

## Chapter Three

# What We Eat

---

DEFINING THE GOALS and objectives of nutrition education depends in a large part on knowing what people eat. The United States Department of Agriculture is, in a sense, the watchdog of the diets of the nation. Faithful since the beginning of the century, this branch of the government has been continuously at work to find out about our food supply through studies of food disappearing through retail channels, surveys of household food consumption, and dietary records of individuals. These studies have been supplemented by regional research with the cooperation of many universities and experiment stations and a number of state agencies.

As knowledge of food composition has developed, more nearly accurate estimates have been made of the nutrient supply. For determining the needs of educational programs we should have more than national averages. Researchers with colleges and universities (both public and private), industries, and various foundations have studied food and nutrient consumption of specific groups of people throughout the land. From these sources have come many types of data to help nutrition educators toward a better understanding of what we eat.

The net result is that we have acquired much information about trends in food consumption over the years and about differences among groups, defined by such characteristics as age, sex, place of residence (rural or urban) socioeconomic level, region, and even employment of homemaker. It should be remembered, however, that changes in society result in changes in food habits. Hence the food and nutrient supply of a people must be under constant surveillance. Nutrition education programs must be based on up-to-date information on food practices, not what was done 15 or 20 years ago — unless, of course, there has been no change.

Three publications of much significance to educators are the Yearbook of Agriculture, 1959, entitled *Food*, published by the United

States Department of Agriculture; *Nutritional Status, U.S.A.*, Bulletin 769 published by the California Agricultural Experiment Station; and the *Agricultural Outlook Chartbook*, issued annually by the USDA. These publications are readily available to nutrition educators, but since the findings of these reports are basic to nutrition education programs, some will be highlighted in this chapter. Certain tables and figures merit repeated study and consideration by the educators.

### RECENT TRENDS IN FOOD CONSUMPTION

Nutrition educators are not expected to be experts in all phases of food economics, but it is important for them to know what is going on in the market places of our nation. Reliable wide-scale surveys furnish indications of trends and changes in food consumption. As we walk down the aisles of any supermarket, we can easily observe that our food supplies are constantly improving: new products are competing for the food dollar, although many emphasize convenience and attractive packaging at higher cost and with little improvement in nutritive quality.

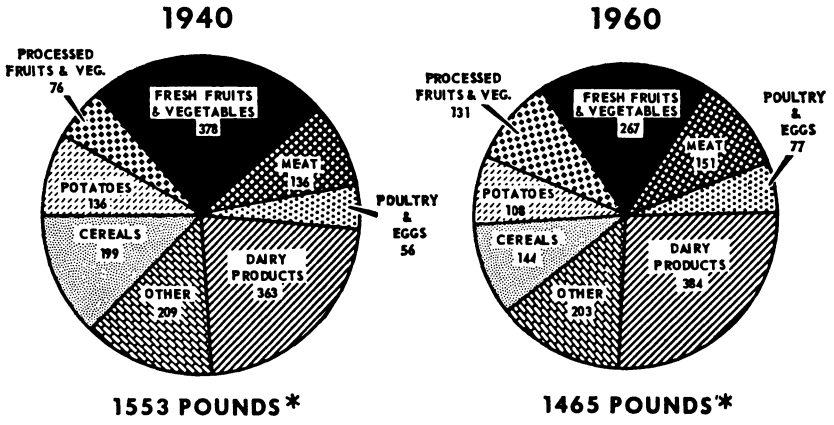
*New products emphasize convenience with little improvement in nutritive quality.*



Trends in consumption of certain groupings of food between 1940 and 1960 are clearly shown in Figure 3.1. Despite fairly large increases in income, fewer pounds of food were used per person in the United States in 1960 than in 1940. Experts in the USDA attribute this shift in food consumption to such factors as changing population, lighter physical work loads, knowledge of developments in nutrition, concern about obesity and overweight, and technological advancements affecting food products. These factors, they say, are expected to continue to modify our diets for years to come.

Further analyses reveal some data that are of particular interest to the nutrition educator: in 1960 Americans appeared to consume 33 pounds more of red meat and poultry per person than in 1940, 28 pounds less of potatoes, and 55 pounds more of processed fruits and vegetables, but 111 pounds less of the fresh. Since 1955, consumers have been eating more beef than pork per person.

To the nutritionist, changes in consumption of dairy products and of vegetables and fruits as shown in Figures 3.2, 3.3, and 3.4 are of special interest.



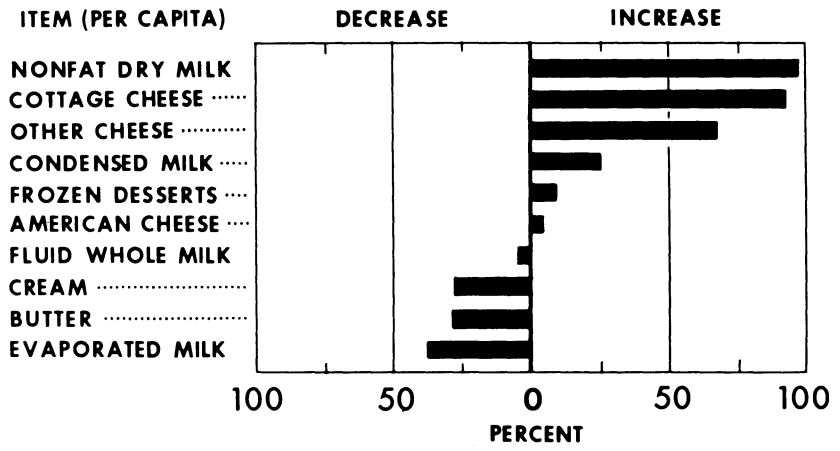
\* RETAIL WEIGHT EQUIVALENTS.

U. S. DEPARTMENT OF AGRICULTURE

NEG. ERS 445-61 (P) ECONOMIC RESEARCH SERVICE

Fig. 3.1 — Changing tastes put emphasis on different foods. (Source: USDA, Agricultural Outlook Chartbook, 1962, p. 9.)

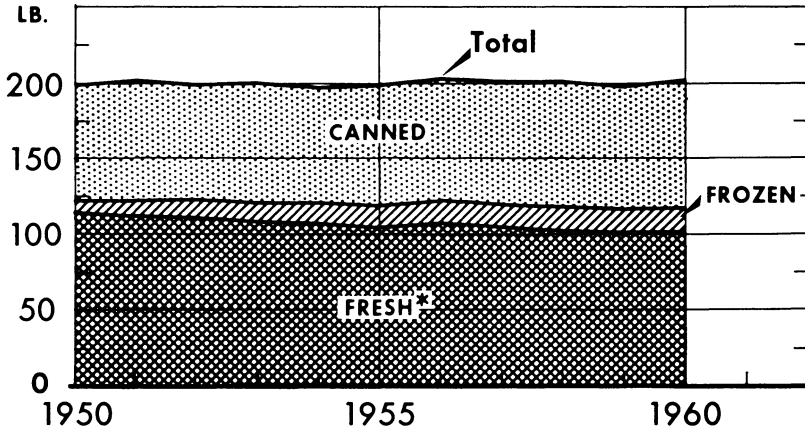
### Change From 1947-49 to 1960



U. S. DEPARTMENT OF AGRICULTURE

NEG. ERS 426-61 (B) ECONOMIC RESEARCH SERVICE

Fig. 3.2 — Consumers shift to greater use of dairy products rich in solids-not-fat (1947-49 and 1960). (Source: USDA, Agricultural Outlook Chartbook, 1962, p. 16.)



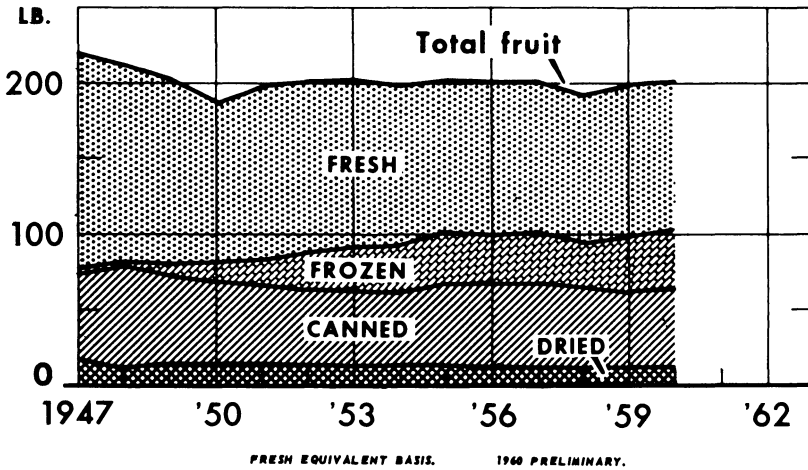
CIVILIAN CONSUMPTION, FRESH EQUIVALENT BASIS

\* EXCLUDING MELONS

U. S. DEPARTMENT OF AGRICULTURE

NEG. ERS 343-61 (8) ECONOMIC RESEARCH SERVICE

Fig. 3.3 — Use of vegetables per person has remained nearly stable since 1950. (Source: USDA, *Agricultural Outlook Chartbook*, 1962, p. 30.)



FRESH EQUIVALENT BASIS.

1960 PRELIMINARY.

U. S. DEPARTMENT OF AGRICULTURE

NEG. ERS 399-61 (8) ECONOMIC RESEARCH SERVICE

Fig. 3.4 — Large gain in frozen items marks per capita fruit use. (Source: USDA, *Agricultural Outlook Chartbook*, 1962, p. 32.)

To some extent consumers have changed their use of dairy products rich in fat to those rich in nonfat solids. According to agricultural economists, the reduction in per capita consumption of milk fat has been due both to competition from products made from lower priced vegetable oils, and to a conscious effort on the part of many consumers to restrict their intake of certain fats. Because of population increases, the aggregate consumption of milk fat has changed very little, while that of nonfat solids has increased. The extended use of nonfat dry milk solids is gratifying to nutritionists, who have long appreciated the value of this food in enriching the diet. A fair share of the increment may be attributed to the use of the dried product in prepared foods. Much remains to be done to educate the individual homemaker to the importance and use of nonfat dry milk.

Total consumption of vegetables over the last decade has remained surprisingly stable as shown in Figure 3.3. The same can be said for fruits as shown in Figure 3.4. These statistics may be somewhat discouraging to nutritionists, who for years have been teaching people that diets in general would be improved by the use of more vegetables and fruits, particularly of certain types. Figure 3.4 shows an increased use of frozen fruits, with waste reduced to a minimum, and of frozen concentrated juices which may represent an upgrading of the diet not revealed in the poundage trend. To be effective in increasing the use of fruits and vegetables, it appears that new approaches are needed. The shift from fresh to processed varieties of fruits and vegetables has been spectacular (see Fig. 3.5).

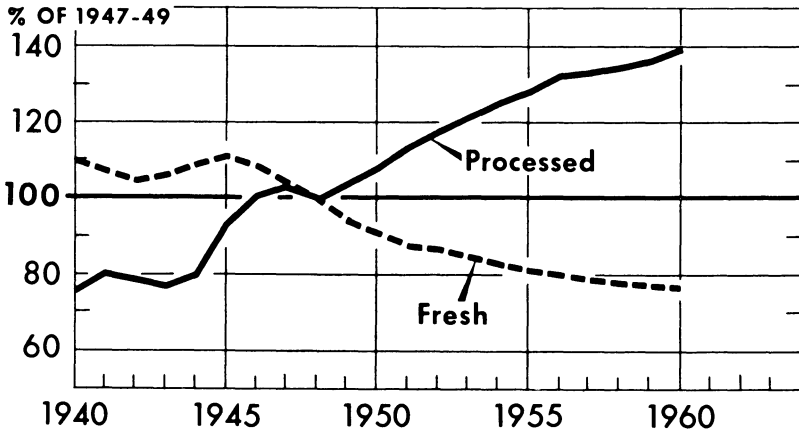


Fig. 3.5 — Fresh fruits and vegetables give way to processed forms. (Source: USDA, *Agricultural Outlook Chartbook*, 1962, p. 9.)

Consumers have reduced the per capita consumption of eggs; according to the USDA, this is largely due to the declining importance of breakfasts in the diets of urban families. Use of eggs in prepared foods, however, is helping to support the intake of this important food.

Probably one of the most pronounced changes in food consumption since the early 1940's has been the reduction in use of potatoes and cereals (see Fig. 3.6). However, the decline in per capita use of potatoes has recently been checked as people have begun to consume more frozen French fries, chips, and dehydrated potatoes. This indicates that trends in our food consumption appear to rest more and more in the hands of the food processors, who can influence consumer preferences through the development of attractive and convenient products.

Reasons for the decrease in use of cereals include increased incomes, greater availability of other foods, concern about overweight, reduced work loads, population shifts to urban areas, and a decrease in home baking.

Any realistic approach to nutrition education requires a consideration of significant trends in food consumption (see Fig. 3.7) and the reasons for them in so far as they can be determined. This approach represents the tide with which nutrition education must flow. If new directions in food consumption are to be sought, the obstacles affecting them may be detected by paying careful heed to these trends.

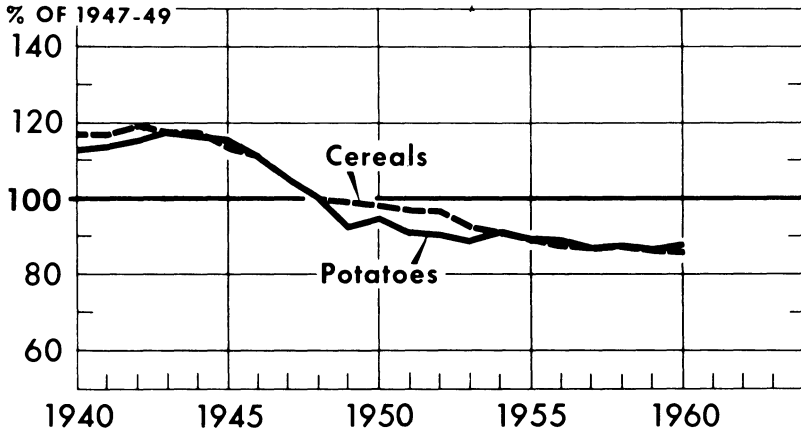
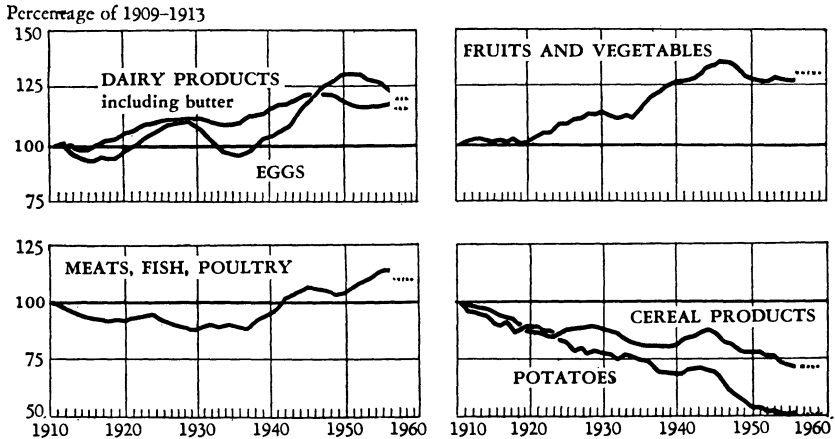


Fig. 3.6 — Decline in per capita consumption of potatoes has halted; cereal decline has continued. (Source: USDA, *Agricultural Outlook Chartbook*, 1962, p. 10.)



5-year moving average centered. Data shown for year 1958.  
Per capita civilian consumption, U.S. (using 1947-1949 retail prices as weights).

Fig. 3.7 — Trends in food consumption. (Source: USDA, *Food, The Yearbook of Agriculture 1959*, p. 592.)

The distribution of calories among the food groups in family diets is shown in Figure 3.8. This is not to be regarded as a standard, but if the distribution differs greatly from this, one may expect some deviation in nutritive value from that which typifies the national dietary picture.

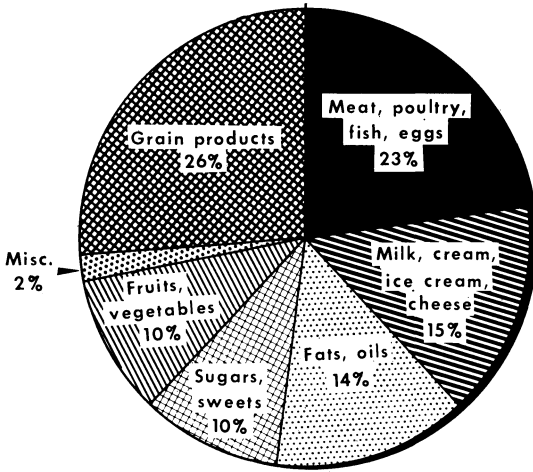
### FOOD, MONEY, AND THE NUTRIENT SUPPLY

Consumers spent \$62.2 billion for domestic farm-produced foods in 1961 — a \$20.7 billion increase over 1950.<sup>1</sup> This is a fantastic figure which we can hardly comprehend, and it signifies the importance of food to our economy. The increase between 1950 and 1961 can largely be accounted for by rising costs of marketing. Competition for retail food dollars creates some of the major problems confronting the nutrition educators, who bear heavy responsibility in directing people to food expenditures that will yield optimum returns in terms of individual and national health.

The stability of our economy in recent years has brought expanded purchasing power, which has encouraged many improvements in our food marketing system. Countless attractive and convenient products have been introduced within amazingly short periods of time. Advertising has gone hand in hand with supermarkets and their distribution systems to popularize these products rapidly and thus create a large impact upon food habits and preferences.

Per capita consumption of food rises slightly as income increases: for each 10 per cent increase in income per capita, economists have noted a rise of about 2 per cent in food consumption. In general,

<sup>1</sup>USDA, *Agricultural Outlook Chart Book*, 1962, p. 11.



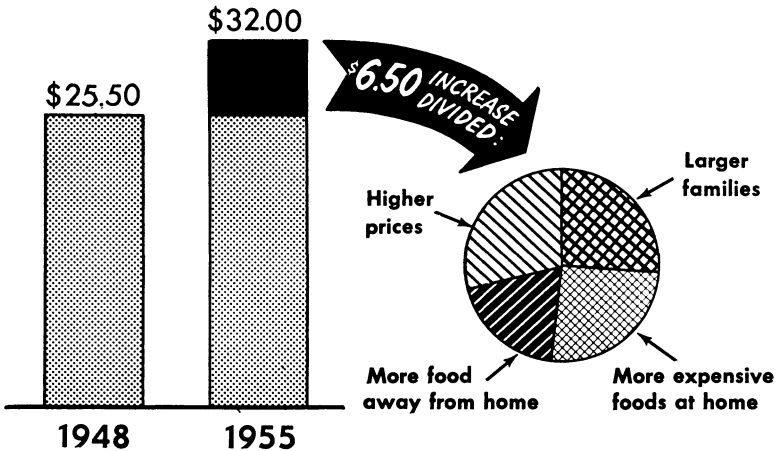
U. S. DEPARTMENT OF AGRICULTURE      NEG. 60 (11)-5660      AGRICULTURAL RESEARCH SERVICE

Fig. 3.8 — Sources of calories in family diets, spring, 1955. (Source: USDA, Household Food Consumption Survey 1955, Report No. 16, p. 6.)

more food in the presence of what already is sufficient cannot be considered an asset to health. Higher incomes usually mean better diets. Yet increased expenditures for food do not necessarily insure improved diets for *all families*.

Figure 3.9 shows that between 1948 and 1955 the average family spending for food in a week increased from \$25.50 to \$32.00. This \$6.50 increase represented higher prices for food, the needs of larger families, the use of more expensive foods at home, and more meals

**Average family spending in a week:**



U. S. DEPARTMENT OF AGRICULTURE      NEG. 56(10)354      AGRICULTURAL RESEARCH SERVICE

Fig. 3.9 — Changes in urban food expenditures. (Source: USDA, ARS, Oct. 1956.)





*This \$6.50 increase represented higher prices for food . . .*

eaten away from home. Relatively little improvement of diets was apparent, which emphasizes again the continuing need of nutrition education for homemakers.

Expenditure of the food dollars is readily apparent in Table 3.1, showing how it is distributed among food groups, as determined by the 1955 Household Food Survey. Figure 3.10 shows the relationship of income to food consumption.

One very significant change in our way of life is the increasing practice of eating meals away from home. In 1929, 13 per cent of food was eaten outside the home; in 1958 the percentage had risen to 17. Prices of food away from home have increased much more than the cost of food at home (see Fig. 3.11); this difference is due more to the increased costs of labor than of food. Whether or not meals are actually taken outside the home, prices of many food items will include the cost of services as well as of food, because of the popularity of prepared convenience products.

In these years of prosperity, little attention has been paid in nutrition education to the true costs of food—the “raw material”—as compared with added costs of processing and packaging. Nutrition educators are therefore responsible for interpreting to the public the criteria for determining the *actual* value of food items, with consideration of the proportion of waste and the amounts of food energy and nutrients obtained for money spent. During the depression and World War II, nutritionists paid close attention to the problem of “what a

TABLE 3.1  
SHARES OF THE FOOD DOLLAR AS DISTRIBUTED AMONG THE MAJOR TYPES OF FOOD\*

Meat, poultry, fish, or eggs . . . . .	35¢
(24¢ for beef, pork, veal, and lamb	
5¢ for poultry	
4¢ for eggs	
2¢ for fish)	
Vegetables and fruit . . . . .	18¢
(More than half for fresh produce)	
Milk and milk products . . . . .	14¢
Flour, cereals, bread, baked goods . . . . .	11¢
Beverages . . . . .	10¢
(About one-third for alcoholic beverages, as reported by householders)	
Fats and oils, sugars and sweets, and miscellaneous items such as condiments, seasonings, mixtures, soups . . . . .	12¢

\* Data from *Household Food Consumption Survey, 1955.*

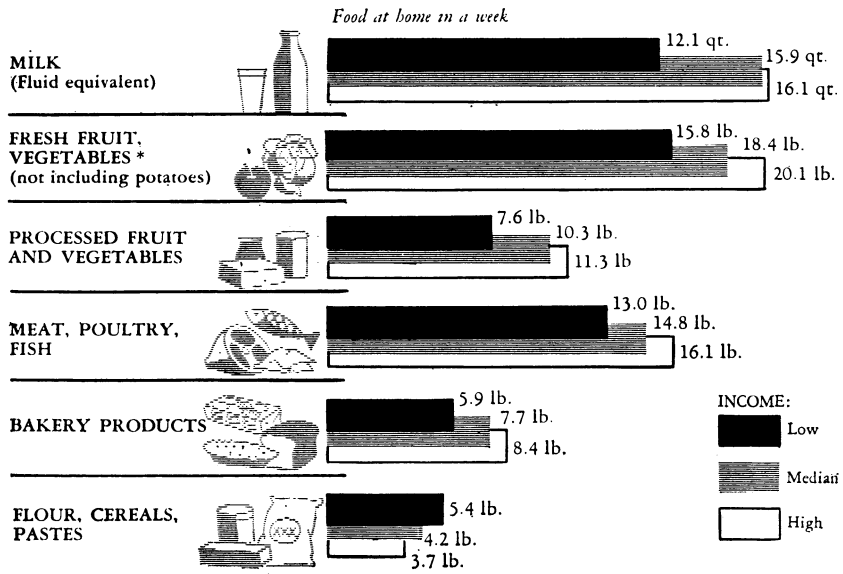


Fig. 3.10 — Income and food consumption per city family, spring, 1955. (Source: USDA, *Food*, The Yearbook of Agriculture 1959, p. 610.)

dime will buy.” Recalculation in the light of today’s dime and today’s food market would be illuminating to many consumers. Money spent for saving time and effort in food preparation must be reconciled with the capacities, values, and goals of the individual and the family, too. Table 3.2 shows an analysis made of nutrients available per dollar

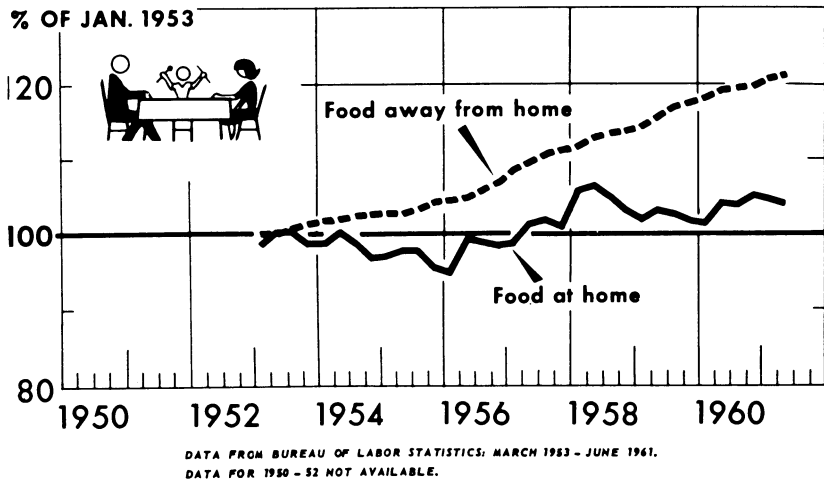


Fig. 3.11 — Prices of food away from home increase more than food at home. (Source: USDA, *Agricultural Outlook Chartbook*, 1962, p. 39.)

TABLE 3.2  
NUTRIENTS PER DOLLAR  
Average Quantity and Nutritive Value Per Dollar of Money Value<sup>1</sup> of Food Used at Home in a Week, by Food Group  
(Housekeeping households of 1 or more persons in the U.S., April-June 1955)\*

Food Group (1)	Quantity of Food (2)	Food Energy (3)	Pro- tein (4)	Cal- cium (5)	Iron (6)	Vitamin A value (7)	Thi- amine (8)	Ribo- flavin (9)	Ni- acin (10)	Ascorbic acid (11)
		<i>calories</i>	<i>gm.</i>	<i>gm.</i>	<i>mg.</i>	<i>International Units</i>	<i>mg.</i>	<i>mg.</i>	<i>mg.</i>	<i>mg.</i>
Milk, cream, ice cream, cheese. . . . .	3.9 qt.	2,900	140	4.5	3	7,300	1.2	6.3	4	40
Milk, fresh and processed. . . . .	4.8 qt.	3,200	160	5.6	3	7,300	1.6	8.1	5	60
Cream and ice cream. . . . .	2.3 lb.	2,200	40	1.2	1	6,500	.4	1.8	1	10
Cheese. . . . .	2.0 lb.	2,600	180	3.7	6	8,400	.1	3.1	1	†
Meat, poultry, fish, eggs, dry legumes, nuts (including mix- tures and soups). . . . .	1.9 lb.	2,000	120	.2	19	5,300	1.1	1.5	23	†
Meat, poultry, fish. . . . .	1.7 lb.	1,700	120	.1	16	4,900	1.0	1.3	25	†
Bacon, salt pork. . . . .	1.9 lb.	5,600	70	.1	6	†	1.4	.9	15	0
Eggs. . . . .	2.0 doz.	1,800	140	.6	30	12,700	.9	3.1	1	0
Dry beans and other legumes. . . . .	4.6 lb.	6,800	440	2.7	142	†	6.3	4.3	44	40
Nuts, peanut butter. . . . .	1.6 lb.	4,100	170	.6	16	†	1.4	.9	99	†
Vegetables (including mixtures and soups). . . . .	6.6 lb.	1,500	50	.7	22	28,700	1.7	1.4	19	340
Potatoes. . . . .	11.8 lb.	4,200	90	.5	33	†	3.8	1.8	50	470
Dark green and deep yellow (including sweet potatoes). . . . .	5.5 lb.	800	40	1.6	30	168,700	1.2	2.1	12	590
Other green. . . . .	5.7 lb.	700	50	.8	23	10,300	1.5	1.5	11	300
Tomatoes. . . . .	5.1 lb.	700	30	.3	13	27,600	1.3	1.0	20	390
Other vegetables. . . . .	5.7 lb.	1,000	30	.6	15	3,300	.8	1.0	9	180

[ 46 ]

TABLE 3.2 (continued)

Food Group (1)	Quantity of Food (2)	Food Energy (3)	Pro- tein (4)	Cal- cium (5)	Iron (6)	Vitamin A value (7)	Thi- amine (8)	Ribo- flavin (9)	Ni- acin (10)	Ascorbic acid (11)
		<i>calories</i>	<i>gm.</i>	<i>gm.</i>	<i>mg.</i>	<i>International Units</i>	<i>mg.</i>	<i>mg.</i>	<i>mg.</i>	<i>mg.</i>
Fruits . . . . .	6.3 lb.	1,500	20	.4	11	6,400	1.1	.7	8	610
Citrus . . . . .	6.9 lb.	1,600	30	.7	11	4,300	2.2	.7	8	1,520
Dried . . . . .	3.0 lb.	3,700	40	.9	48	16,600	1.2	1.8	15	40
Other . . . . .	5.8 lb.	1,400	10	.3	10	6,800	.7	.7	7	230
Grain products (including mixtures and soups) . . . . .	3.6 lb.	7,200	190	1.6	44	400	5.2	3.3	47	†
Enriched, restored, or whole grain . . . . .	4.3 lb.	8,100	240	2.1	62	†	7.7	4.7	67	†
Not enriched, restored, or whole grain . . . . .	2.7 lb.	6,400	130	.8	18	900	1.6	1.2	17	†
Fats and oils . . . . .	2.7 lb.	9,200	10	.1	1	18,500	.1	†	†	0
Butter and margarine . . . . .	2.1 lb.	6,900	10	.2	†	31,600	†	†	†	0
Other (including salad dressings) . . . . .	3.5 lb.	12,400	10	.1	3	800	.1	.1	†	0
Sugars and sweets . . . . .	3.7 lb.	6,200	10	.3	8	200	.1	.4	1	10

<sup>1</sup> Based on food used and prices paid by households surveyed in 1955. Price changes since 1955 would affect the absolute quantities of foods and nutrients but would have little effect on the interrelationships between the broad groups of foods.

\* Source: USDA, *Household Food Consumption Survey 1955*.

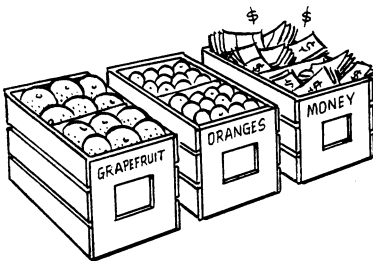
† Less than 50 International Units of vitamin A value, 5 milligrams of ascorbic acid, 0.5 milligrams of iron or niacin, 0.05 milligrams of thiamine or riboflavin.

from the different food groups. This is a significant guide in teaching the true economy of foods in terms of nutrients supplied.

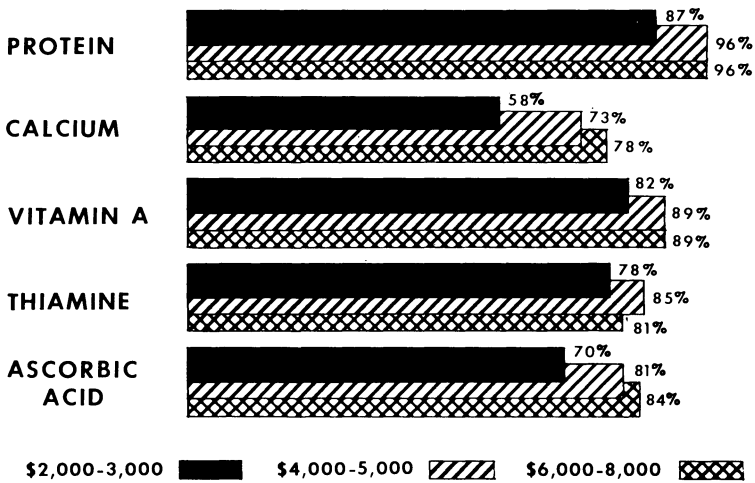
The following summary of observations from the 1955 Household Food Consumption Survey by the USDA should be of help to nutrition educators as they work with people of varying income levels:

1. Income *does* affect the type and amount of food used by a family, hence the nutritive value of the diet is influenced by it, although it is a difficult matter to assess the effects of income *per se*.
2. Diets of higher income families contain larger quantities of nearly all nutrients than do those of low-income groups, as shown in Figure 3.12.
3. The nutritive value of the diets of farm families is less closely related to income, particularly in a single year, than is that of urban families.
4. The nutrient with the closest relationship to income is ascorbic acid. People with more money to spend buy more fruits and vegetables, which provide nearly all of the ascorbic acid in the diet. The key food illustrating this tendency is the citrus fruit group.
5. Thiamine is the nutrient least related to income level. Families with high incomes are as likely to fall short in the supply of this nutrient as families of low incomes. Use of pork and grains greatly influences this picture.
6. The beneficial effect of enrichment programs has been noted most dramatically for low-income families. Their diets showed in 1955 that they consumed more grain products; consequently, enrichment greatly improved their intakes of iron, riboflavin, thiamine, and niacin.

That increased purchasing power does not ensure good diets is illustrated in Figure 3.13. At the top-income level, the percentage of family diets not meeting the Allowances is considerably reduced for all nutrients studied except thiamine. But even at this income level, problems related to dietary adequacy in calcium and ascorbic acid are fairly common.



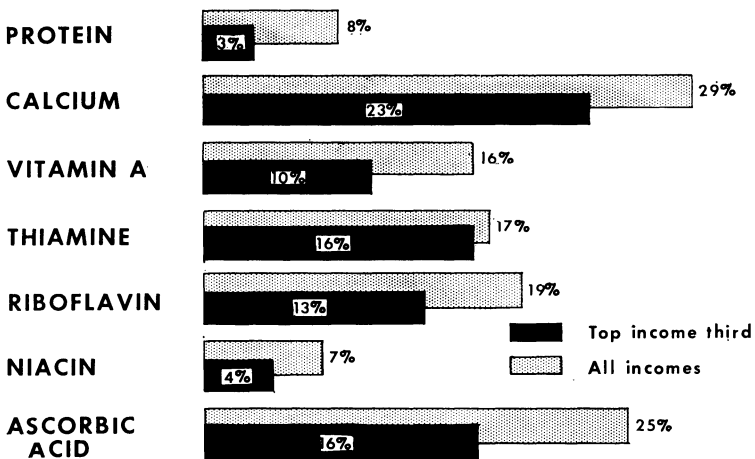
*People with more  
money to spend  
buy more fruits . . .*



U. S. DEPARTMENT OF AGRICULTURE

NEG. 57 (3)-396 AGRICULTURAL RESEARCH SERVICE

Fig. 3.12 — Income and percentage of city families meeting NRC allowances, 1955. (Source: USDA, ARS, Mar. 1957.)



U. S. DEPARTMENT OF AGRICULTURE

NEG. 57 (3)-397 AGRICULTURAL RESEARCH SERVICE

Fig. 3.13 — Need for changed food habits, 1955, showing family diets not meeting NRC allowances. (Source: USDA, ARS, Mar. 1957.)

## **FOOD AND NUTRIENT CONSUMPTION DIFFERENCES AMONG GROUPS**

The Household Food Survey of 1955 has helped pinpoint some of the differences to be found among population groups in our country. These differences may be useful in selection of appropriate educational emphases, but it must be kept in mind that it is difficult to isolate and separately consider the many factors that influence the food supply. Complete details on survey data may be obtained from a series of publications entitled "Household Food Consumption Survey, 1955," published by the United States Department of Agriculture.

### **Regional Variations**

Regional differences in food consumption practices existed but were not great in 1955. In fact, they were usually less than income differences within a region.

Of the four regions, Northeast, North Central, South, and West, the South generally differed more from the other three regions than these regions differed from each other. In southern states, food expenditures were lower, relatively less of the dollar went for food away from home, and, because southern families were larger, differences per person were relatively greater. A little less food was produced at home in the South. Greater use of grain products and more home baking have been traditional features of southern diets, along with use of more fats and more sugars — at least in the cities.

Regional differences in food consumption can be associated with levels of nutrients in the diet. For example, low levels of milk consumption in the South would account for the relatively low intakes of calcium. Similarly, smaller consumption of citrus fruit and tomatoes and of fruits and vegetables of all kinds resulted in lower ascorbic acid levels for southern diets.

Another regional deviation of interest is the lower level of thiamine in household diets of people in the Northeast region. This difference is associated with the relatively smaller consumption of pork and grain products in this region.

Regional differences may be linked with such factors as income, basic food habits, and the ratio of rural families to urban.

### **City-Farm Differences**

Farm families in 1955 generally had more food than city families, but city families ate out more often. Farm diets made greater use than city diets of milk, grains, sugars, and fats. But farm families, surprisingly enough, consumed less meat. As a group, farm people produced 68 per cent of their milk, using a larger proportion in its original

form and less as processed milk and cheese than families who bought their milk.

Farm families consumed more eggs than city families and a larger proportion of such grain products as cereal and the flour used in home baking. Nonfarm families used more vegetables, fruits, and potatoes than did farm families.

Measured in terms of calories, rural people consumed more food. The 1955 Survey showed that in the North, a few more farm than city families had diets meeting the allowances for all of the nutrients. When their diets failed in any nutrient, however, farm people tended to fare worse than city families. Investigators pointed out that the 1955 study was made in the spring. Although this season is considered most typical of the year-round diet, different results might have been noted at other seasons.

**Size of Family**

The food budget takes more of the family funds in larger than in smaller families, but the expenditure per person is less. This is apparent in Table 3.3 which shows city families of six members in the median-income class spent an average of nearly half their income for food, while families of two spent only a fourth. The money value of food per person in the 6-member families was less than two-thirds as much as in the 2-member families.

Large families eat fewer meals away from home; members of large families who do eat out usually spend less than members of small families.

Trends in food consumption by size of family were similar for both farm and urban families. The value of home-produced food tended to be greater for farm families with more members. Extending home production is apparently one way the large family augments its food budget.

TABLE 3.3  
 PERCENTAGE OF INCOME SPENT FOR FOOD AND MONEY VALUE OF FOOD;  
 CITY FAMILIES IN MEDIAN INCOME GROUP

Family Size	Per Cent of Income Spent for Food	Money Value of All Food Eaten at Home and Away in a Week (per family member)
2-member families.....	26	\$11.54
3-member families.....	35	\$10.30
4-member families.....	39	\$ 8.74
5-member families.....	46	\$ 8.20
6-member families.....	48	\$ 7.10



These observations were based on the 1955 data:

1. Households with six or more persons found it difficult to meet allowances for protein. About the same proportion of families with 2, 3, 4, or 5 members had diets containing enough protein.
2. Larger households had the most difficulty in providing enough calcium in the diet. Nearly all of the larger households included children.
3. Larger households did just about as well as small households in providing recommended amounts of thiamine, because per person they used as much enriched or whole-grain bread, flour, and cereals.

Peak expenditures for food were made by families in which the housewife was between 30 and 50 years old. The 30- to 49-year group, with an average household size of 3.96, was most significant in regard to its total consumption and the consequent size of its food bill.

### **Age of Homemaker**

For dietary adequacy, households with homemakers 60 years of age and older did not fare as well as households of younger homemakers regardless of income. Table 3.4 shows, in relation to the age of the homemaker, the percentages of households in which the food used at home in one week failed to meet the recommended amounts of nutrients.

The relatively poorer nutritional position of older persons can be related to their lower consumption of major food groups. Meat consumption was higher for each successive age group up to 60, but was less for households with homemakers over 60 than for those in their 50's. Similarly, consumption of all fruits and vegetables, whether fresh or processed, was greater for households in each successive group up to those with homemakers in their 50's, but less for the oldest group.

Homemakers over 60 years of age provided poorer diets for their families than did younger women. In the older group, families consisted of 2.58 persons; only 10.2 per cent had children under 16 years of age. Forty-two per cent of the households represented by this group had incomes of \$2,000 per year or less, as compared with 10 to 20 per cent in the others. Average level of food consumption of the over-60 age group reflected the pattern of households of the lowest economic class.

This study has pointed to age differences and what would seem to be dietary inferiority in households in which the homemaker is 60 years or older. Similarities among age groups, however, are greater than differences with a specific age group, and the diets in the United States, as shown by the USDA interpretation of its data, do not have clearly defined subcultures according to age. Older homemakers ac-

TABLE 3.4  
 PERCENTAGE OF HOUSEHOLDS NOT MEETING NRC ALLOWANCE, BY AGE GROUP  
 OF THE HOMEMAKER\*

	Under 30 Years	30-49 Years	50-59 Years	60 Years and Over
Protein . . . . .	5	7	8	13
Calcium . . . . .	28	30	25	31
Iron . . . . .	5	9	10	16
Vitamin A value . . . . .	15	17	15	20
Thiamine . . . . .	13	17	19	19
Riboflavin . . . . .	14	19	20	27
Niacin . . . . .	5	7	6	10
Ascorbic Acid . . . . .	24	24	24	29

\* Source: "Dietary Evaluation of Food Used in Households in the United States," *Household Food Consumption Survey, 1955*, Report No. 16, USDA, Washington, 1955, p. 5.

cepted relatively new foods such as frozen vegetables and fruits — an encouraging point for nutrition educators. A summary in the Household Food Consumption Survey (1) stated:

Traditional consumption patterns may be more accessible to change than some had supposed. Scientifically sanctioned food innovations seem to find a place in the households of older homemakers as well as of younger ones.

**Living Alone**

Persons living alone spent a fifth more for food than those in households of two people or more, using a tenth more food per person, measured in calories. They used more of all food groups except milk, yet their diets were no better. Half did not reach recommended amounts in one or more nutrients. More had diets lower in iron than was observed for persons in large families; a few more had diets low in protein and the B vitamins. Nearly three-fourths of those who lived alone were women; half were women 55 or more years old.

**Employment of Homemaker**

The percentage of women employed outside the home is mounting. The 1955 Survey sought to find out whether employment made any difference in the quality of food provided in the household. Of all homemakers reporting, more than one-fourth were employed outside the home, and of these 70 per cent had full-time rather than part-time jobs.

There was little indication that more of the households with employed than unemployed homemakers had diets falling below the recommendations of the National Research Council. However, food patterns for the two groups did differ somewhat. Money value of food

used *per person* in households of employed homemakers was generally greater than in the households of the nonemployed. Families of nonemployed homemakers included 3.7 persons, while those employed had 3.08 persons. The result was that in households with nonemployed homemakers (with larger families), the total money value and quantity of food used were greater.

Interestingly enough, in 1955 there was no evidence that employed homemakers used more convenience foods of the older or newer types than did nonemployed homemakers.

In general, families with working homemakers spent more for all food away from home — meals and snacks — than did the others. In many of the classes, differences ranged from fifty cents to a dollar per family per week. Later studies on the food practices of employed homemakers in different sections of the United States agreed with the results of this survey.

No difference relating to the employment status of mothers was noted in the use of convenience foods among 104 families with preschool children in Columbus, Ohio. A slightly greater percentage of the children of employed mothers had diets rated as good. (2)

In Louisville, Kentucky, the food patterns of 90 families with working wives were analyzed and compared with 482 families in which the wife was not employed. This 1958 survey showed no striking differences in buying practices and food use of the working wife. She apparently did not spend more money for food and did not use significantly more short cuts in shopping and preparation. Thus she apparently did not take full advantage of what was available to her. More working than nonworking wives indicated that the pressure for time at breakfast was felt in their homes. (3)

A few studies have been reported on the relation of employment of mothers to diets of adolescent girls. No significant differences have been observed in either the adequacy or the inadequacy of diet which could be attributed to the employment of the mother. Daughters of working mothers in one study were shown to be more independent, to like a greater variety of foods, and to take more responsibility for the preparation of meals than daughters of nonworking mothers. (4)

In a study of 140 young adolescent girls in Iowa, employment of the mother was not related to diet adequacy, to missing meals or eating snacks, or to enjoyment of food. Daughters of employed mothers tended to have more responsibility for family meals than daughters of nonemployed mothers. (5)

### **Education of the Homemaker and Quality Food Supply**

This relationship has been under study for many years. In food consumption studies as far back as 1930 it was pointed out that at every level of expenditure for food, some families succeeded in obtaining better diets than others. Even at the lowest income levels, some families succeeded in having good diets.

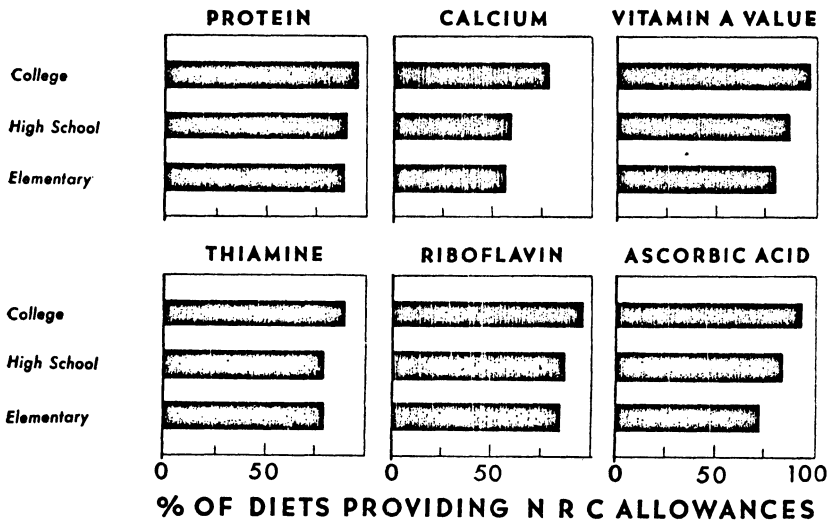


Fig. 3.14 — Education of homemaker and adequacy of diets of city families with incomes of \$3,000 to \$4,000, spring, 1948. (Source: USDA, *Proceedings of National Food and Nutrition Institute*, Agr. Handbook No. 56, Dec. 8, 9, 10, 1952, p. 38.)

However, the general level of formal education of the homemaker does show up in dietary adequacy. Findings from the 1948 study of the food supply by the Bureau of Human Nutrition and Home Economics are shown in Figure 3.14. Nutrients for which the intake is most likely to be associated with the level of education of the homemaker were calcium, ascorbic acid, and the vitamin A value.

More recent household food consumption studies, made in 1955, yield less conclusive evidence of relationships between the over-all adequacy of diets and formal education of the homemaker when place of residence and income levels are considered. Although data shown in Figure 3.15 do suggest that general formal education at the college level is associated with better diets in most groupings considered, they also suggest that something more than general education is needed to bring the diets of both farm and city families with incomes of \$4,000 to \$6,000 a year up to a high frequency of adequacy. This interplay between education and income in achieving dietary adequacy is of interest.

Young has noted in the cities of Rochester and Syracuse, New York, some interesting interrelationships among education, income, and the use of all seven basic food groups. The percentage of homemakers using all seven of the basic food groups increased with the amount of education in all income levels. However, with increased

Percentage of Diets Meeting Allowances of National Research Council in All Nutrients

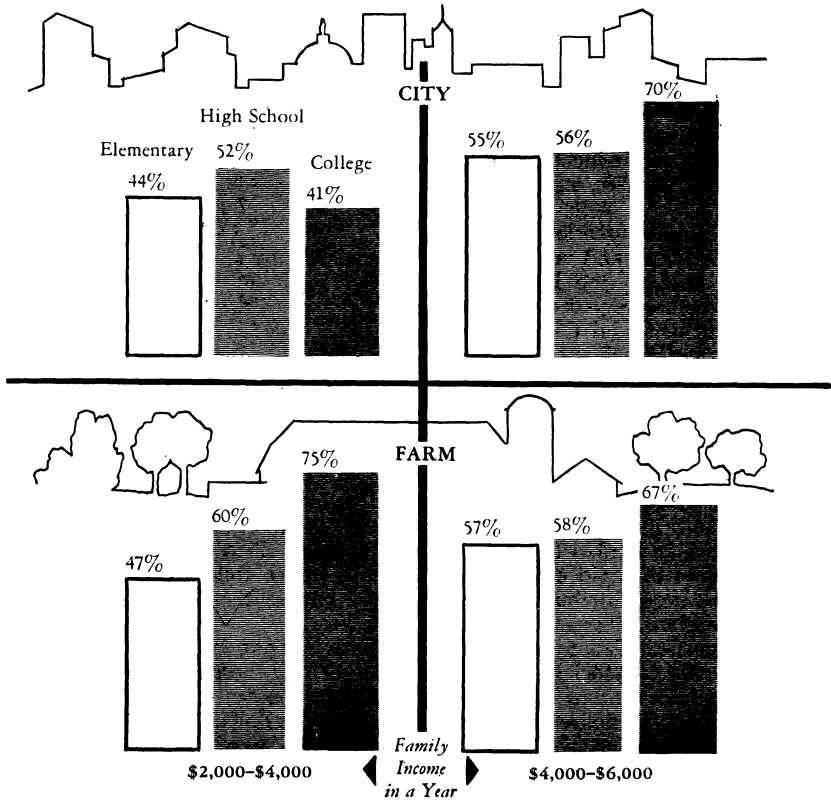


Fig. 3.15 — Diets and education of wives. (Source: USDA, *Food, The Yearbook of Agriculture 1959*, p. 624).

income, the percentages of homemakers with the lowest level of education (eighth grade or less) showed no tendency to increase their coverage of the seven basic food groups. (6)

**EVALUATING THE NUTRIENT SUPPLY**

Nutrients available per person per day in our food supply, as shown by the survey of 1955, have reassured us of the adequacy of the diets we enjoy in the United States. However, a critical study of the data made by R. S. Goodhart (7) raises some questions important for consideration by nutrition educators.

Comparisons of food energy and nutrients available in our food supply have led many people to believe that it is practically impossible for Americans to consume inadequate diets if they make full use of the available foods. This is not the case.

The apparent abundance of nutrients is associated with a large overabundance of calories. Goodhart estimates that at least a third of the calories must be wasted; otherwise, we would expect more obesity than we have. By reasoning and calculation, he showed that this waste cannot be attributed solely to discards of drippings, fats cut off meat, or waste in cooking fats and oils. Inevitably, the waste must involve a loss of essential nutrients. Excesses over the recommended allowances are least for the intakes of calcium, thiamine, and riboflavin. The distribution of ascorbic acid in foods is uneven; the same may be said for carotene in foods which provide a substantial portion of our vitamin A.

We may therefore expect dietary inadequacies among these nutrients to be the most common observed. Whether or not they are of serious nutritional consequence awaits further research defining the true requirements and the amounts of nutrients needed by individuals.

In nearly half the families surveyed in 1955, the food supply did not reach the Recommended Daily Allowances for one or more nutrients. Here are a few of the significant observations from this study:

1. Three out of 10 households did not have recommended amounts of calcium.
2. One in four did not meet the allowances for ascorbic acid.
3. Fewer than one per cent of families in the nation had enough calcium without using milk products in their original forms.
4. Families whose diets attained recommended levels for ascorbic acid used more than twice as much fresh fruits and vegetables per person as did families who did not reach the allowances.
5. From 15 to 20 per cent of families had less than the recommended levels of vitamin A, thiamine, and riboflavin. Fewer than 10 per cent, however, had diets inadequate in protein, iron, or niacin.
6. Nearly all diets low in protein were also low in at least three other nutrients.

Figure 3.16 summarizes the need for improved diets in the United States as indicated by the 1955 Survey.

### **Dietary Studies**

Dietary studies of some 10,000 individuals in parts of the United States present about the same picture as did the 1955 Survey. *Nutritional Status U.S.A.* (8) presents information based upon different procedures from those used to acquire the 1955 household consumption data. A critical analysis of these findings has led to the following conclusions, which confirm and expand the results of the national food consumption studies:

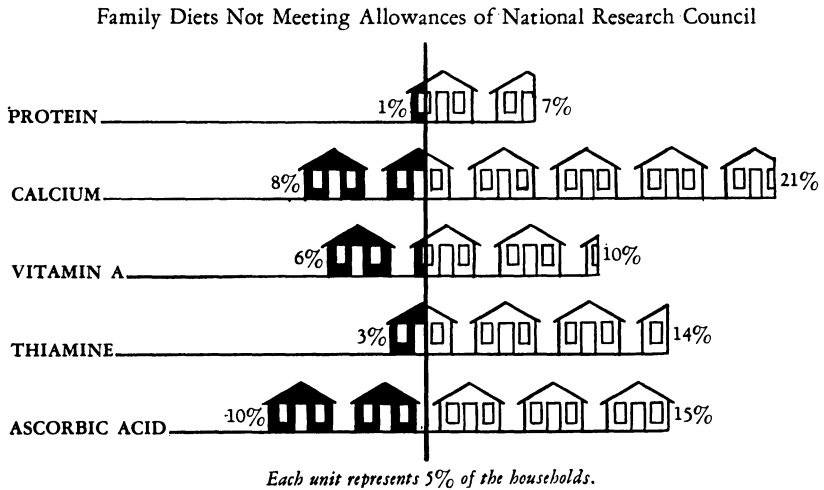


Fig. 3.16 — Need for improved diets. Black figures on the left show percentages meeting less than  $\frac{2}{3}$  NRC; those on the right show percentages meeting  $\frac{2}{3}$  NRC, but less than 100 per cent. (Source: USDA, *Food, The Yearbook of Agriculture 1959*, p. 622.)

1. The nutrients most often found to be lower than the recommended amounts in the diets of children and adults in all four regions were vitamins A and C, calcium, and iron.
2. Diets of teen-age girls presented the least favorable picture of all those examined.
3. Caloric intakes were low for many groups, but they were not considered deficits, since people were by no means underweight on the average.
4. The nutritional status (i.e., health as conditioned by choice and amount of foods or nutrients eaten) on the whole was found to be good, probably the best that has ever been reported for any similar population groups.

Recommendations for dietary improvement which have grown out of these nationwide studies have been variously stated. Dr. Agnes Fay Morgan (8) has said:

The one major recommendation might be the inclusion of more fruits and vegetables. The choice should be in favor of the dark green and deep yellow vegetables, and tomatoes, berries, citrus fruits, and melons. These are sources of vitamins A and C, iron, and some calcium. Milk and cheese contribute much calcium and riboflavin, and milk fat contributes vitamin A. Milk solids (nonfat) offer a premium value in nutrition if increase in caloric intake is undesirable.

This recommendation rests on a sound scientific basis, but certain points should be kept in mind. First, some selectivity is required if fruits and vegetables from the so-called "green and yellow group" are to contribute appreciably to the iron intake, which is one of the possible deficit areas. A glance at a table of food composition will show a high degree of variability in the iron content of the foods of this group and will indicate that the members of the group which are richest in this nutrient are the dark green, leafy ones. Unfortunately, these are perhaps least often selected. Most of the deep yellow vegetables and fruits (except the dried) are not rich in iron. Teenage girls, the one group of people probably most in need of additional iron, may not fulfill this need through their selection from the dark green or yellow varieties of vegetables.

A second point is that general dietary guidance, in terms of the addition of more of any foods, may be questioned as we struggle to regulate energy intake to output in this era of labor-saving devices and spectator sports. Goodhart (7) states that educational programs designed to increase the consumption of particular foods are not the answer to existing dietary problems. He continues to say that any nutritionist attempting to design a successful public health nutrition program must remember that addition of certain foods to the diet must be accompanied by the subtraction of an equivalent number of calories in the form of other foods. He concludes:

Consumer purchasing power and educational level remain, as they always have been, important determinants of the incidence and distribution of dietary inadequacies in the United States.

Dietary inadequacies do exist and are common in the United States where there is a plethora of food and where obesity is considered to be a public health problem of the first order. They are particularly prevalent and serious among adolescent girls and young women. This problem cannot be solved simply by encouraging an increased consumption of food.

**DIETARY ERRORS**

The human element in eating is most important to the nutrition educator; she must be a keen observer of the ways of life of different groups of people. Part of her job in motivating persons toward a continuing interest in their own nutrition lies in encouraging them to examine their own eating patterns. Group discussions, for





example, should include such everyday pitfalls as dietary fads, "crash" diets, poor snacks, and undue haste in eating. (See Chapter 7, Methods of Teaching, for discussion techniques.)

The *when* and *where* of eating are important for students to consider, just as is the *what* of eating. Dietary habits of a given individual cannot be completely charted or equated in scientific terms; nevertheless, such habits do have direct bearing on his total nutriture.

### **Casual Versus Regular Eating**

Preserving the regularity of meals has been a basic and traditional tenet of nutrition education and of our culture. Convenience, custom, working conditions, habit, and "togetherness" have contributed to the belief that regular meals are a practice to be perpetuated. There is reason to believe that some nutrients, the essential amino acids, for example, should all be available for absorption in sufficient amounts at the same time if they are to be best utilized.

However, there is a growing trend toward casual eating and some research to support the idea that body composition is favorably influenced by nibbling as opposed to spaced meals. In experimental animals, spaced meals, as compared with frequent small feedings, have resulted in increased body fat and decreased body protein and water. It is suggested that spacing-of-eating habits may play a role in the pathogenesis of metabolic diseases. Researchers in this field, however, call attention to the fact that the experimental nibbling has been such that every morsel consumed was complete from a dietary standpoint, whereas in our human society, current practices of nibbling would scarcely meet that criterion. The matter of casual, frequent eating versus fewer spaced meals may be expected to occupy a considerable amount of attention of both researchers and educators in the future, for our society today seems pointed more and more toward casual and, perhaps, irregular eating.

### **Poor Breakfast Habits**

Either skipping breakfast entirely or eating breakfasts of questionable nutritive value are dietary errors common to both adults and children. A midmorning lag and a noticeable decrease in efficiency at the office or in school may be traced back to a poor choice of food or complete lack of it at breakfast time. Some obese persons often mislead themselves into believing that skipping breakfast entirely "saves" calories. The truth is that usually such people more than make up for any calorie "savings" with later snacks or at other meals. In the end they are thus nutritionally much worse off than if they had eaten an adequate breakfast in the beginning.



*. . . breakfast hour in many homes is chaotic rather than leisurely.*

In our present social structure, missing meals generally is regarded as a poor dietary practice. At Iowa State University a study of the eating behavior of 140 teen-age girls showed a high negative correlation between missing meals and the level of dietary adequacy (9).

Another significant observation of the changing breakfast habits of Americans is their pace of living. People from other countries comment, "Americans are always in a hurry." They marvel at our drive-in snack bars and the "quick service" emphasized in many of our restaurants. Their leisurely patterns of eating are a sharp contrast to our "eat and run" philosophy.

The morning breakfast hour in the United States is chaotic rather than leisurely in many homes. Employment of homemakers may contribute in some degree to the rush; this problem may be expected to increase in the future as more homemakers are employed.

Many families are wise to insist on sitting down together for a leisurely and carefully planned morning meal. They are off to a much better start each day than families whose breakfast habits are helter-skelter. One need not conduct scientific research to reach such a conclusion; common sense serves adequately.

### **Poor Snacks**

Particularly for teen-agers, snacks can comprise a large share of the day's nutrient intake. Studies at Iowa State University have shown that, on the average, snacks may furnish as much as 15 per cent of



*... snacks may comprise a large share of the day's nutrient intake.*

the total calories of the day for teen-aged girls. Many of them tend to consume carbohydrate-rich foods at snack time, with heavy emphasis on carbonated beverages and sweet dessert-type foods. Snacks ideally should complement the day's meals, augmenting the intake of essential nutrients. It is generally assumed that the practice of snacking results in poor diets but this has not been proved.

### **Lack of Variety in Diets**

Variety in the diet has long been recognized as a safeguard against poor nutrition. The previously mentioned study at Iowa State University showed the summer menus of 140 teen-aged girls to average 14.8 servings of food daily which provided 8.9 different food items a day. Corresponding averages for winter menus were slightly higher. The range was fairly wide. One girl had only 4.6 different items of food daily while another had 14.4. Both the number of servings and the number of different food items were significantly related to the adequacy of the diet.

When one considers the vast number of different kinds of food available, the limited variety that appeared on the menus of these girls seems very small. In a long-time study of girls in one county of Iowa (at intervals over a 2-year period), identical meals — particularly breakfasts — were repeated. In one instance the same breakfast was listed for *every one of the 20 days* for which records were kept. Lack of variety in the diet undoubtedly is caused partly by unwillingness to try new food. U.S. Army studies have mentioned that 14 per cent of a large number of men surveyed had not tasted tomato juice and 30 per cent had never tried broccoli. In every food class a considerable number of items were found that had not been sampled. Investigators in this quartermaster food preference study concluded that part of the problem in changing food habits is familiarizing people with different foods.

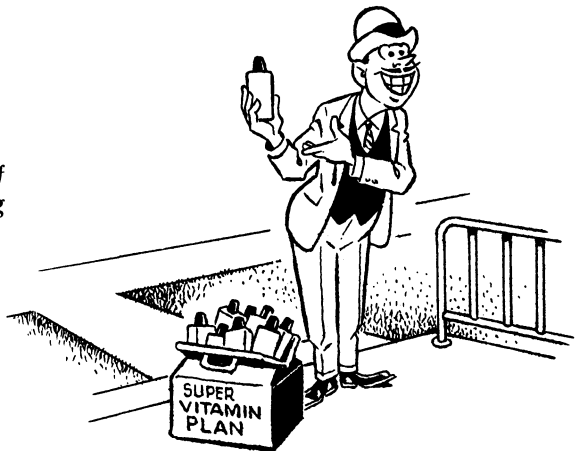
**Fads and Quackery**

We have observed many food fads which seem to reap meteoric success and, like a meteor, soon burn themselves out and fizzle into oblivion. There have been vinegar-and-honey concoctions, blackstrap molasses tonics, various herb and spice combinations, kelp and seaweed preparations, plus myriad other cure-alls for supposed nutritional deficiencies. All of them have shared one essential quality: they promised to do wonders with little effort on the part of the consumer, who has been advised that “calories don’t count” or that he “can do it the easy way.” Most of these supplements were based upon heavily promoted commercial schemes designed to sell books or products at inflated prices. And they sold well.

Many consumers have put their hard cash and misguided faith into these nutritional tonics and supplements, believing that they then would immediately gain in health, strength, and vitality. Salesmen of such products have even hinted broadly at the possibility of curing such dread diseases as cancer, arthritis, and ulcers through the use of these concoctions. It is regrettable that basic nutrition facts cannot be promoted so intensively and believed so completely by the same persons who accept the nutrition nonsense promoted by quacks and charlatans. In recent years an estimated 10 million Americans spend half a billion dollars annually on nutritional quackery: the useless, wasteful food supplements and “tonics” (10).

The nutrition educator knows that good diets with proper nutrients — including vitamins and minerals — can be achieved relatively easily, and at low cost. An adequate nutrient intake cannot be dispensed by the pill or by the pound, or in “quick and easy” doses, however. Purveyors of the food fads are much more interested in reaping a fast profit than in promoting long-range good nutrition.

*Purveyors of  
food fads reaping  
fast profits . . . .*



The powerful influence of advertising maintains and encourages many worthless food-supplement products. Advertising messages entice a potential buyer to try “the magic way” to lose weight, gain weight, regain pep and energy, “feel ten years younger,” “build up good red blood,” and so on. These appeals are based on emotions and human frailties. They hold out promises of easy solutions to complex problems of appearance or psychological insecurity. Nutrition educators must be aware of the techniques used in such advertising and utilize them as discussion topics which can be countered by sensible nutrition.

### **Unsound Weight-reduction Diets**

Women’s magazines have often featured what are termed “crash” or “blitzkrieg” diets, designed to help men and women lose a good deal of weight rapidly. Despite being cautioned to consult a physician before embarking on such a program, many women eagerly follow unwise regimens. If pounds are lost, they are soon regained and “diets never do me any good” becomes the conclusion.

There are good diets, to be sure, published in the women’s magazines. But does the public have the knowledge to differentiate between these and the nutritionally unsound ones? Here is another “entering wedge” for the educator who can capitalize on magazine promotions in order to focus the attention of students on sensible weight-reduction diets.

Twelve reducing diets recently published in magazines and papers were subjected to critical study. Table 3.5 shows the estimated daily nutritive value as compared with the allowances for a 25-year-old woman. Needless to say, prolonged subsistence on some of these diets would be deleterious to health. Fortunately, most of them are such that they can be endured for only a very short time. The discouragement and intermittency of reducing, however, may have adverse effects.

### **Failing To Have Plans or Guideposts of Nutrition**

The Basic Four food plan offers a dependable, easily understood approach to good nutrition. (See Chapter 5 and Appendix A for explanation of the plan.) This might well be regarded as a daily philosophy of eating: instead of “something to *live* by,” it is “something to *eat* by.”

Along with such a basic plan, the individual should have his own blueprint or guideposts for nutrition, tailored to fit his needs. Such a frame of reference could insure that each person would:

**TABLE 3.5**  
**NUTRITIONAL VALUE OF 12 REDUCING DIETS COMPARED TO RECOMMENDED DIETARY ALLOWANCES FOR A 25-YEAR-OLD WOMAN**

Diet	Calories	Protein	Calcium	Iron	Vitamin A	Thiamine	Riboflavin	Vitamin C
		<i>gm.</i>	<i>mg.</i>	<i>mg.</i>	<i>I.U.</i>	<i>mg.</i>	<i>mg.</i>	<i>mg.</i>
1.....	927	25	661	9.3	2,795	.7	1.2	98
2.....	1152	138	732	5.5	2,160	.4	2.2	87
3.....	900	22	765	.5	1,250	.15	1.1	4
4.....	860	60	865	10.7	8,425	.4	1.1	99
5.....	1053	50	596	9.0	16,408	.6	1.4	82
6.....	1270	102	2,064	6.0	19,490	1.0	3.7	63
7.....	945	67	303	16.5	12,570	.8	1.5	114
8.....	769	25	661	4.4	2,870	.5	1.2	71
9.....	850	50	468	15.6	8,540	1.6	2.3	156
10.....	900	84	969	12.7	8,461	1.4	1.7	185
11.....	720	64	588	11.5	2,287	.7	1.3	7
12.....	748	46	170	8.2	12,245	.6	.9	203
<b>Recommended Allowance Woman—25.....</b>	<b>2300</b>	<b>58</b>	<b>800</b>	<b>12.0</b>	<b>5,000</b>	<b>1.2</b>	<b>1.5</b>	<b>70</b>

1. Adjust amounts of nutrients as his bodily needs change. (See Chapter 12, The Challenge of Change, for a discussion of changing calorie requirements.)
2. Supply daily the foods needed for building, maintenance, and protection of the body, plus adequate reserves.
3. Use food which brings the greatest satisfaction psychologically, socially, economically, and nutritionally.

Developing a personal food plan does not mean adhering to a rigid regimen. It has quite the opposite effect, because a sensible personal food plan or "budget" provides for the necessary dietary adjustments to meet new demands in a changing individual. A diet plan actually *creates* flexibility by *planning* for it. This, of course, results in more freedom to enjoy food. The more we know and understand about our nutritional needs and composition of foods, the more we can obtain enjoyment from a wide variety of foods to satisfy those needs.

#### REFERENCES

1. *Household Food Consumption Survey, 1955*, Report No. 14, p. 6.
2. Metheny, N., Hunt, F. E., Patton, M. B., and Heye, H., "The Diets of Preschool Children." *Jour. Home Econ.*, 54:297-303, Apr. 1962.
3. Wrightman, M. R., and Roberts, J. B., "Comparison of Working and Non-Working Wives in Food Shopping Preparation." Progress Report 106, Univ. of Ky., Agr. Exp. Sta., Lexington.
4. Lollis, E. S., "Some Factors Influencing the Dietary Habits of Adolescent Girls." Unpubl. M.S. thesis, University of Oklahoma Library, Norman, 1960.
5. Hinton, M. A., Chadderdon, H., Eppright, E., and Wolins, L., "Influences in Girls' Eating Behavior." *Jour. Home Econ.*, 54:842-46, Dec. 1962.
6. Young, C. M., *et al.*, "Description of Studies in Rochester and Syracuse, N.Y." *Jour. Amer. Diet. Assn.*, 32:214-18, Mar. 1956.
7. Goodhart, R. S., *Amer. Jour. Clin. Nutr.*, 7:508-13, 1959.
8. "Nutritional Status, U.S.A." Agnes Fay Morgan, ed. Calif. Exp. Sta. Bul. 769, Oct. 1959.
9. Hinton, M. A., "Factors Related to the Eating Behavior and Dietary Adequacy of Girls 12 to 14 Years of Age." Unpubl. Ph.D. dissertation, Iowa State University Library, Ames, 1962.
10. Mitchell, H. S., "Don't Be Fooled by Fads." *Food*, USDA Yearbook of Agriculture, 1959, pp. 660-68.