

CHAPTER TWO

Diets and Nutrition

During the years 1945 to 1955 many studies were made of the nutrition of school children throughout the United States. Information came from the East and Northeast: Maine, Vermont, New York, Rhode Island, Connecticut, Pennsylvania, and Virginia; from the South: Louisiana, Texas, Florida, and Tennessee; the Midwest: Wisconsin, Nebraska, Kansas, Minnesota, Ohio, and Iowa; the Northwest: Oregon and Idaho. Most of the studies were made from children selected on a statistical sampling basis, and we can regard them as representative of the populations studied. Because of the far-flung distribution of the studies we may even regard the findings as fairly representative of conditions throughout the country.

We should remember, however, that averages may conceal many differences which exist among groups within any population. In any locality rural children may have diets different from those of urban children; children from large families different from small families; children from low income families different from moderate or high income families; Negro children different from white children.

The fact that families are known to have adequate food supplies does not justify the assumption that the children have a good diet. The Groton Township studies in New York (1) showed that of 77 families whose available food met the Recommended Dietary Allowances of the National Research Council (2), in only four did the diet of each

family member conform to these allowances. Other studies have shown that the mother and the adolescent girl are likely to have the poorest diets within a family group (3).

The over-all studies, however, do give us a starting point. Because of them we know more about the diets of children, how nearly these diets measure up to standards, and, to some extent, how the children themselves are reflecting the diets in their health.

In most of the investigations, dietary records of 3 to 7 days have been studied. Body measurements have been taken. In many instances blood samples have been analyzed for various constituents indicative of nutritional status, such as hemoglobin, vitamin A, carotene, vitamin C, and alkaline phosphatase. Often, medical and dental examinations have been included.

FOODS EATEN BY THE SCHOOL CHILDREN

Naturally, children eat about the same foods as their parents, and in about the same meal patterns. They eat some foods in plentiful amounts but have inadequate amounts of other foods. Vegetables as a group are probably the least popular with children.



Naturally, children eat about the same food as their parents . . .

Figure 2.1, a chart based on a unit of 10, shows how many Iowa boys and girls ate specified amounts of food classified according to certain groups for 6 out of 7 days during the week.

Most of the studies have revealed similar findings. Many children do not have the milk, the green and yellow vegetables, and the vitamin C-rich fruits and vegetables which are recommended for their daily consumption. We cannot overemphasize the importance of hav-

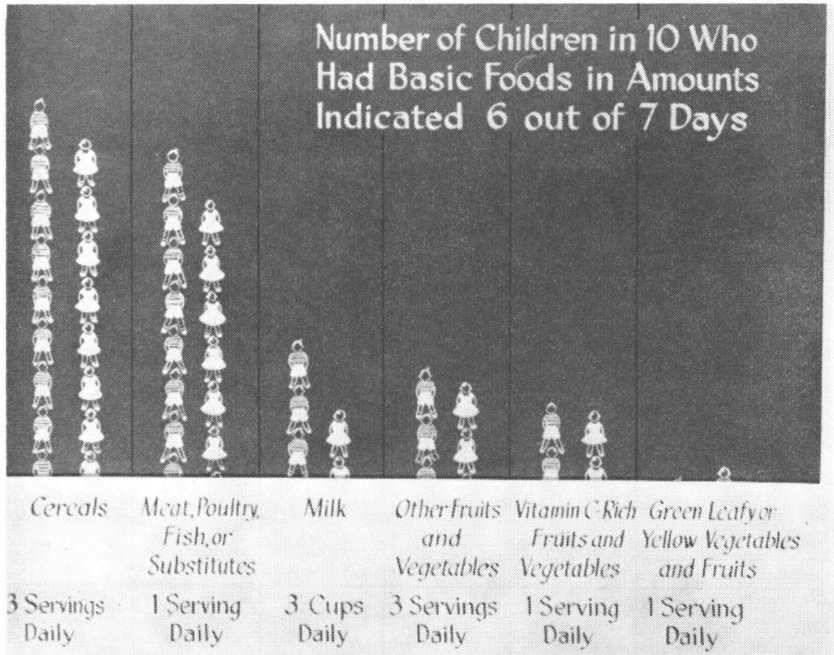


FIG. 2.1 — Consumption of classified foods by Iowa boys and girls.

ing these foods day after day. Some studies have shown that boys eat fewer fruits and vegetables than do girls, though generally their diets are better (4). They are likely to use more milk, cereals, and meats. As girls grow older they seem to use less of certain important foods, such as milk and eggs (5).

Differences by age and sex in the average daily consumption of certain types of foods by these Iowa children are shown in Figure 2.2.

Few of the children took vitamins or other nutrient supplements. The percentage decreased from about 15 to 20 per cent of the 6- to 8-year-olds to less than 5 per cent of the children in their late teens (6). Furthermore, studies in Idaho showed that very few children who took supplements needed the particular supplements they took (7). In general it is believed that children and adults may satisfy their nutrient needs through natural foods, but growing children in many parts of the country may need vitamin D from a supplementary source. During a large part of the year children live mostly "under cover" and do not benefit from the direct rays of the sun.

THE NUTRIENT SUPPLY

There are many different ways for obtaining a good diet, and the final test of the diet is in its nutrient content. Also, the needs of individuals vary. A good diet for one may not be satisfactory for another.

In the Iowa studies, average daily intakes of boys from 6 to 16 or 18 years showed that they usually had diets of higher food energy (calorie) and nutrient value as they grew older (8). The main exception was between the ages of 9 and 10, where there was not much difference in nutrient intake nor in body size.

Girls were different. In general, their intakes were larger each successive year from 6 to 12, but after age 12 the averages dropped even though the girls continued to grow. Some teen-age girls had diets of lower nutritive value than girls at age 9 or 10. Since for girls the age of 12 seems to be a turning point in development, food habits, and other interests, nutrition education for girls of this age should be carefully geared toward helping them to understand how nutrition

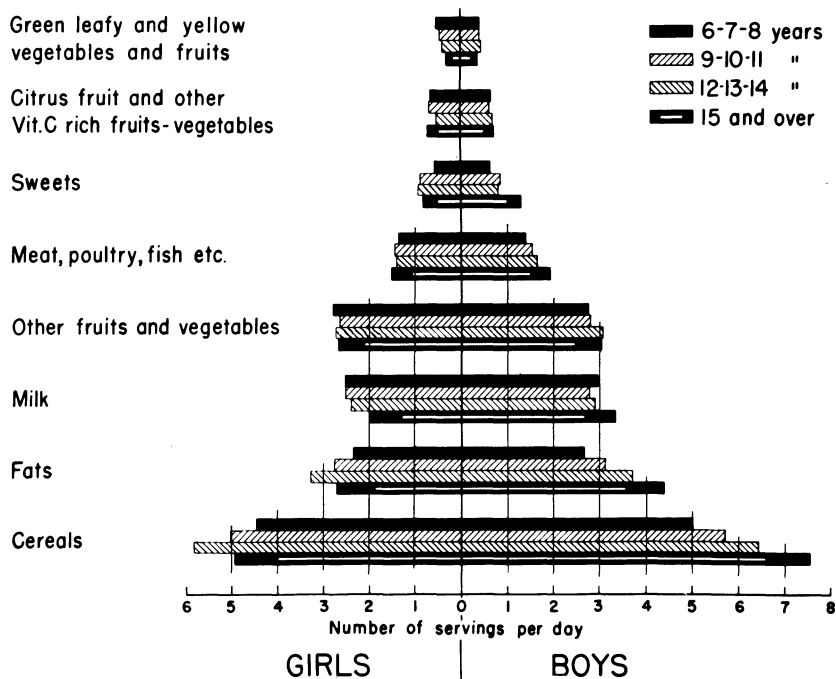
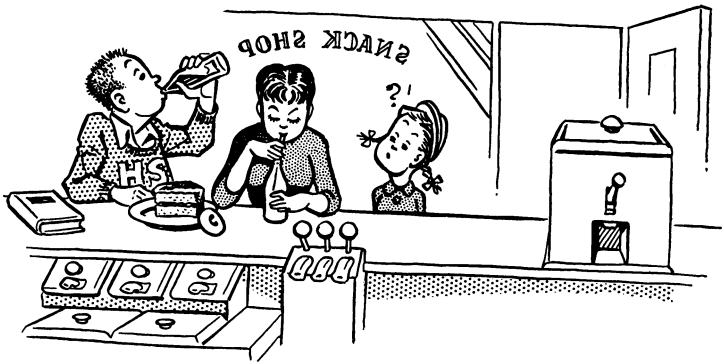


FIG. 2.2 — Use of food groups by Iowa school children.

Little sister is
aghast at the diet
of the teenagers.



is related to their present and future development and happiness. The stresses and strains of the second decade of life require a sound foundation of health, which depends greatly on a liberal supply of all nutrients. The need for concern about such nutrients as calcium, iron, and vitamin C in the diets of teen-age girls is shown in Figure

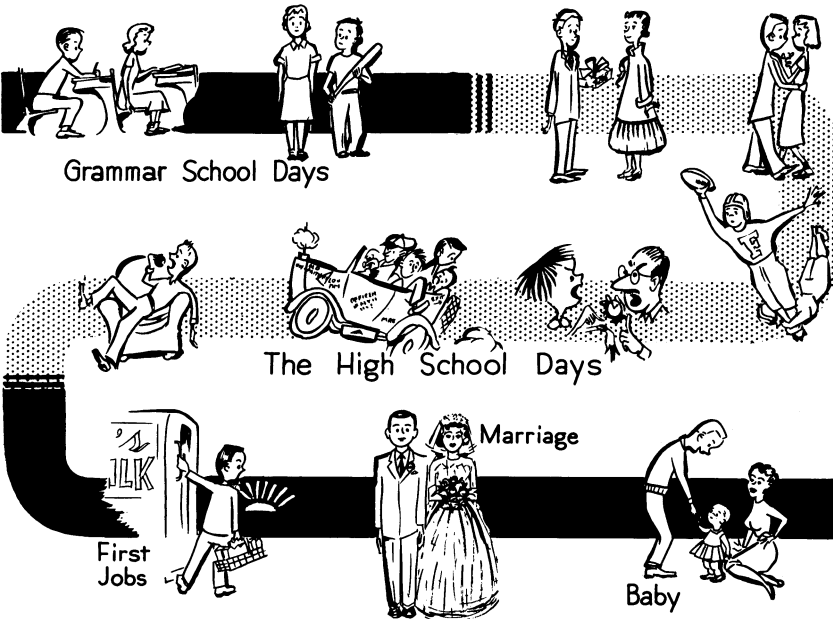


FIG. 2.3 — The second decade of life.

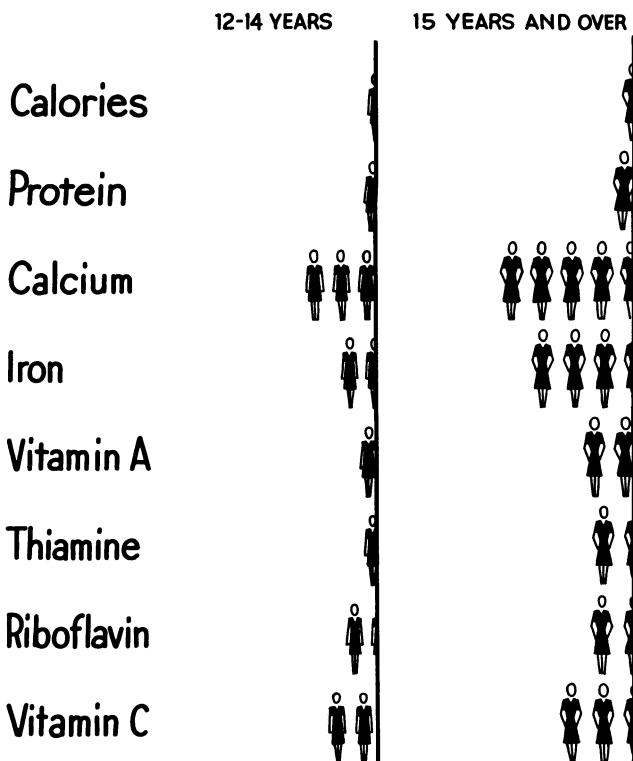


FIG. 2.4 — Number of teen-age girls in ten with diets deficient in specific nutrients.

2.4. Stearns (9) has said that good nutrition during childhood and adolescence is particularly important for girls, for the childbearing age begins in adolescence. Many girls marry at age 18 or 19, and many babies are born before their mothers are 20.

The Recommended Dietary Allowances (2) are our best guide for determining the adequacy of diets. The average daily intake by our boys and girls indicates that our child population as a whole has a reasonably good diet. But in the Iowa studies the averages are somewhat low in calcium for boys and girls, iron for girls, and in several nutrients for teen-age girls.

More important than the average daily intakes, perhaps, is the proportion of children whose diets are low according to our standards. A diet that is really below the needs of the child in any one essential nutrient or in food energy, is a poor one. For example, if the diet is sufficient except for calcium, the child will suffer and the diet must be considered inadequate or poor. Children undoubtedly differ in their basic requirements, so the selection of a level to be designated as

QUALITY OF DIETS OF 602 GIRLS



rating	% of girls
"GOOD"	13.5%
"FAIR"	46.3%
"POOR"	40.2%
total	100.0%

FIG. 2.5 — Diets of Iowa girls rated in three classes.

poor, or inadequate, is arbitrary. Many studies, including the Iowa study, have considered the diets in three classes:

Class 1. The food energy and nutrient value equal or exceed 100 per cent of the Recommended Dietary Allowances: diets rated as **good to excellent**.

Class 2. Some values are less than 100 per cent but none less than 67 per cent: diets rated as **fair to good**.

Class 3. At least one nutrient or the food energy value is 67 per cent, or less, of the Allowances: diets rated as **poor to fair**.

By this classification the diets of the Iowa children as observed in 1948-51 are rated as shown in Figures 2.5 and 2.6. The spectacular way

QUALITY OF DIETS OF 586 BOYS



rating	% of boys
"GOOD"	24.4%
"FAIR"	44.2%
"POOR"	31.4%
total	100.0%

FIG. 2.6 — Diets of Iowa boys rated in three classes.

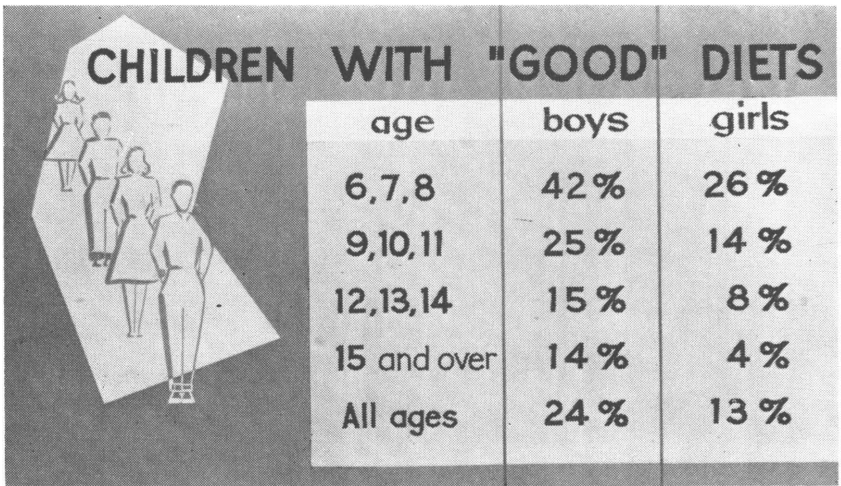


FIG. 2.7 — The percentage of "good" diets decreases spectacularly during the school years.

in which the percentage of "good" diets decreased during the school years is shown in Figure 2.7. At the same time the percentage of poor diets (those in Class 3) increased from younger to older age groups. There is certainly no more dramatic evidence than this, of our need for effective nutrition education and of our current failure in this area.

By other methods of study and classification the diets of a large number of children have been found to be similarly distributed. The General Mills study of 60,000 students in 38 states gave this approximate classification of their diets (10) : 33 per cent, good; 27 per cent, fair; 40 per cent, poor.

We are reminded of the statement so often made in the '40's that one-third of our people are well fed, one-third fairly well fed, and one-third poorly fed.

In the Iowa studies, calcium was the nutrient most often lacking. The number of school children in 10 with diets considerably lacking in calcium is shown in Figure 2.8.

The total calories in the average daily diets of these children were divided as follows among the three main dietary components: protein, 12 per cent; fat, 42 per cent; and carbohydrate, 46 per cent (see Fig. 2.9).

A similar distribution has been noted in diets generally. Since about 1910 the proportion of calories from fat in the so-called national

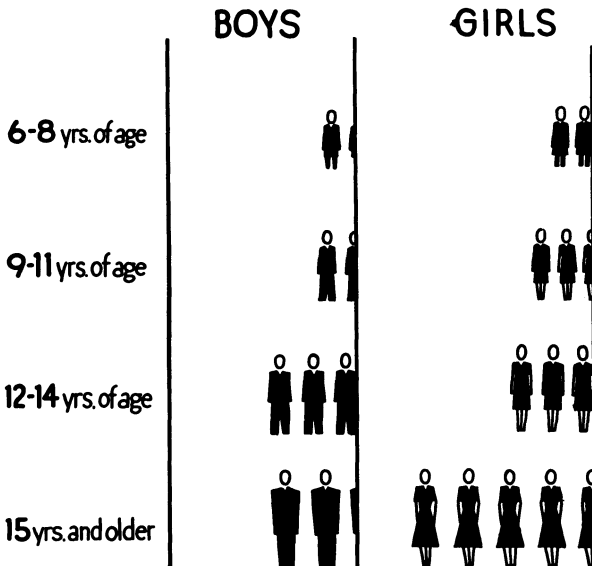


FIG. 2.8 — Number of Iowa school children in ten whose average daily diets were seriously lacking (see Class 3, page 21) in calcium.

diet (literally, food supply at the retail level) has apparently increased from about 30 to 40 per cent (11). Because of the possible relationship of high-fat or high-calorie diets to diseases of the heart and blood vessels, which are becoming alarmingly prevalent in the

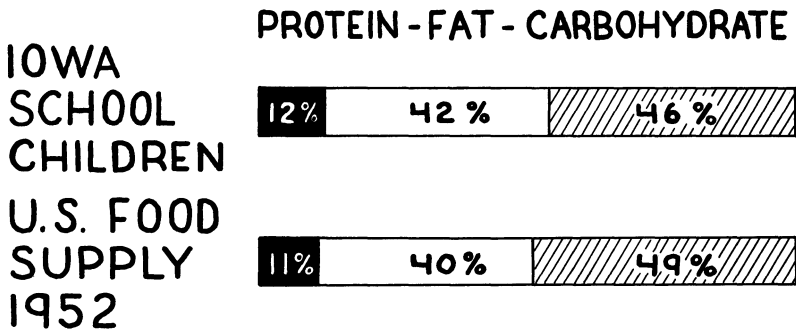


FIG. 2.9 — Percentage distribution of calories among the foodstuffs in the average daily diet.

United States, our children might benefit from becoming accustomed to diets somewhat lower in fat. This would probably best be accomplished by using less gravy, rich dressings, and fried foods. If children learn to like foods without these accessories, they can more easily and successfully make the dietary transitions involved in changes from active to sedentary living, and from young to middle and old age. This statement from a review on the subject of diet and life span is of interest (12) :

High dietary protein or carbohydrate apparently do not worsen the prospects as to longevity, provided no secondary deficiencies exist. A high level of dietary fat has, as a rule, adverse effects on the life span.

On the other hand, it is equally important to recognize that a certain amount of fat in the diet has many beneficial effects, not only physiologically but in adding satisfaction to the diet.

KINDS OF FOODS USED AND THE ADEQUACY OF DIETS

In the northeastern region of the United States the percentage of nutrients contributed by each of seven groups of foods was studied (13). In the order of importance of the foods, the major sources of calories and nutrients in the 7-day records of the 778 subjects were:

- Calories — bread, milk, meats
- Protein — meats, milk, bread
- Calcium — milk, bread
- Phosphorus — milk, meats, bread
- Iron — meats, bread, vegetables
- Vitamin A — vegetables, milk
- Thiamine — bread, meats, milk
- Riboflavin — milk, meats, bread
- Niacin — meats, bread
- Ascorbic Acid — citrus fruits, vegetables, potatoes

The major contributions of nutrients made by each food were:

- Bread — thiamine, niacin, iron, calories, protein
- Milk — calcium, riboflavin, phosphorus, protein
- Citrus fruits — ascorbic acid
- Meats — niacin, protein, iron, thiamine
- Irish potatoes — ascorbic acid
- Vegetables and tomatoes — vitamin A, ascorbic acid

Seven food groups (those listed above plus eggs) contributed a total of approximately 50 per cent of the calories, and between 55 and

70 per cent of the protein, calcium, phosphorus, iron, vitamin A, thiamine, niacin, and ascorbic acid ingested by the subjects.

The investigations showed a direct relationship between the percentage of some nutrients contributed by milk and citrus fruits and the adequacy of the diet as judged by the Recommended Dietary Allowances (2). The most common deficiency in the diet and the one of greatest magnitude was ascorbic acid; but other frequently occurring dietary deficiencies were in calcium, vitamin A, riboflavin. Citrus fruits would bring about the greatest improvements in ascorbic acid intake. However, these workers recommended as more practical for the people of this area, an increase in leafy green and yellow vegetables, plus home-grown tomatoes, as a means of improving vitamin A and iron intakes as well as vitamin C. Here we have an example of the way in which practical and theoretical considerations should be combined in our recommendations for improving diets. With the increased consumption of milk, many of the dietary deficiencies could be eliminated.

Children in Iowa, and probably those in other sections, obtain 40 to 48 per cent of their calories from cereal foods, sweet foods, and fats (5). It is important that these foods be as nutritious as possible. The ability to make good selections among these foods is an important skill to acquire in nutrition. These figures also emphasize the importance of enriching certain staple foods, as bread, flour, and table fat.

DIFFERENCES BETWEEN THE BEST AND POOREST DIETS

How do good diets differ from those at the other extreme? The answer to this question should indicate where emphasis must be placed in nutrition education. In the Iowa studies, boys with the best diets throughout the age groups averaged 4 cups of milk or more daily; those with the poorest, 2 to 3 cups. Girls with the best diets had 3 to 4 cups of milk daily and girls with the poorest, 2 cups (5). There were also large differences in the use of the vitamin-rich fruits and vegetables by the two groups. In fact, the greatest differences between children with the best and poorest diets were in the use of milk and the vitamin-rich fruits and vegetables. These same differences were also discovered in a study of Kansas and Ohio 9-, 10-, and 11-year-olds (14) and in another study of Connecticut children (15). We have evidence here that 3 to 4 cups of milk daily and five servings of fruits and vegetables, including one serving of the vitamin C-rich foods and one of the green leafy and yellow group, safeguard the adequacy of the diet, when children are likely to have liberal amounts of protein, energy-rich foods, and a source of vitamin D. Because of the high vitamin A value of the deep green and yellow vegetables and the ability of the

body to store the surplus amounts, some plans indicate the need for these foods as once every other day.

The use of meat substitutes and eggs was not very different for the two groups of children in the Iowa study, and no consistent relationship was noted between the fat-rich and sweet foods and the quality of the diet. However, girls of 15 years and older, with the best diets, used fewer desserts and sweets than those with the poorest diets. Children with the best diets generally ate more food than those with the poorest diets, and, as shown in Figure 2.10, the calories were distributed differently among the food groups.

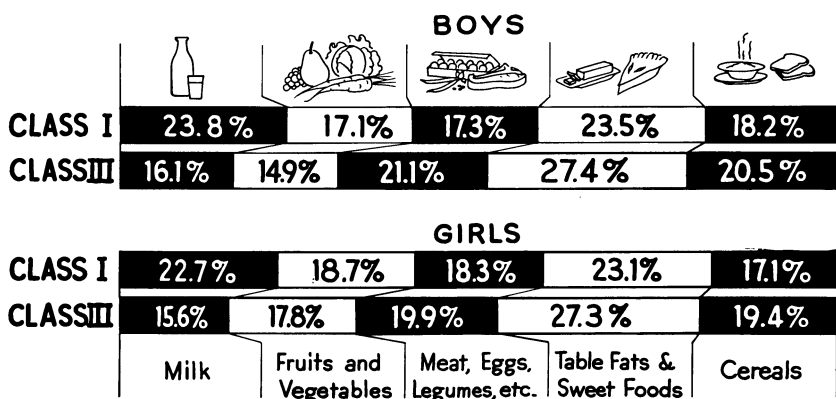


FIG. 2.10 — Percentage distribution of calories among food groups in average daily diets. Class I met all the allowances; Class III met only 67 per cent or less of the allowances.

THE DAILY FOOD PLAN

The "Basic Seven" (16) has been generally accepted as a guide in the choice of foods for good nutrition. Questioning students may wish to know whether it is reliable and practical. Moreover, teachers may be more convincing if they know that what they are teaching is valid. The information just summarized shows that children with good diets roughly follow such a plan. On the other hand, the children whose diets were the poorest deviated considerably from the plan, particularly in regard to their intake of milk, fruits, and vegetables. There may be many ways to obtain a good diet but under present conditions

of living, a plan simulating the Basic Seven seems to survive the test of experience.

The Agricultural Research Service of the United States Department of Agriculture has proposed the following revision of the daily food plan (17):

Milk group:

Children	3 to 4 cups
Teenagers	4 or more cups
Adults	2 or more cups
Pregnant women	4 or more cups
Nursing mothers	6 or more cups
Cheese and ice cream can replace part of the milk.	

Meat group: 2 or more servings —

Beef, veal, pork, lamb, poultry, fish, and eggs, with dry beans and peas and nuts as alternates

Vegetable-fruit group: 4 or more servings, including —

A dark-green or deep-yellow vegetable important for vitamin A — at least every other day

A citrus fruit or other vegetable important for vitamin C — daily

Other fruits and vegetables including potatoes

Bread-cereals group: 4 or more servings —

Bread or cereals — whole grain, enriched, restored

The minimum number of servings forms a foundation for a good diet. Other foods as fats, sugar, and unenriched cereals naturally will form a part of the day's diet, and may not need particular emphasis in educational programs.

Actually the new plan does not present a marked departure from the "Basic Seven" and is not contradictory to it. Through the condensation and greater specificity of amounts to be used, the new plan may afford a more effective teaching device than the "Basic Seven." Though in some respects it is more general than the old guide, it appears to give even more emphasis to the particular food groups that are most frequently lacking in the diets of our people. In the construction of the new plan the importance of each of the food groups to an adequate diet is clearly shown, and the need of the two specific types of fruits and vegetables is pointed out.

MEALS AND SNACKS

It is evident that children do not get all of their food in the conventional three meals a day. The following is the distribution of the

day's calories among meals and snacks of a statewide sample of children (18):

Breakfast	15 to 20 per cent
Noon meal	32 to 34 per cent
Evening meal	27 to 35 per cent
Snacks	15 to 17 per cent

The noon and evening meals were the best balanced so far as providing a fair proportion of all the nutrients as well as calories. Snacks

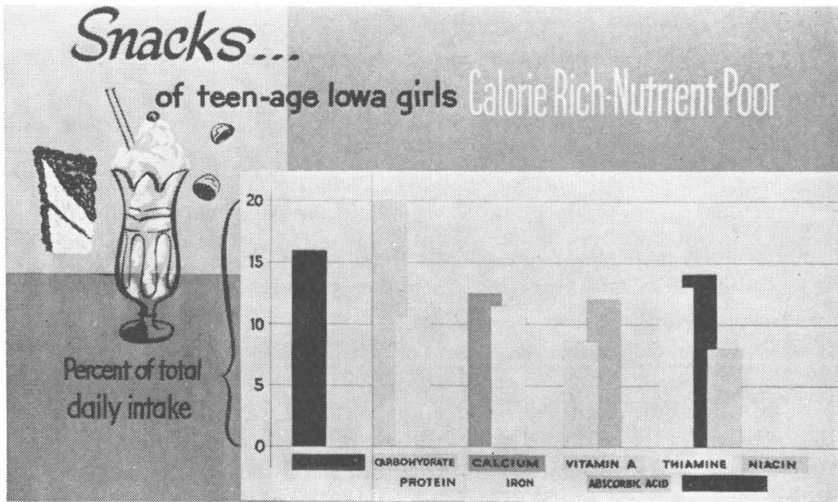


FIG. 2.11 — Percentage of total daily intake of nutrients furnished by snacks, for the teen-age girls.

were by far the poorest. They supplied calories chiefly from foods rich in carbohydrate. Since snacks represent a considerable portion of the day's food intake, and since they represent food which may be chosen independently by the child, nutrition education should focus sharply on this part of the child's diet. Little difference was found in the Iowa study between the distribution of food among the meals and snacks of the children with the best and poorest diets.

Breakfasts need improvement. They are likely to become poorer, especially for girls, as the children grow older (see Fig. 2.12). In the Iowa studies only one child in five who had a poor breakfast was able finally to have a good day's diet. Children who did not have a good source of vitamin C at breakfast usually did not get it at the other meals and hence did not have it for the day (18).

Studies in Connecticut (15) showed that, of the meals missed, 55 per cent were breakfasts, and that the average number of meals missed was highest in the 8th grade. Figure 2.12 shows the shortage of some important foods, as milk, eggs, and fruit in the breakfasts of rural girls. Teen-age girls may need to be taught that skipping breakfast is an ineffective way to try to control weight (19). In a study of school boys, young men and women, and elderly men, Dr. Kate Daum and her co-workers concluded that the omission of the morning meal is ineffective in reducing weight. Dr. Daum stated that breakfast should

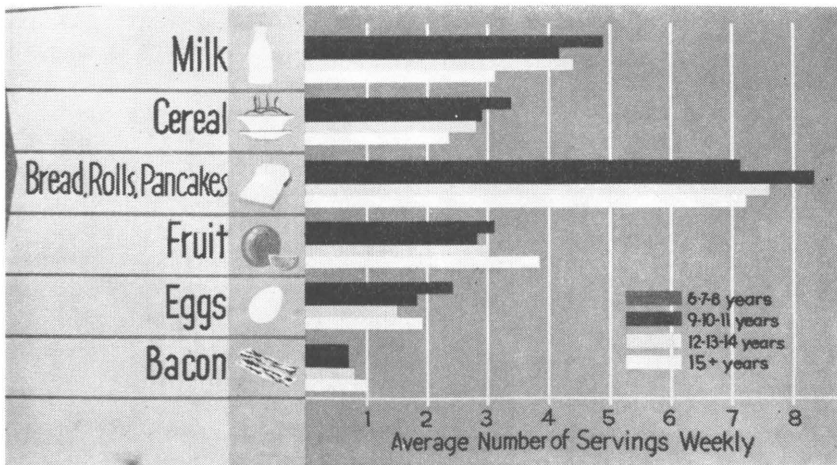


FIG. 2.12 — Use of some important foods in breakfasts of rural school girls.

contain not only one-fourth to one-third of the total calorie and protein allowances but also essential vitamins and minerals. There is little question that people perform better both physically and mentally when they have good breakfasts than when they have poor breakfasts or none at all.

THE NUTRITION STATUS OF THE CHILDREN

The final test of the quality of a diet is not in the calculated figures but in the children themselves. A good diet has been described by Leitch (20):

The diet of the people of most beautiful physique, most abounding energy, and least ill health is, at any given stage in our study of diet, the inspiration of and check on our theories of optimum diet.

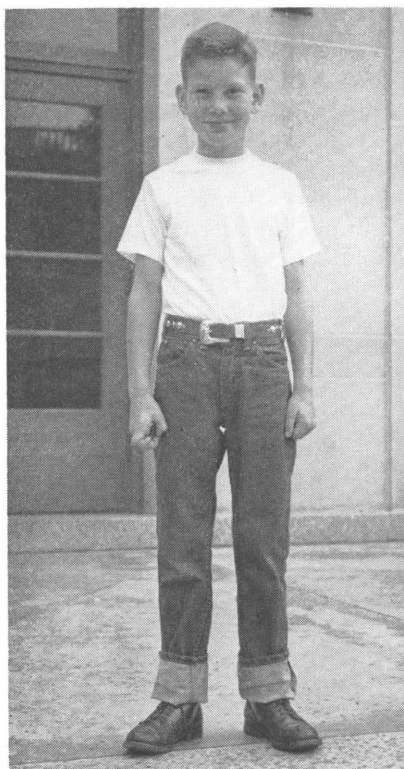


FIG. 2.13 — An example of good nutrition.



FIG. 2.14 — An example of poor nutrition.

The marks of good nutrition in the physique of a school child are clearly evident in Figure 2.13. We may expect well-nourished children like this to be alert in school and to have emotional stability and the other qualities which make for satisfactory personality development. The well-nourished child has good posture—head erect, chest up, shoulders flat, abdomen in. The skin is firm, healthy in color, and resilient. The bones are straight, joints are not noticeably enlarged, and the head is well shaped. The mucous membranes of the eyelids and mouth are reddish pink. Eyes are clear, alert in expression, have no circles beneath them, and make easy adjustments to changes in light intensity. Teeth are sound and free from discoloration. Hair is glossy, and muscles are well developed and firm. Skin has a good layer of fat beneath it.

The poorly nourished child stands in sharp contrast to the well-nourished one. He is apathetic, dull, easily fatigued. He is a liability in the school room. Fortunately in this country today we see few children so desolate as the child in Figure 2.14.

In most of the studies throughout the United States few children have been observed by doctors to have many of the outright, unmistakable symptoms of malnutrition, known as anatomical lesions. When these are observed the ravages of poor nutrition have gone a long way. The most frequent clinical conditions observed seem to be the changes in skin, gums, and tongue. In some places correlations have been made between some of these conditions and lack of certain nutrients. For example, there seems to be a relationship between gum changes and lack of vitamin C, and between some skin disorders and lack of vitamin A (21, 22, 23).

Body measurements are frequently used to determine how well children are developing. When taken at regular intervals, of perhaps 6 months, one can tell whether or not a child is growing at his usual rate. Of course, we expect certain periods when the rate will naturally slow down a bit, and other periods when it will speed up in a spurtlike fashion. Also, sudden accumulations of fat are not to be mistaken for real growth, which means increase of well-constituted body muscle and size of organs and bones. Moreover, we are concerned not only with the physical growth but with the chemical growth of children. By that we mean the accumulation of the substances which build the muscles, organs, and tissues. For example, children grow in calcium as surely as they do in height and weight, and growth in this respect



... eyes are clear, alert, and make easy adjustments to changes in light intensity.

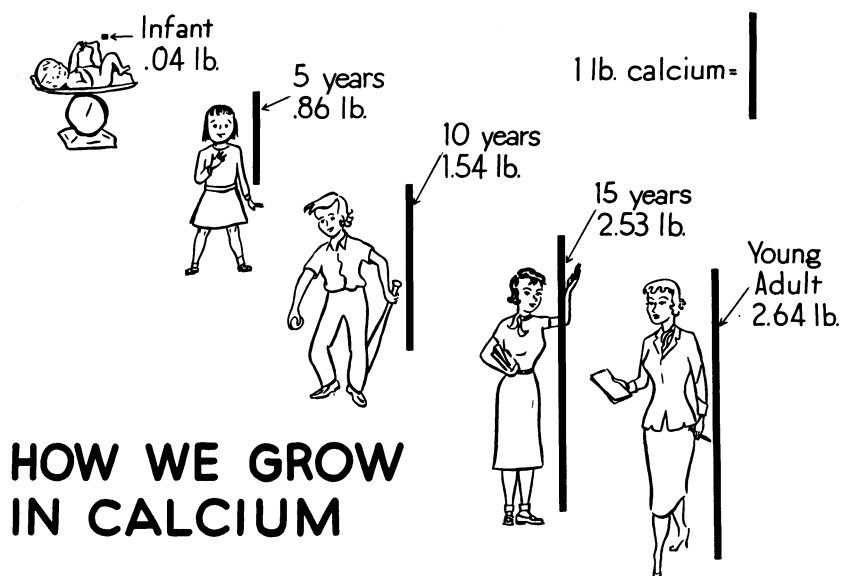


FIG. 2.15 — There is growth in calcium as surely as in height and weight.

may, in the long run, be the most important. This is really where nutrition comes in. It is through the foods children eat that these materials are supplied. The body is like a house (24). The finished structure may not resemble the materials of which it is built, but it can be no better than those materials.

Children can grow while things are going wrong. A striking example is the prevalence of dental caries among children who by stand-

FIG. 2.16 — The body is like a house. (From **Food for Life**, preface, VIII. R. W. Gerard. © University of Chicago Press, Illinois.)



ards of height and weight seem to be doing very well. Growth is a stress factor; nutrient needs are greatly increased by it. Compare, for example, the needs of the young boy (10 to 12 years) who requires 1.2 grams of calcium daily to his father's 0.8 gram or possibly less, and 70 grams of protein to his father's 65.

In the normal pattern, as children grow more slowly, the materials they obtain from food will go farther in their body building. Retardation greater than normal is an adjustment by the body to a poor diet. The first signs of growth retardation abnormal for a given age, therefore, become a danger signal. A faulty diet may be the cause. However, infections and emotional disturbances may also be factors.

In one study the percentage of children who were very heavy and obese was high among the teen-age girls (25). Diets of the heavy girls tended to be lower in caloric value than diets of the girls of medium physique. In fact, heavy teen-age girls had alarmingly poor diets. According to Martin (26):

Too much food, however nutritious it may be, leads to overweight. It is rare, however, for the normal child to take on excess weight if the diet is simple, wholesome and well provided with all the essential nutrients.

Although we do not know the optimum rate of growth, or body size, for children at specific ages, it seems probable that they will attain it if they have a liberal diet in a healthful, wholesome environment. Exercise is an important factor, and poorly nourished children may well disturb the balance between intake and output by inactivity.

A study of the body size of groups of children may call attention to conditions that should be scrutinized. Thus in Iowa, it appears that the school children in 1948-51 tended to be on the average heavier, though not taller, than children of the same ages about 10 to 12 years previous (27). Living conditions are changing. Few children today walk any distance to school; chores, if any, require little effort;

... chores, if any,
require little
effort.



hours are often shortened, with the result that the physical activity involved in vigorous play is reduced; viewing television often replaces a portion of the active play; and the availability and temptations of high-calorie snacks may tip the energy balance on the positive side.

Hundley has produced additional evidence that periodic measurements of children's height and weight detect favorable or unfavorable trends in their nutritional status under conditions considerably above the starvation level (28). In the Iowa study, among the reasonably well-fed children, aged 6 to 15, there was a perceptible difference in

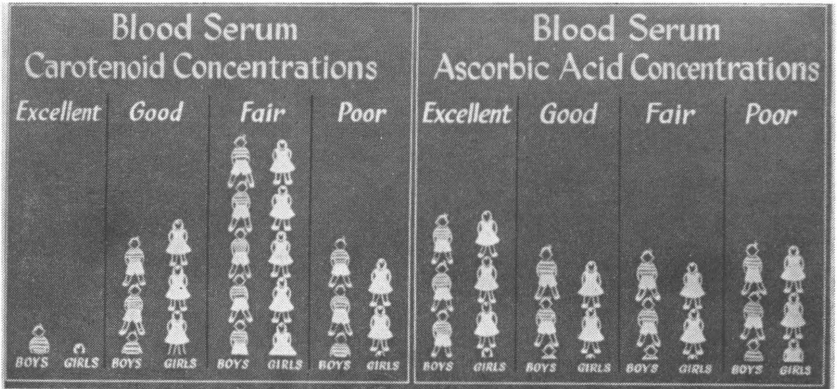


FIG. 2.17 — Number of children in ten with specified ratings in blood serum constituents.

the average body measurements of those with the best and the poorest diets (29).

The concentration of certain constituents of the blood may indicate the state of nutrition. The hemoglobin concentration is thought to be a good over-all index. This may be true because of the fact that a number of nutrients are involved in making hemoglobin. Few of the children in the Iowa study had concentrations of hemoglobin indicative of extremely poor nutrition. In some areas of the country higher percentages of children with low concentrations of this substance are to be found. Such children may need greater amounts of protein, iron, and the vitamins of the B complex.

The serum concentration of other constituents, as vitamin C and carotene, may indicate the degree of body saturation or stores, and may reflect the content of these substances in the diet. The serum levels of vitamin C confirm the dietary findings that many children have diets which are poor in vitamin C. The carotene concentrations

are likewise low, as might be expected in view of the scant use of green and yellow vegetables by large numbers of children throughout the country. More work is needed before the significance of the concentrations of these substances in the blood can be related to the health of the children.

The most general physical defect noted among children in the United States is dental caries. It is evident that this generation of children is susceptible to this affliction. There is no conclusive evidence as to what can be accomplished through nutrition for this immediate generation. There is, however, a good possibility that the caries-susceptible child may be protected by a nutritionally adequate diet (30). The enrichment of the diets of many children with the elements so often lacking in their diets — namely calcium, vitamin C, and vitamin D — might bring about great improvements even in this generation. These elements are definitely involved in the calcification process, which is basic to tooth development.

As we see, therefore, nutrition studies of school children suggest certain points of emphasis in nutrition education programs:

1. Diets of many children need improvement, particularly in regard to *calcium, iron, vitamins C, A, and D*.
2. A good daily food plan¹ for children of school age includes:
 - a. One quart of milk or the equivalent in other dairy products
 - b. One serving of carotene-rich vegetables and fruits (as certain dark green, leafy or yellow vegetables and yellow fruits) at least every other day
 - c. At least 1 serving daily of vitamin C-rich foods as citrus fruit, melon, raw cabbage, tomatoes, raw green vegetables
 - d. Two or more servings of other fruits and vegetables
 - e. Two or more servings of meat, eggs, or legumes
 - f. Four or more servings of bread, and cereals such as oatmeal, macaroni, rice
 - g. Fat and sweet foods as needed to meet the total energy needs and to make other foods palatable and interesting.
3. Children should be encouraged to like foods *without rich dressings and sauces*.
4. Among the meals, *breakfasts and snacks* are especially in need of improvement.
5. *Some groups of children* seem more likely than others to have poor diets, *i.e.*, girls more than boys; teen-age girls more than the younger; children from large families and low economic levels;

¹ A guide for identifying foods in these specific groups may be found in Appendix A, pages 173-75. Also see plan proposed by ARS-USDA on p. 27.

Negro more than white children; heavy girls more than those of medium weight.

6. *Continuous records of height and weight* may be helpful in detecting the onset of poor nutrition.
7. Efforts should be made to help school children to attain the *highest level of health of which they are capable*; for many this will involve, more than anything else, certain dietary improvements.

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