5.7	5.8	5.9
Dairy products ²	1.9	2.2	2.7	2.6	2.6	2.5
Grain products	3.3	2.3	1.5	1.5	1.4	1.6
Fruits and vegetables ³	2.1	2.1	1.8	1.7	1.8	1.8
Other ⁴	.6	.7	.9	.8	.8	.8
Total ⁵	12.6	11.0	11.6	12.3	12.4	12.5

¹Preliminary.

²Excludes butter.

³Includes dry beans and peas, nuts and soy products, and potatoes.

⁴Includes eggs, fats and oils, sugars, coffee, and cocoa.

⁵Components may not add to total due to rounding.

Contribution of Major Food Groups to Nutrient Supplies¹ —Continued

Food group	Food energy	Protein	Fat	Carbohy- drate	Cal- cium	Phos- phor- us	Iron	Magne- sium Percent	Vita- min A value	Thia- min	Ribo- flavin	Nia- cin	Vita- min B ₆	Vita- min B ₁₂	Ascor- bic acid
1980 Preliminary															
Meat (Including pork fat cuts), poultry, and fish.....	21.0	42.9	36.1	.1	4.2	28.6	31.1	14.0	23.9	27.9	23.5	45.4	40.7	71.9	2.1
Eggs.....	1.8	4.9	2.7	.1	2.4	5.2	5.1	1.2	5.5	1.9	4.9	.1	2.1	8.2	0
Dairy products, excluding butter....	9.9	20.2	11.2	5.7	71.6	32.6	2.4	19.8	12.2	7.2	36.3	1.2	10.7	18.4	3.2
Fats and oils, including butter....	18.2	.1	43.0	(²)	.4	.2	0	.4	7.8	0	0	0	(²)	0	0
Citrus fruits.....	1.0	.6	.1	2.1	1.1	.9	.9	2.6	1.7	2.9	.6	.9	1.5	0	29.3
Other fruits.....	2.3	.7	.3	5.0	1.4	1.3	3.9	4.5	5.9	1.8	1.7	1.7	7.1	0	11.8
Potatoes and sweet-potatoes.....	2.7	2.3	.1	5.1	1.0	3.6	4.4	7.1	5.0	4.5	1.4	5.9	9.5	0	13.5
Dark green and deep yellow vegetables..	.2	.4	(²)	.4	1.5	.6	1.6	2.0	18.5	.7	1.0	.5	1.9	0	9.0
Other vegetables, including tomatoes..	2.5	3.3	.4	4.7	5.2	5.1	9.9	10.7	16.7	6.2	4.7	5.7	10.7	0	27.8
Dry beans and peas, nuts, soya flour and grits.....	3.0	5.5	3.7	2.1	3.1	6.4	6.8	12.3	(²)	5.0	1.9	6.8	5.0	0	(²)
Grain products.....	19.9	18.8	1.3	36.2	3.8	13.4	31.0	19.1	.4	41.7	23.3	28.4	10.6	1.6	0
Sugar and other sweeteners.....	17.0	(²)	0	38.1	3.3	.7	.6	.2	0	(²)	(²)	(²)	(²)	0	(²)
Miscellaneous ³.....	.6	.3	1.0	.5	.8	1.5	2.1	6.4	2.2	.1	.6	3.3	.1	0	3.3

³Coffee, chocolate liquor equivalent of cocoa beans, and fortification of products not assigned to a food group.

Changing Home Food Production and Preservation Patterns

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from third to second place as a source of zinc in the food supply. They currently provide 20 percent of the zinc, compared with only 15 percent at the beginning of the century. Most of this increase is due to the fourfold increase in cheese consumption.

The third leading source of zinc in the current food supply is the grain products group, providing 13 percent of the total. Grain products accounted for approximately twice as much zinc at the beginning of the century when they were the second leading source of zinc. Decreased consumption of wheat and corn products has been a primary cause of the decline. ■

Nutrients Available for Consumption, Per Capita Per Day¹

Nutrient (unit)	1967	1980 ²
Food energy (cal)	3,240	3,520
Protein (gm)	99	103
Fat (gm)	152	168
Carbohydrate (gm)	374	406
Calcium (mg)	947	891
Phosphorus (mg)	1,529	1,528
Iron (mg)	16.4	17.6
Magnesium (mg)	341	343
Vitamin A value (IU)	7,900	8,400
Thiamin (mg)	1.9	2.2
Riboflavin (mg)	2.3	2.4
Niacin (mg)	23.2	26.8
Vitamin B ₆ (mg)	1.9	2.0
Vitamin B ₁₂ (mcg)	9.4	9.5
Ascorbic acid (mg)	105	123

¹Quantities of nutrients computed by Science and Education Administration, Human Nutrition, Consumer Nutrition Center, on the basis of estimates of per capita food consumption (retail weight), including estimates of produce of home gardens, prepared by the Economics and Statistics Service. No deduction made in nutrient estimates for loss or waste of food in the home, use for pet food, or for destruction or loss of nutrients during the preparation of food. Civilian consumption. Data include iron, thiamin, riboflavin, and niacin added to flour and cereal products; other nutrients added primarily as follows: Vitamin A value to margarine, milk of all types, flavored milk extenders; vitamin B₆ to cereals, meal replacements, infant formulas; vitamin B₁₂ to cereals; ascorbic acid to fruit juices and drinks, flavored beverages and dessert powders, flavored milk extenders, and cereals.

²Preliminary.

American households have responded to rising food costs with garden shovels and freezer bags.

Home food production and home freezing increased from 1964 to 1976, while participation in home canning shifted among types of households. In addition to high food costs, changes in the labor force and other economic factors may have been responsible for this trend.

The Nationwide Food Consumption Survey (NFCS) of 3,500 households (those with at least one member having 10 or more meals prepared at home during the week preceding the interview) was conducted by USDA in the spring of 1977. Trends in home food production and preservation were identified by comparing household practices with a similar survey in 1965 (6,200 households). Respondents were asked if the household had engaged in home food production and preservation practices during the previous year. Although these data were collected for all four seasons in the latest NFCS, the 1965 survey collected data only during the spring.

Home Produced Food

Home produced food was defined as that raised for home use or obtained by hunting and gathering from the wild. One out of two surveyed households produced food at home in 1976, compared with one out of three households in 1964. Most of the increase in home food production appears to have been associated with vegetable gardening. Forty-three percent of the households produced tomatoes in 1976, compared with 27 percent in 1964, while the percentage of households producing animal products such as eggs, milk, or meat for home use decreased from 10 to 7 percent.

Between 1964 and 1976, home food production by households in various income categories shifted considerably. Though income information obtained for 1976 is not directly comparable with that of 1965, according to the 1976 survey, higher income households were more likely to produce food for home use.

For the purpose of comparing home food production and preservation practices at different income levels, the total number of households reporting income in each of the two years were divided into five groups, according to similar proportions of the distribution of income (see tables). Much of the increase in the numbers of home producers occurred among the middle- and upper-income groups. In the lowest income levels, there was actually a reduction in the percent of home food produced, from 43 to 35 percent. Higher food costs may have motivated the higher income households to plant gardens, and their larger incomes would make garden costs (land, tools, etc.) more affordable.

The percentage of households producing foods for home use increased in each region of the United States between 1964 and 1976. In the South, an increase of 7 percentage points was observed compared with about a 16 percentage point increase in the other regions.

As anticipated, the incidence of home food production decreased with the degree of urbanization. In 1976, a household in a nonmetropolitan area was twice as likely to produce foods for home use as households in central cities. About 50 percent of households in suburban sections of metropolitan areas reported having produced food for home use.

One-fourth of U.S. households surveyed reported home consumption of fish from noncommercial sources. Below average ratios, about 15 percent, were found for households in the lowest income levels, in the Northeast, and in central cities. The percentage of households catching fish for use at home ranged from 24 to 32 percent in other income, regional, and urbanization categories.

Home Preserved Food

The increasing number of households producing food for home use between 1964 and 1976 was accompanied by a major increase in the proportion of households reporting home freezing of foods. The percentage of households engaged in freezing activities more than doubled, increasing from 24 to 55 percent. The percentage of