

The importance of proper nutrition for children can hardly be emphasized enough. This thought-provoking and practical presentation on the nutrition of the school child deals with a timely topic.

SCHOOL FEEDING FROM A NUTRITIONIST'S POINT OF VIEW

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A NUTRITIONIST may be defined as one who investigates the nutrient requirements of the living organism, the various factors influencing these requirements, and the ways in which these nutrient needs may be met. Those who work in the area of human nutrition have these same concerns. In addition, they have the problems of the wide variation in nutritive value of an extensive range of foods available for human consumption, and they are concerned with the complexity of factors that determine the acceptance of different foods, and with methods of determining the nutritional status of various segments of the population. For this discussion, the scope of the nutrition problem has been narrowed to one particular group, school-age children, and I wish to deal with the three major components that the nutritionist sees in this topic. These are: nutritive needs, the well-nourished child, and school feeding in the contribution it can make to meeting the needs of the child; or, to put it more succinctly, nutrition, people, and food.

Theoretically it should be simple to equate knowledge of nutrition with the needs of the school-age child, and with school feeding as one means of achieving this. But what is theoretically possible, may be difficult in practice.

Knowledge of Nutrition

Current knowledge of nutrition, at least as regards the nutrients and aver-

age daily requirements, has been summarized for us in Bulletin 1694, *Recommended Dietary Allowances*, of the National Academy of Sciences—National Research Council's Food and Nutrition Board. While the allowances in the seventh edition (1968) leave many nutritionists unhappy for a variety of reasons, they are the accepted guidelines for today. There are nutrients listed in the allowance tables for the first time—such as folacin, vitamin E, vitamins B₁₂ and B₆, magnesium, and iodine—and we find ourselves without any readily available food composition tables for these nutrients. However, the USDA Home Economics Research Report No. 36, published in August, 1969, does help out on vitamins B₆ and B₁₂.

We have little information on the occurrence of dietary deficiencies in these latter nutrients because they have not been calculated in dietary studies, nor biochemically determined in most nutritional status studies. Whether folic acid deficiency is a dietary problem or not is a question. Folic acid is widely distributed in green vegetables, legumes, and whole grains, but it is partially destroyed by cooking processes and some investigators consider that deficiency may be more widespread than hitherto realized. Foods differ markedly in iodine content and diet cannot be counted on to meet the recommended 100- to 150-microgram allowance. Iron intake is recommended as 10 mg for the six-year-old and 18 mg for the teenager; but 6 mg of iron per 1,000 calories of diet is the

best we can expect from the use of present-day foods. This is a nutritional problem!

These cursory comments must serve to indicate some of the troublesome nutrition problems from the nutritionist's point of view. Now let us turn to the nutrition of the child.

The School-Age Child

The child comes to school at age 6 and, hopefully, remains in school until 18 years of age. In these school years he has to accomplish a major physiological job—the job of growth and development. We define growth as increase in the number and size of body cells for all parts of the body, and development as the increase in complexity of structure and function. Although brain growth in size will have been largely completed by four years of age, much skeletal and muscular growth has to take place during the school years—a doubling of body weight and an increase of half as much again in height. Between 6 and 18 years of age, a boy's mean weight goes from 51 lb to 130 lb and from a height of 48 to 67 inches; girls in the same age period go from 51 to 119 lb and from 48 to 63 inches. This physiological growth and development is accomplished through the nutritive processes associated with an adequate intake of quantity and quality of food.

The major reason the child goes to school is to learn, to gain the education which will help him to be a fully functioning contributor to society and competent to earn a living. The school is expected to guide him in the development of his intellectual capacity to his full potential—which is determined by heredity and by the influences of nutrition in infancy and early childhood. His learning in school will be aided if he has physical alertness and fitness and this, in turn, is influenced by nutritional

adequacy. It has been repeatedly observed that learning is difficult where there is apathy, weariness, fatigue, and irritability, which frequently accompany undernutrition and malnutrition.

In addition to so called "book-learning," the child surely has a right to learn at school how to care for his own health. This includes learning desirable food choices and the basis of food habits that will serve him nutritionally throughout life.

Some Other Aspects of the Schoolchild

The child who comes to school is an individual, and this fact must not be lost sight of. He brings with him many individual characteristics, some of which, at least, may militate strongly against his chances for good nutrition. He comes from a home that may have a strong cultural background and many traditions: He may be from a specific ethnic group; he may have definite taste preferences; and he may have been indulged by his parents so that he eats only what he likes. He watches TV and may be susceptible to advertising. There are social and economic factors, as well as the immediate state of family finances, that influence his behavior. He may have had a poor breakfast, or none at all; he may have no money for a lunch or may have spent his lunch money on snacks of low nutritive value. He may have ideas about his weight and his body image. Furthermore, he is an individual, with individual variability in his nutritive needs which may be quite different from the NRC recommended dietary allowances. All of these factors, wherever and to whatever degree they exist, influence his food acceptances when he eats in the school feeding program. They may be factors favorable to his making desirable food choices, or they may be markedly unfavorable. In other words, culture, ethnicity, socioeconomic factors, and

psychological reactions may be barriers between nutrition and the child. Is this a valid assumption? A quick look at some reports on the nutrition status of schoolchildren may provide some answers.

What Is the Nutritional Status of School-Age Children?

Too often it has been a matter of opinion or conjecture, or a broad generalization, that the people of the United States are a well-fed population—a statement that was also believed to hold true for school-age children. Occasional dietary studies have presented evidence of inadequate dietary intakes in localized groups of children but, in the past, these have failed to arouse active concern on the part of school personnel or the general public.

Such dietary studies have repeatedly shown the inadequacies of the diets being consumed by school-age boys and girls; particularly inadequacies in calcium, iron, vitamin A, ascorbic acid, and, less frequently, in other nutrients that have been measured. In many cases these inadequacies were glossed over in the published summary of the reports by statements such as, "the majority met the recommended allowances," or, "the *mean* intake for the group was within two-thirds of the recommended allowance." The nutritionist has responsibility to look more closely at such reports, especially when "a majority," so called, has been anything just over 50 per cent. What about the 40 per cent or more below the recommended allowances? Granted that the recommended allowances are planned to provide a margin of safety, there still is a strong likelihood that there are many *individuals* in those groups who have inadequate diets. And, where a mean value is given for nutrient intake of a *group* of children, it is well known

that there are likely to be as many children below—some far below—that mean nutrient intake as there are above it. We need to stop thinking about *group* adequacy and to be concerned about individuals.

Whatever complacency we had has recently been rudely shattered by some widely publicized reports of hunger and malnutrition among large sectors of the nation's population. National attention has been focused on this problem. Over the past year, a nutrition survey of a sample of the population in selected regions of the country has been conducted under the direction of Dr. Arnold Schaefer of the U. S. Public Health Service. Although the findings, indicating incidence of undernutrition, are familiar to you, a few items (as of January, 1969) bear repeating here. Concerning the population in Dr. Schaefer's study (Texas and Louisiana), preliminary data showed that hemoglobin levels were below the acceptable levels for 15 per cent of the 6- to 9-year-olds, and for 12 per cent of the 10- to 15-year-olds; low serum vitamin A levels were found in 29 per cent of 6- to 9-year-olds and in 18 per cent of 10- to 15-year-olds; there were low serum vitamin C levels in 12 per cent of 6- to 9-year-olds and 13 per cent of 10- to 15-year-olds. Enlarged thyroids were observed in 5 per cent of the total population studied, and 5 per cent is the incidence the World Health Organization uses to identify endemic goiter areas. There is a proposal for a continuous national monitoring and surveillance program, and the White House Conference on Food, Nutrition and Health had a section dealing with problems of childhood and adolescence. However, we cannot wait for other groups to act; this question is a serious one *now* for all who are concerned with public health and especially with the nutrition of schoolchildren.

School Feeding

The third component of this discussion is school feeding, which is not new. It began in Europe in the 1800s and, in this country, in the early part of this century. We have had a National School Lunch Act since June, 1946, and, more recently, some additions to that act. Today, school feeding programs of some kind are widely spread throughout the world.

School feeding in some form or other is here to stay. But how successful is it *now* and what should it be expected to accomplish? Many schools do not make provision for the feeding of children and a number of excuses are given for this—lack of space, no facilities, and “there is no need for it,” for example—none of which are valid. Space and facilities can be worked out wherever the school administrators realize the significance of the school meal to the nutrition of the child, and whenever there is community concern.

Where there is a school feeding program there is variable participation by the pupils for a number of reasons. Too often, particularly in poverty areas, the child cannot pay for the meal; this is a problem that must be resolved at the community level. Poor facilities and poor class scheduling leave no time for some pupils to eat; this can be resolved by the school administrators. Another problem in pupil participation is the one referred to earlier when discussing the child; it is the background of “barriers” he brings with him. This problem can be overcome by knowledge, understanding, and action on the part of the school food service personnel. Unsatisfactory menu planning and poor food preparation are unattractive to some pupils; this is a problem being worked on by many state school food service directors and supervisors, and by members of the American School Food Service Association who have long been striving to

make school feeding an educational program that will contribute effectively to the nutrition of the school-age child. This latter point, the educational and nutritional value of the program, is the basic reason for school feeding programs. In some schools, with aid from the U. S. Department of Agriculture, the problems of malnutrition and lack of money for food are being met by supplementary feedings and breakfasts at school.

What then does the nutritionist expect of school feeding? (1) It should be part of the total school program, (2) run on a nonprofit basis, (3) at a price the parents can afford to pay (the price paid to be the cost of the food exclusive of equipment costs or salaries of personnel). (4) The foods served should be simple and suited to the ethnic and cultural background and habits of the child (there is no reason why all Americans should eat alike and there are many food choices to use in arriving at a nutritious meal). The meal does not have to be hot, although there is psychological value to this, at least in winter. (5) The meal should supply at least one-third of the recommended dietary allowance of nutrients, and be attractive in color, flavor, and appearance. (6) Although the foods served should be acceptable within the cultural background of the child, new foods should be introduced to enlarge the child's food experiences. Finally, (7) classroom teachers and food service personnel must unite in their efforts to provide knowledge about nutrition.

Currently, some specific nutritional factors must be considered in relation to the school meals in order to overcome problems of malnutrition. Iodized salt should be used in all food preparation and food manufacturers should be urged to use iodized salt in their products (to combat endemic goiter). Enrichment of flour, bread and rolls, cornmeal and grits, and rice is not man-

datory in all states; those responsible for school feeding should urge that all food suppliers provide enriched products. Fluid milk should be fortified with vitamin D, and nonfat dry milk solids fortified with vitamins A and D should be incorporated in food products whenever possible. All this is part of the knowledge of nutrition, and we have the food technology to accomplish it. Furthermore, we have the creative ability and imagination to prepare new types of highly acceptable foods of high nutritive value, if there is a demand for such products.

Man has remarkable powers of adaptation but there is a definite limit to his ability to adapt to an inadequate intake of nutrients, particularly in the case of the growing child. Adequate dietary intake is the gateway to nutri-

tional health. It is something we can observe (on the child's plate) and measure (in dietary studies). It is something that can be understood and that can be taught. The nutritionists have been working on this for many years, but current nutrition surveys show that they alone have not been able to accomplish the goal of good nutrition for all individuals. Effective action in meeting dietary needs takes place only when there is united action by all professional groups; medical and all allied health professions; school personnel; and employees of agencies at federal, state, and local levels. Most of all, perhaps, public recognition of the need is required. There is public awareness today, the time is now, and the combination for action seems to be within reach.

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