

Chapter Eleven

The Challenge of Change

IF NUTRITION EDUCATION is to be effective in motivating people to make better food choices, it must be in tune with a variety of constantly occurring changes and trends. The individual himself is a changing organism, and his environment is constantly undergoing transformations that profoundly affect his food supply and perhaps his eating practices.

Nutrition education which ignores the impact of change is purely academic. This approach cannot be functional for the masses of people, because it is unrealistic and unrelated to their needs.

In this chapter nutrition educators will be alerted to some of the aspects of change involved in the dynamics of nutrition education.

PROGRESSIVE CHANGES WITHIN THE INDIVIDUAL

One of the most basic principles of nutrition — often reiterated in this book for the sake of emphasis — is that food intake must be related to the varying physiological and psychological needs of the individual. We do not automatically make adjustments in food intake, however, following changed physiological needs. One responsibility of the nutrition educator is to help people recognize the *need* for adjusting their food consumption in accord with changing body requirements, then to help them find *ways* of doing so.

The fact that most physiological change is gradual creates difficult problems in teaching nutrition. If the points of transition in the food needs of the individual were more easily detected, we could deal much more realistically with them. But unfortunately such transitional stages are not well marked — they almost creep up on people unnoticed.

Accomplishing the goal of continually adjusting food intake to meet body needs through the life cycle would do much to improve the quality of the health of all our population, but particularly of our older people, because preparation for a happy, productive old age is a continuous process which begins in childhood.

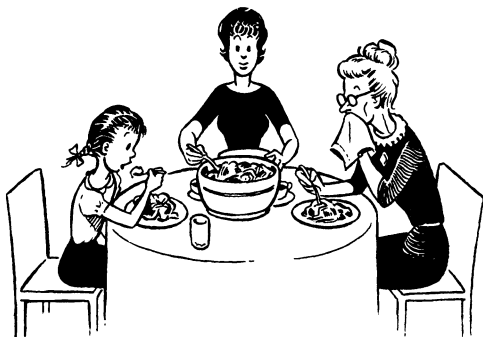
We have been inclined to teach nutrition more on a horizontal than on a vertical basis. In the table of the Recommended Dietary Allowances, for example, we are more likely to look at the figures across the pages than those which are vertically arranged. We have therefore tended to focus attention on problems of a specific age rather than on varying body needs from one age period to the next. Thus we tend to isolate the need of the preschool child, the teen-ager, the pregnant woman, and the adult — with little concern for the transitions which occur between such stages in life. This traditional approach is termed “realistic,” because education must begin with people as they happen to be. But it is an incomplete approach, because it tends to ignore what people have been or are later to be.

In general, long-range planning is a difficult procedure. How it can be successfully applied to such personal factors as health or specifically to nutrition has not been clarified, but the long-range approach is one of the most challenging aspects of nutrition education.

We must teach people where they *are*, but we must also devise ways to help them see *where they are going*. The school child is taught his nutritional needs, but could we not go a step farther and help him to see the needs of older brothers and sisters, mothers and fathers, and even grandparents — and how those needs differ from his own? Perhaps, too, we could begin early to help children acquire a sharp image of what healthy people are like at all ages, not just at the child's own age, emphasizing the role nutrition plays in achieving good health throughout life.

It is sometimes asserted that the best way to ensure good nutrition in the succeeding stages of the life cycle is to establish good food habits

*. . . transitional
stages of life creep
up on us unnoticed.*



in the current period of life. The validity of that statement depends upon the concept of "good food habits." If the idea is focused only on kinds and amounts of food, it may not even serve the needs of a specific age group, since these needs themselves are not static or homogeneous. It certainly will not solve the problems of future needs.

For example: the perfect diet for one teen-age boy may not be suitable for another. It certainly must be modified considerably for him as a young businessman; an excellent diet for the latter could be disastrous for a middle-aged executive.

Education for the development of good food habits, therefore, should involve some effort to alert people of all ages to the importance of their changing food needs. Not only are the facts of nutrition needed in such education, but the attitudes and philosophies of individuals toward eating are also of vital concern.

Nutrition need never be regarded as a dull subject for there are many concrete and interesting ways to teach even the most abstract facts. Perhaps the most effective teaching devices are those which the educator has had the pleasure of developing to suit the needs of the particular group to be taught. The opportunities for creativity in nutrition education are infinite.

Certain teaching devices may be used to help people visualize the nature of needed modifications in food energy and nutrient intake throughout the life span. Figure 11.1, based on Table 11.1, may be developed as a flannel graph to show the changes in food intake. In this example, a girl 7 to 9 years of age is used as the starting point for what might be termed a "Calorie Count-down," or, more accurately, a "Calorie Count-up-and-down." The chart shows first as a "starter" the foods which might be used by the girl to meet her food energy needs, distributed among three meals.

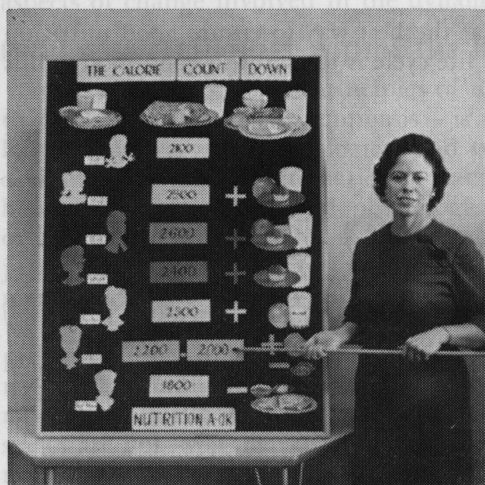


FIG. 11.1 — Colored illustrations of foods, cut from magazines or advertising, can be developed into a flannel graph to help students visualize needed adjustments in diets to meet calorie allowances for various ages.

TABLE 11.1
THE CALORIE COUNT-DOWN*

The "Starter" — 2100 Calories				
Girl 7-9 yrs.	<i>Breakfast</i> Orange juice Egg Toast Butter Milk	Bacon Jelly	<i>Luncheon</i> Cheese Bread Lettuce Cookie Milk	Butter Tomatoes Apricots Potato Roll Ice Cream
				Roast Slaw Butter Broccoli
Adjustments From the "Starter" as Needed by Advancing Age Groups				
Age (years)	Allowance (calories)	Additions or subtractions from the "Starter"		
		Food	Unit	Calories
10-12 (girl)	2500	Milk Cake Apple	1 cup 1 (cupcake) 1	+166 +161 + 76 +403
13-15 (girl)	2600	Milk Cake Apple Banana	1 cup 1 (cupcake) 1 1	+166 +161 + 76 +116 +519
16-19 (girl)	2400	Milk Cake	1 cup 1 (cupcake)	+166 +161 +327
25 (woman)	2300	Milk (nonfat) Apple	1 cup 1	+ 86 + 76 +162
25 (pregnant, 2nd half)	2600	Milk Meat	1¾ cup 2 oz.	+289 +177 +466
25 (lactating)	3300	Milk Meat Orange Butter Cake Custard	2 cups 3 oz. 1 1 T. 1 (cupcake) 1 cup	+332 +266 + 70 +100 +161 +283 +1212
45 (woman)	2200 to 2000	Apple or Cookie	+1 -1	+ 76 -109 -109
65 (woman)	1800	Jelly Bread Cookie Fat	-1 T. -1 slice -1 -1 T.	- 33 - 64 -109 -100 -306

NUTRITION: A-OK!

* Estimations based on servings of "average" size and figures used in "Composition of Foods," USDA Handbook No. 8.

Additions and subtractions from the “starter,” appropriate for advancing years are shown in terms of common foods. In the adjustments, considerable emphasis should be given to the types of foods which lend themselves to adjustment of food energy with little adverse effect upon the nutrient intake.

It is interesting to note that the chart shows the food energy needs of the woman 45 years of age to be almost like the needs of the girl 7 to 9 years. Women of such age, therefore, might do well to compare their food consumption with that of their very young granddaughters, for — depending upon their activity — they may need even less food energy than do small children.

Another teaching device is a simple bar graph, as in Figure 11.2, which shows how nutrient needs of boys and men may change with age and activity. Such changes may be made more meaningful by showing, in conjunction with the bar graph, the amounts and kinds of foods involved in the differences between needs for boys and men and in effecting the desirable changes.

Other types of bar graphs may be built upon flannel or sketched on a blackboard concurrently with a discussion. They may also be constructed from blocks or painted tin cans. One visual aid expert uses rectangular colored sponges to show such units as 10 per cent of the day's needs, for example. Even students in the class may be lined up to represent units in a bar graph — a technique which might emphasize even more clearly that nutrition education is concerned directly with people and their food needs. (For other ideas see Chapter 7.)

Failure to adjust intake to meet the needs of certain *nutrients* perhaps produces less dramatic and obvious results than excessive or deficient total *energy* intakes, which result in overweight or underweight. People should be made aware that even subtle dietary problems may be equally serious in terms of health. Calcium and iron are two nutrients for which the variable needs during life are sometimes disregarded because deficiencies in both may be undetected for long periods of time.

Again using the example of a child aged 7 to 9 years, Figure 11.3, based on Table 11.2, shows the progressive dietary changes needed in terms of milk, which in some form is the principal source of calcium in our diets. Nearly two-thirds of the calcium in household food supplies comes from milk, ice cream, and cheese. Assuming that the usual basic diet (without milk or its nonfat products) supplies 300 milligrams of calcium, Table 11.2 shows how much milk or its equivalent is needed to supply the total calcium needs. Here the change in amounts needed from one age to another is impressive.

Changing calcium requirements can be satisfied in various other ways besides drinking fluid milk. For the weight-conscious individual,

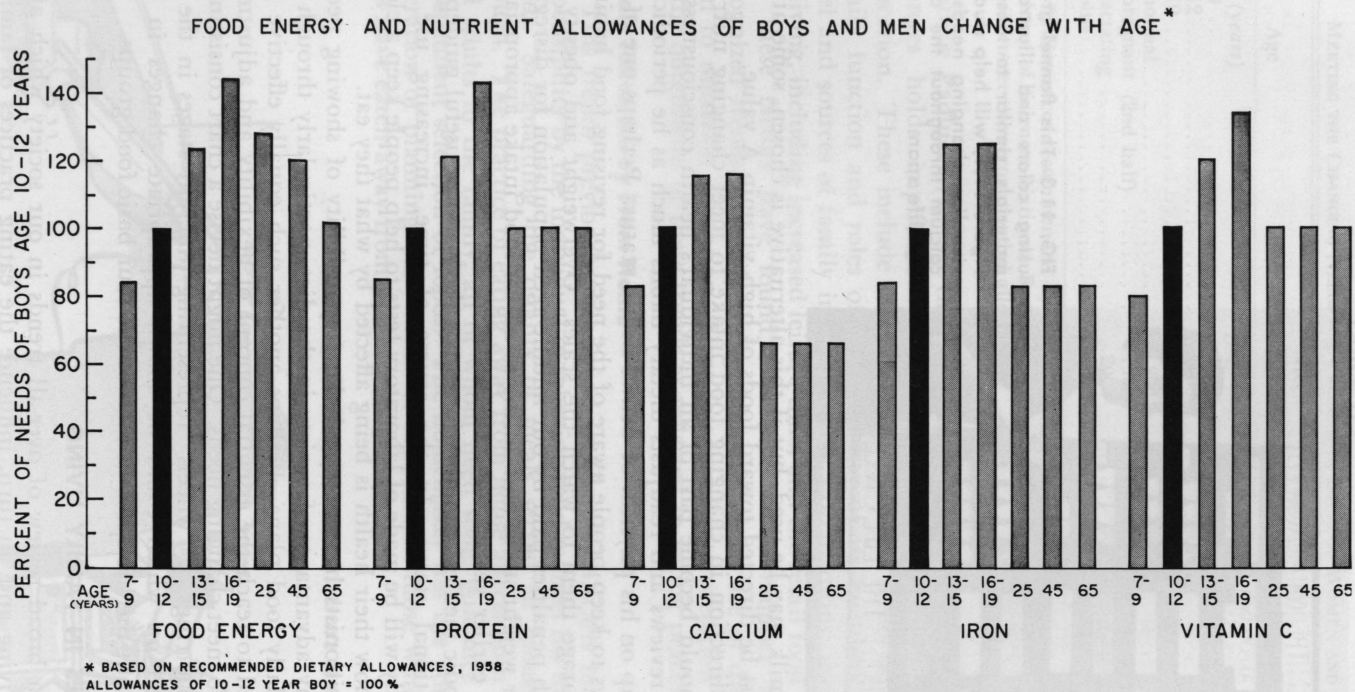


FIG. 11.2 — Bar graph showing how nutrient needs of men and boys may change with age.

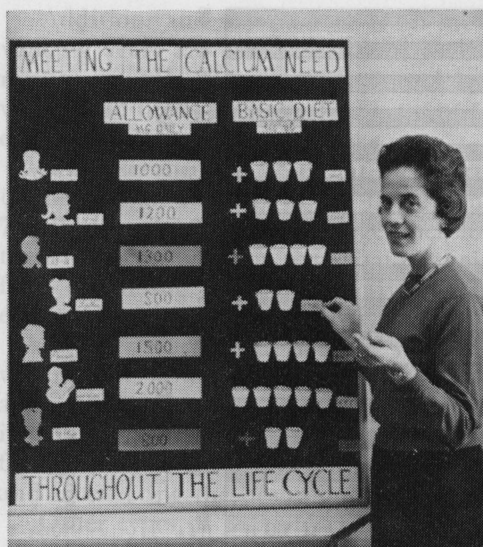


FIG. 11.3—This flannel graph, using colors and illustrative materials similar to those in Figure 11.1, will help students visualize changing needs for calcium throughout the average life span.

nonfat milk may be used, but if this alternative is chosen, some attention must be directed toward foods of high vitamin A value.

Self-direction in changing food intake to meet changing nutrient needs should become part of an individual's health consciousness, so that he reviews and readjusts dietary habits much as he periodically checks up on his physical or dental health status. Perhaps one of the best ways to keep people aware of the need for revising food habits is to encourage them to watch the scales. Overweight and obesity are the harsh penalties paid by our middle-aged population for disregarding their weight status and failing to adjust food intake appropriately in their earlier years.

Periodic medical examinations may also serve as useful guideposts to nutritional status. In the course of time, increasing use undoubtedly will be made of laboratory tests to help people keep a closer tab on how their health is being affected by what they eat.

Nutritionists have accepted the responsibility of showing people the many advantages of variety in the diet, particularly through the use of daily food plans. Perhaps another such equally effective tool is needed to teach the essential concept of flexibility and adjustment in diet to meet changing needs. One might devise a chart consisting of concentric rings or "wheels" representing different stages in the life cycle and on which could be shown appropriate changes in diet throughout the life span, in each of the four basic food groups.

CHANGES IN FAMILY LIVING

For a broad review of over-all trends in our society which affect family living and, in turn, influence the eating practices of families, the reader is referred to the paper, "Reviewing Our Orbit" by

TABLE 11.2
MEETING THE CHANGING NEEDS FOR CALCIUM IN DIETS OF WOMEN AND GIRLS

Age (years)	NRC*	Furnished by		Milk
	RA	Basic Diet		To Be Added†
	(mg. Ca)	(mg. Ca)		(cups)
7-9	1000	300	+	2.4
10-12	1200	300	+	3.1
13-19	1300	300	+	3.5
25 normal	800	300	+	1.7
pregnant (2nd half)	1500	300	+	4.1
lactating	2000	300	+	5.9
45 plus	800	300	+	1.7

* Allowances recommended by the Food and Nutrition Board of the National Academy of Sciences-National Research Council.
† To meet the recommended allowances.

Beatrice Paolucci (1). In this paper each of the broadly described changes holds implications for adjusting emphasis in nutrition education. These include changes in the family's social setting; the family function and roles of responsibility of its members; income level and sources of family income; earner's occupations; the manner of living, including increased leisure time; and the retail food markets. All these factors have found expression in a number of easily recognized trends in family living, many of which are of direct concern to nutrition education. Here is a brief interpretation of some of the outgrowths of these trends as reflected in eating practices.

Meals Taken Away From Home

This trend, previously mentioned in Chapter 4, calls for greater responsibility by the individual in selecting food to meet his total daily needs. Safeguarding the quality of meals served in homes is not enough. The practice of eating away from home affects both children and adults in the family, all of whom need some guidance in their independent selection of foods. The homemaker has the added consideration of planning daily meals to supplement those which members have eaten away from home.

. . . including increased leisure time



Similarly, in the interest of improved nutrition for the people of our nation, educators must be concerned with those having management responsibilities in the food service industry, who must be encouraged to offer nutritious food to the public and to aid people in selecting good meals from the menus. Thus nutrition education cannot be focused entirely upon the homemaker, because food service is increasingly in the hands of the managers of large food service units.

Automation is entering more and more into the picture of away-from-home food consumption: for example, vending machines in offices, factories, and even schools are encouraging the use of bland and liquid foods. A further increase in this highly impersonal manner of procuring food must be studied for its potential effect upon family meals and the appetite of the individual.

We must also consider the increasing potential of public eating places and food-selling devices to reduce the gap between the cost of meals they offer and of meals which are prepared and served in the home. One must examine carefully the psychological as well as the physiological effects of these changes in ways of eating upon the total food habits and nutrition of the individual.

Casual Eating

Between-meal eating was once considered one of the greatest dietary sins. Now we have come to regard snacks as a part of the regular eating pattern for many people. It is important that snacks be included in assessing the total food intake. Intermittent eating, if not considered, will obscure the entire dietary picture for the individual. The more casual their eating, the more difficult it may be for people to evaluate total intake, and thus the more important it is for them to know food values.

We can only surmise the extent to which families have departed from the traditional practice of eating three regular meals a day. It



... the relaxation and enjoyment of outdoor eating help achieve close mealtime companionship.

has not been established how eating an adequate diet irregularly and at more frequent intervals affects the health of human beings. Effects of regularly spaced, full meals as opposed to frequent small feedings of the same nutrients have been noted in studies with small animals. Results in the experimental animals suggest possible metabolic advantages of the latter scheme.

Evidence is as yet too slender to warrant a drastic departure from the traditional three-meal pattern, which provides many advantages in convenience, custom, and, above all, an opportunity for strengthening family relationships.

Another type of irregular eating is the outright missing of meals, which has often been associated with poor nutrient intakes. Only a small percentage of Iowa school children who missed breakfasts had an adequate nutrient intake for the entire day (2), while the number of meals missed correlated highly with the inadequacy of diets for 140 town school girls studied in 1960 (3). Similar observations have been made in other sections of the country.

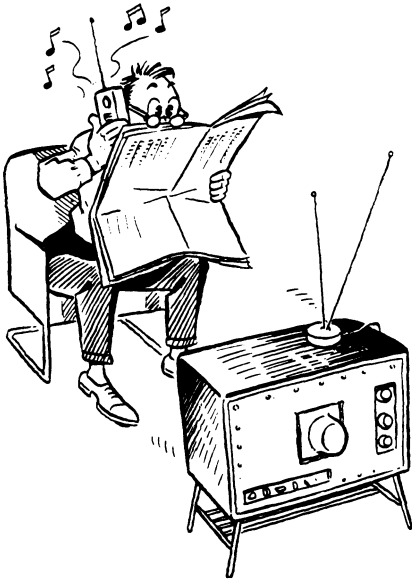
The family dining table has been replaced to some extent by cook-out meals on patios or camp-out sites. Food served on such occasions can be as nutritious as more formal meals; perhaps it usually is. The relaxation and enjoyment of outdoor eating can go far to help families achieve closer mealtime companionship. Probably outdoor cooking and eating should receive a greater share of attention from nutrition educators, with emphasis on convenient and inexpensive ways of achieving good nutritious meals. The significance of this aspect of family life was thus emphasized by President Eisenhower as he opened the 1960 White House Conference on Children and Youth (4).

We strive to make certain that the number of failures (with youth) is held to a minimum. And in this effort we have developed appropriate programs—physical, recreational, educational, moral, psychological, occupational. Underlying all these as both preventive and cure is a happy family; one that finds its greatest enjoyment as a group in such things as the family picnic, family games, the “cookout,” or home movies.

Increased Amount of Leisure Time

While laborsaving devices have lightened the work load of the homemaker, automation has shortened the working week of the wage earner. The effect of increased amounts of leisure time on the nutrition of individuals depends upon how such time is spent.

If the individual is inclined toward spectator sports, reading, watching television, or listening to the radio—all passive types of leisure activity—either he will have to adjust his food energy intake downward from the previous level (assuming it was suitable) or he will augment the statistics on overweight and obesity. Reduced energy output requires reduced food intake; low-calorie diets must be carefully planned in order to be nutritionally adequate.



*Spectator sports
usually require food
energy intake adjustment.*

On the other hand, it is conceivable that physical fitness programs may become increasingly popular in our nation. This would, of course, be a healthy development for millions of people who need more physical activity and wholesome recreation. As food intake is increased to meet the higher energy needs of a more active person, it becomes easier for him to obtain nutrients in the amounts needed for good health.

Employment of Homemakers

Research on this subject has been reviewed elsewhere in this book. Indications are that employed homemakers are doing as well as other homemakers in the job of feeding their families. The number of employed homemakers is growing; an increasing number of them are mothers of young children. Perhaps nutrition educators should exert a more concentrated effort to help employed women acquire the knowledge needed to simplify the shopping, planning, and preparation of nutritious meals. Moreover, nutrition education in the secondary and college levels should be fully geared to the possibility that tomorrow's woman may not be a full-time homemaker. Management, therefore, is becoming even a more important component in the nutrition education of the future than it has been in the past.

Increased Tensions and Stresses

The study of school girls in Iowa, mentioned in Chapter 4, showed the adequacy of their diets was positively related to the family relationships (3). California workers have called attention to the need for pleasant, unhurried meals for teen-age girls (5). They very aptly concluded from their study of 25 girls that not only did the girls

themselves need further information in the selection of nutritionally adequate diets, but also some way should be devised to reach parents of these teen-agers, persuading them to work toward providing a cheerful, relaxed atmosphere for mealtimes at home.

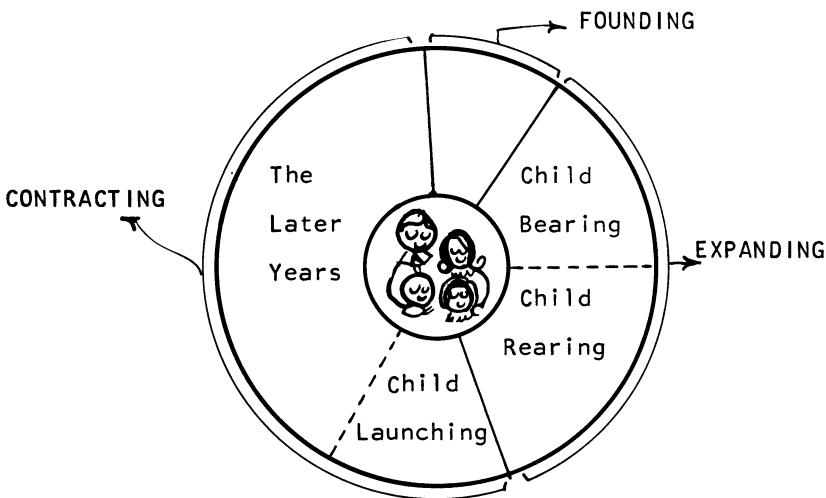
Because the interaction between the family meal and the emotional climate of the family is strong, the net result may be keenly felt in the nutritional status of each member of the family, especially during childhood.

Mobility of Families

This is a very important factor in today's society, affecting people of all economic levels in both rural and urban areas. It seems reasonable to expect that changes from one locality to another might to some extent affect eating patterns. USDA studies, however, have shown regional differences in food consumption to be relatively minor. Effects of mobility on nutrition may be due mostly to disruption of family routines, emotional disturbances, or changes in socioeconomic status which may occur when moving to a new community.

NUTRITION AND THE FAMILY CYCLE

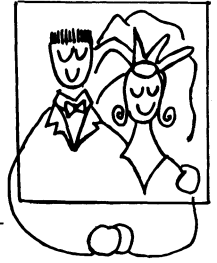
Home economists are especially concerned with the family as a unit in society. In each phase of the family cycle new problems are presented. The nutrition educator, especially in home economics, may increase her effectiveness by an analysis of the particular problems involved in the eating situation at different stages of the so-called family cycle. The following outline represents an approach to nutrition education from this standpoint.



DEVELOPMENTAL TASKS

For the Founding Family

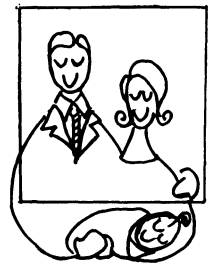
1. Adopting good health as an important goal in life.
2. Synchronizing food likes and dislikes of two people.
3. Acquiring the knowledge needed to make wise decisions regarding choice of food for self and others.
4. Planning meals to meet the needs of two young adults.
5. Developing ability to prepare appetizing food.
6. Establishing meal-time practices basic to the cultural patterns desired for the new family.
7. Establishing traditions that foster family unity and good family relationships.
8. Laying the foundation for health throughout the family cycle.



For the Expanding Family

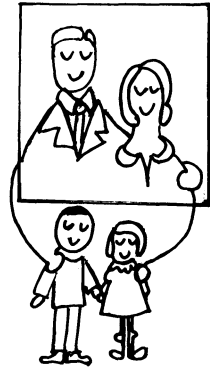
CHILD BEARING

1. Understanding the relation of nutrition to success in reproduction and health throughout the life cycle.
2. Correcting possible dietary indiscretions in the previous diet of the mother-to-be.
3. Adjusting the diet to the special nutritional demands of the last half of pregnancy.
4. Planning for period of breast feeding of the infant.
5. Knowing the nutritional needs of the infant and the economics of infant feeding.
6. Understanding the psychological aspects of infant feeding and methods of introducing new foods.
7. Recognizing the evidences of good and poor nutrition in the infant and young child.
8. Managing time, energy, money, and other resources so that tensions may be reduced and the care of the infant can be approached with feelings of security and relaxation.
9. Understanding the influence of the food habits of the parents—especially of the father—upon the nutrition of the family and the developing food habits of children.



CHILD REARING

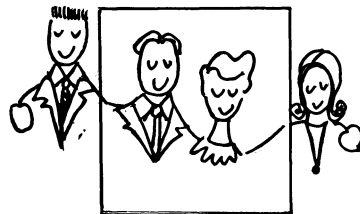
1. Planning nutritious and appetizing meals that can be adapted to individuals with a wide range of social, psychological, and physiological needs.
2. Adjusting home meals so that they effectively supplement food eaten elsewhere.
3. Maintaining an environment conducive to good eating behavior and the development of good food habits.
4. Managing expenditures for food so that they will yield maximum returns in health and satisfaction to all members of the family.
5. Utilizing the eating situation as an opportunity to fulfill the psychological as well as the biological needs of the family.
6. Coordinating eating practices in the home with nutrition education that family members receive elsewhere.
7. Keeping a log of the physical growth and maturation of the children and the major episodes in health.
8. Encouraging all members of the family to participate in the task of feeding the family.
9. Assuming responsibility for helping children develop good food habits.
10. Helping children to adopt good health as an important goal for their lives.



For the Contracting Family

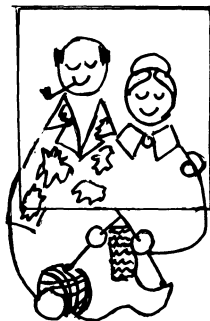
CHILD LAUNCHING: the Children

1. Assuming full independence in the selection of an adequate diet in a wide variety of situations.
2. Learning to discriminate between real and apparent variety of food offered.
3. Learning to judge the nutrient returns for money spent at such places as lunch counters and vending machines.
4. Cultivating the habit of mental assessment of the adequacy of the day's food supply in terms of a daily food guide.
5. Developing a sensitivity to standards of sanitation and cleanliness in public eating places.
6. Evaluating performance in terms of how it may or may not have been affected by eating practices.



CHILD LAUNCHING: the Parents

7. Adjusting meal patterns to changing family membership and food intake to diminishing food energy needs.
8. Adapting to a changed tempo of living from that which characterizes a family with growing children to one of greater security, relaxation, and monotony.
9. Facing the need of dietary modifications necessitated by the threat of chronic disorders.

**THE LATER YEARS**

1. Maintaining a high level of nutrient intake so as to offset factors that may interfere with utilization; e.g. incomplete absorption, emotional stress.
2. Adjusting to physical difficulties in handling food and in eating.
3. Modifying diet in accordance with changing metabolic processes.
4. Solving the mechanical problems of food buying, storage, and preparation.
5. Adjusting diet to income limitations and possibly to living alone.
6. Understanding the role of nutrition in delaying and preventing the symptoms of senility.
7. Maintaining a strong interest in life and a sense of usefulness.

CHANGES IN THE FOOD SUPPLY

The dual responsibility of the nutrition educator is first, to help people recognize their individual nutritional needs; and second, to teach them how to meet those needs. Although a substantial proportion of food eaten in our nation is consumed ready prepared in public eating places, the quality of the diet of the family still depends largely upon the "market basket" which conveys food to the home.

Shopping for food is a major household task. The retail food market is a rapidly changing scene, where more and more services are offered. More and more people, including farmers, obtain their total food supply at retail outlets. Most household tasks have been greatly mechanized, but laying in the family food supply appears to be an exception because this requires increasingly more mental and physical work. Perhaps it may be reasonably assumed that the time and energy

the homemaker has gained in "convenience" foods have been balanced at least in part by the additional effort she expends for more frequent trips to the market and the huge bags of groceries she must carry home. Rapidly vanishing are the days of the telephoned market order which was brought to the home by a cheerful delivery boy.

In education, we have been inclined toward working from the menu to the market basket. Perhaps a more realistic approach is from the market basket to the menu. Ways to undergird the adequacy of diets of families at the market basket stage are badly needed. Most valuable educational tools in this respect are the food plans at different costs developed by the USDA.^{1, 2} The market basket should be a focal point in nutrition education for homemakers.

Making wise decisions in the food market requires alertness, knowledge, and skill. Not even a nutrition educator can be expected to know the merits of each of the 6,000 or so different items crowding the supermarket shelves. But she can be most helpful to the consumer who needs some intelligent criteria for selecting foods from this vast array.

We can expect that pressures to capture the food dollars of the public will increase. Therefore, educating people to choose foods wisely in the market place, to elect responsible people to public office, to expand nutrition services, and to encourage talented young people of integrity to enter the food-oriented professions are increasingly imperative.

CHANGES IN FOOD BUYING

Some criteria which may help consumers in purchasing food for their families are:

1. The contribution of the item to the over-all food needs of the family.
2. The return in actual food value for the money spent.
3. The price of the item in relation to alternate choices of similar food value.
4. The importance of the built-in services in the item as weighed against the probable cost of those services when obtained in other ways.
5. The necessity and economy of such additives as vitamins and minerals.

¹ See *Food*, the USDA Yearbook of Agriculture, 1959, pp. 576-88 for such plans.

² See also, E. Cofer, E. Grossman, and F. Clark, "Family Food Plans and Food Costs." Home Econ. Res. Rept. No. 20, Supt. of Documents, Washington, 1962. (35 cents.)



*It is unrealistic
to believe she
will read every
label*

Intelligent food buying requires reading the labels. It is unrealistic to believe that the homemaker will stop to read the label on every package she drops into her market basket. But she can learn by occasional study what is on the labels of the foods she most frequently buys. The information thus gained could be significant to the health of her family and the conservation of food money. Indeed, a study of labels on common food products can be the point of departure for many interesting and timely nutrition lessons.

The Food and Drug Administration is diligently and effectively using existing federal laws to protect consumers from the presence of hazardous ingredients. A weakness in the situation, however, is that many states do not have laws incorporating important sections of the federal regulations. Federal agencies do not have jurisdiction over foods produced and sold locally within states. Moreover, many states do not have adequate laboratories for testing and sufficient services for inspection of food products. Consumers should be aware of this situation, for it is up to individuals and professional organizations to work toward improvement of state laws and programs for their enforcement.

The Council on Foods and Nutrition of the American Medical Association and the Food and Nutrition Board of the National Research Council, through their statement of policies on the addition of nutrients to foods, are helpful in forming judgments about the use of enriched foods (6).

In 1961 the Council and Board reiterated the desirability of meeting nutritional needs by the use of an adequate variety of foods, in so far as could be practical. Foods regarded suitable for the distribution of additional nutrients are those which have diminished nutritive content as a result of loss from refining or other processing, and those which are widely and regularly consumed. Nutrients added to such

foods should be of the kinds and quantities associated with the class of foods involved. Addition of other nutrients may be favored when deemed by properly qualified judgment to be advantageous to public health. The foods endorsed have been listed previously in this book on page 223.

The consumer who becomes familiar with the policies of the Council on Foods and Nutrition of the American Medical Association and the Food and Nutrition Board acquires knowledge that will help protect him against exploitation of products which are overadvertised for their additional nutrients. In this instance, education is the only source of protection for consumers. Therefore, nutrition educators must keep posted with current policies of AMA and the NRC, relaying such information to the public.

Similarly, educators must alert consumers to the pitfalls of many advertising appeals which are based on emotional promises of ease and convenience, along with oversimplification and half-truths, and with impressive but ambiguous "scientific claims."

In addition to basic information and knowledge of authoritative sources, homemakers may need most of all to have for themselves a basic underlying philosophy that serves to direct their choices of foods in the ever increasingly complex market.

FOOD AND RADIOACTIVITY

Attention has frequently been focused on the potential hazards of radiation to our food supply and to the human race. It is true that some radioactive products of nuclear fission can be detrimental to man. Of the forty or more nuclides in fission material, those assessed as biologically important (either because of their yield or their physical half-life) are Strontium-90; Iodine-131; Cesium-137; and, to a lesser degree, Barium-140 and Strontium-89. When ingested, they cause radiation exposure throughout the alimentary canal, and when absorbed, they may concentrate in specific tissues.

The radioactivity of Strontium-90 disappears slowly. It affects plants, thereby finding its way into foods of animal origin, later to be absorbed in the human body, and finally deposited and retained in the bones near the blood-cell-producing tissue. Accumulating in high concentrations, it can cause bone cancers and possibly leukemia.

Cesium-137 is more mobile, hence it becomes more widely distributed through the body. It can subject the reproductive organs to radiation. Iodine-131 is largely concentrated in the thyroid (7).

That increased radioactivity of elements in our environment introduces new health hazards can scarcely be doubted. There is some indication, however, that the current degree of concern is out of proportion to the facts. There is also the unfortunate tendency to associate the hazards with milk, while actually all foods are affected. Milk happens to be a commodity most easily measured for even a minute level of radioactivity.

Some reassuring facts which may guide public thinking on this subject were summarized as follows by Hundley (8):

1. Radiation has always been with us. Fallout from nuclear explosions simply adds to this.
2. A great deal has been learned about the biological effects of exposure to radiation, but more information is needed.
3. The amount of radioactivity in milk, various foods, drinking water, and air is under constant "early warning" surveillance network. There are 60 stations for atmosphere testing; more than 60 for milk sampling, and 20 for total diet sampling. In addition we have networks for monitoring general air and water pollution, with a total of 343 stations.
4. Amounts of radioactivity in food generally and in milk specifically are well below the level at which any action to reduce radioactivity is indicated. There is at present no reason for the public to reduce consumption of milk or other dairy products because of fear of radioactive contamination.
5. The human body must have calcium. Evidence exists that animals on a good calcium intake absorb less Strontium-90, while calcium-depleted animals absorb more.

A major disruption of the dairy industry through fears of radioactive contamination would do more harm than good. Undoubtedly, some risks are involved in the use of atomic energy. However, this is a danger to which our government is fully alert. Therefore, there is no reason for public panic. In the event of a fallout emergency, steps would be taken to warn the public and protect our people from any serious hazards affecting food supplies.

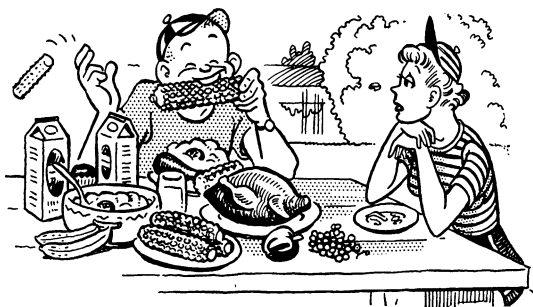
NUTRITION IN THE SPACE AGE

Research designed to sustain man in space over a period of time will undoubtedly influence many aspects of life on earth, too. Maintenance of the individual in a good state of nutrition will be essential to success of the space probes. We may expect space research to result in much new information about nutritional needs of human beings under various physical and psychological conditions.

When man lives in his earthly environment, a *precise* knowledge of his needs is perhaps less essential than when he is faced with the many restrictions of space travel. The limitations imposed by an environment to which he has not had the benefit of generations of biological adaptation require new methods to sustain him.

The development of closed systems, whereby waste products may be converted into forms suitable for re-use by the body, is a matter of considerable interest. Much research has been begun in the development of concentrated forms of food suitable for space travel, along with the possibility of food substances which may be grown aboard space ships during travels to outer space.

*How do we
explain that
quantitative need
has been
overestimated?*



CHANGES IN NUTRITION KNOWLEDGE AND METHODS OF COMMUNICATING THEM

Keeping abreast of new developments in food research, technology, production, and distribution is a major challenge for the nutrition educator. A research worker in nutrition may limit his efforts somewhat to *depth* in a major field of interest, but the educator must employ considerable *breadth*. Review articles in the professional journals, along with conferences, workshops, and short courses, all provide help in keeping posted.

As a prerequisite to the full use of current data, the nutrition educator must have a good grasp of nutrition science and the current status of its application. A sound basic preparation in the supporting sciences is the necessary background for an effective, up-to-date specialist in nutrition education. In our present educational system, however, we find many people with less than adequate background in nutrition and science. They nevertheless must carry the responsibility of teaching nutrition for everyday living. The specialist must assume the responsibility of giving practical assistance to the nearly-lay teachers of nutrition, especially in interpreting new findings to them.

We must recognize problems of preparing people for revising their concepts in nutrition. How do we explain, for example, that the quantitative need of a nutrient has been overestimated in the past, or that a food once considered a good source of a certain nutrient is now not recognized as such? Or that the well-learned concept of iron as a blood builder is now regarded as oversimplified and only a fraction of the whole truth?

The reflections of such changes and uncertainties in the minds of people is expressed in the following statement by Will Durant (9):

And if the day should come when our dietitians will have at last made up their minds as to what they really know and believe, I should ask them to teach the principles of diet an hour in every school week for fifteen years, so that our people might make with some corporate intelligence the dietetic changes required by the passage from an outdoor and physical life to a mental and sedentary one.

Nutrition educators have a large body of well-established knowledge from which to draw. The everyday lessons of nutrition can be largely centered upon such data, but people must be receptive to new knowledge and willing to modify earlier information in the light of it. The research point of view, as described by Charles Kettering, suggests a basic philosophy that may generate a spirit of open-mindedness so important to nutrition education:

Research is a high-hat word that scares a lot of people. It needn't. It is rather simple. Essentially, it is nothing but a state of mind—a friendly, welcoming attitude toward change. Going out to look for a change instead of waiting for it to come. Research, for practical men, is an effort to do things better and not be caught asleep at the switch. The research state of mind can apply to anything: personal affairs or any kind of business, big or little. It is the problem-solving mind as contrasted with the let-well-enough-alone mind. It is the composer mind instead of the fiddler mind. It is the “tomorrow” mind instead of the “yesterday” mind.

Nutritionists may at times be too eager to teach “what’s new.” Let us first be sure that we utilize the basic facts that have stood the test of time, for these form the background against which new information must be tested and evaluated.

Along with the constant flood of new information is a barrage of misinformation. This can take the form of outright deceit, half-truths, and misleading statements, all geared to garner a share of the consumer’s food or health dollar.

The public must be helped to develop a discriminating attitude toward what they see and hear about food. They should learn to ask questions about the “authority” behind a statement; to consider it in the light of their own knowledge, experience, and common sense; to consult qualified people; to beware of promises of “easy” ways, cure-alls, and emotional appeals; they should learn to distinguish between associations and cause-and-effect relationships, and to realize that news headlines may be different from confirmed scientific facts. Nothing will help combat misinformation more effectively than sound knowledge of the basic facts of nutrition—which deal with the composition of foods and how they serve the needs of the body.

THE CHALLENGE OF CHANGE IN PHILOSOPHY AND OBJECTIVES

Nutrition education usually does not constitute a segregated program. It is incorporated in a health or home economics program at the primary, secondary, or college level. It may be part of an extension program or an adult education class. Wherever it is found, it does not operate as an isolate.

Therefore, in teaching nutrition it is important that the educator consider the basic philosophy and new developments of the specific professional group with which he is allied.

The home economics branches of the U.S. Office of Education and of the Land Grant College Association are currently engaged in curriculum projects designed to obtain agreement concerning basic concepts for home economics either in secondary schools or in universities. The effectiveness of the nutrition educator will be increased if she is aware of these developments as she plans her program.

The over-all aims of a profession provide a structure within which the nutrition educator may function. Such statements of purpose or philosophy as the "Task Force" report of the American Public Health Association; the "Scope" of the Cooperative Extension Service; and "New Directions in Home Economics" of the American Home Economics Association are excellent. The latter is a statement issued on the 50th anniversary of the American Home Economics Association. Included in it are "Twelve Competences" which were developed as guideposts for home economists. Nutrition educators concerned with families, especially the home economics educators, should seek to interpret the contribution that knowledge of nutrition has to make toward each of these competences or goals for family living.

Fundamental to effective living are the competences to:

- *establish* values which give meaning to personal, family, and community living; select goals appropriate to these values
- *create* a home and community environment conducive to the healthy growth and development of all members of the family at all stages of the family cycle
- *achieve* good interpersonal relationships within the home and within the community
- *nurture* the young and foster their physical, mental, and social growth and development
- *make* and carry out intelligent decisions regarding the use of personal, family, and community resources
- *establish* long-range goals for financial security and work toward their achievement
- *plan* consumption of goods and services — including food, clothing, and housing — in ways that will promote values and goals established by the family
- *purchase* consumer goods and services appropriate to an over-all consumption plan and wise use of economic resources
- *perform* the tasks of maintaining a home in such a way that they will contribute effectively to furthering individual and family goals.
- *enrich* personal and family life through the arts and humanities and through refreshing and creative use of leisure
- *take* an intelligent part in legislative and other social action programs which directly affect the welfare of individuals and families
- *develop* mutual understanding and appreciation of differing cultures and ways of life, and cooperate with people of other cultures who are striving to raise levels of living.

MEETING THE CHANGES — TODAY AND TOMORROW

Nutrition education is a challenging field of endeavor. It offers possibilities of tangible rewards for a job well done because, as the individual improves his dietary patterns, favorable results eventually appear in his over-all state of health and well-being.

This book has attempted to provide for the reader an over-all perspective on teaching nutrition by offering a careful look at the past, along with an assessment of nutrition education in the present era, and a look ahead.

The future of nutrition education depends upon the efforts, knowledge, and dedication of all those who are offered the challenge of teaching nutrition.

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