

## ESSENTIALS OF NUTRITION

THE health and the development of the adult are dependent to a large extent on the health and development of the child. This was amply proved in the examination of men for enlistment in the late war I would not be understood as saying that all diseases of adult life result from malnutrition, but I am convinced that the physical basis for much of the inefficiency, as well as actual illness and death from diseases of adult life, is either poorly nourished bodies or over-eating. It should be drilled into the minds of laymen that properly nourished individuals rarely develop tuberculosis, pellagra, or similar diseases. One of the discoveries of this age is what is known as the Isodynamic Law, that food is consumed in the human body much in the same way that an engine burns coal and that the daily amount of food needed for an individual at rest or at work can be measured by heat units as can be done with the fuel of a locomotive to make a short or long run.

I suppose the most neglected period in childhood is from two to six years. During the first two years, the baby at the present day is usually well looked after, on account of its helplessness. Then at six he begins school, and a certain amount of supervision is given him by the school nurse, but in between two and six the child is often left to take care of himself, and unless acutely ill little attention is paid to him. Many children are under weight, probably one out of every five; and when a child is over ten percent under weight it should be looked after carefully. These children have soft and flabby musculature and are irritable and peevish. They tire easily, or are of the nervous type that is constantly on the go, but do not rest well at night and are fixing ground-work for future trouble. The most striking symptoms noted among the malnourished children are: first, lack of energy; second, inattention; third, poor memory; fourth, slow comprehension; fifth, unusual restlessness. On statistics from 41,151 Detroit school boys, it was shown that the weight of boys retarded one year was 1.5 below the average weight for the grade.

The weight of the boys retarded four years was 8.1 below the average weight for the grade;

The weight of the boys accelerated one

year was 2.6 above the average weight for the grade;

The weight of the boys accelerated 2.5 years was 10.2 above the average weight for the grade;

The figures for ages in between were in accordance with the figures I have given.

It is important, then, that we know something about food values in relation to body-building, and that we should consider carefully what foods are suitable for children.

Let us take as example the foundation of a house. If it is well laid and strong, a story or two may be added to the house later, but if the foundation is weak no more can be added, and it may not hold up what was originally put there. So, if the foundation of the body is strong, it will be in better condition to stand and bear up under adverse conditions and the stress of mature life.

We will consider certain fundamentals. First, it is not so important what the children like and dislike in the way of food, as it is what food is suitable for the age and digestive powers of the child. Children have not the same digestive powers as adults, and should not eat everything put on the table. Children do not know what foods are best for them, so the parents should choose for the child. Second, children cannot be expected to be hungry at meal-time if given sweets, ice cream cones, and soda water between meals. If given too much of these things, they not only are not hungry at meal-time, but will not care for the simple wholesome foods. If a child is not allowed to taste food, improper for his age, there will be little trouble in getting him to eat what he should. Make the child eat its meals and not swallow them at one mouthful. Of course he is busy and must get back to play, but here lies the parents' duty to see that he does take time to eat.

It is well to tell this to men, because we are prone to put the whole responsibility on the mother. In other words, as the saying used to be: "Let George do it." They are the father's children as well as the mother's, so don't let's forget some of the responsibility is our also. Three meals a day is what a child should have; but if it is a vigorous child and eats three meals and wants something about three or four o'clock in the afternoon, then it is all right to give some fruit or a

glass of milk. It has been proved, human beings thrive best on a mixed diet.

First in importance in the diet list of a child, I should say, is milk, which in itself contains the three chief constituents of food, protein, carbohydrates, and fat; in addition, some of the mineral salts. With few exceptions, the child needs a pint and a half of milk a day; on a basis of caloric feeding; this will take care of thirteen pounds of his weight after he is three years old. The balance is to be made up of other foods he eats.

Cereals are important, as they supply the carbohydrate element of food in the form of easily digested starch; along with the cereals is classed bread.

Meat and eggs supply the protein elements. The meats suitable for a child are beef, mutton, lamb chops, and chicken. Fats are supplied by butter, milk and cream.

Vegetables are necessary to supply certain properties not found in the things previously mentioned, except to a limited extent in milk. We have to consider also what are known as vitamins.

Vitamine A is found in butter and cod liver oil and prevents rickets:

Vitamine B is found in meat, eggs, most vegetables, and cereals, and prevents polyneuritis;

Vitamine C is found in fruit juices, especially the orange, lemon, and grape-fruit, but, strangely, not in limes. It is also in cabbage and tomatoes. This vitamine will prevent scurvy, and if it has occurred will cure it.

If the daily diet contains milk, cereals, potatoes, green vegetables, and some fruit, one need not fear a vitamine deficiency, regardless of what all present advertisements state.

Rickets, infantile scurvy, and digestive and nervous diseases are surely increasing amongst children; and strong virile adults do not develop from defective children. The diet of white flour and white meal, polished rice, muscle cuts of meat, potatoes, and sweets, that is used by the great majority of Americans is deficient in many ways, and if the next generation is to be an improvement physically and mentally over the average men and women of today it is important to add more milk, more raw fruits, and vegetables, and more leafy vegetables to our diet. Boys on the average

weigh more than girls except from eleven to fourteen. At eleven the average of a large group shows boys' and girls' weights are the same. At twelve, thirteen, and fourteen the girls weigh more, but after fourteen the boys weigh more. Girls require more food proportionately, then, during the eleventh, twelfth, and thirteenth years. Boys require their highest food intake at fifteen, sixteen, seventeen years.

In conclusion, I wish to bring out one important condition relative to not looking after the nutrition of children. We have made great strides in reducing the mortality of tuberculosis by teaching adults how to live: that they must have nutritious food, rest, and fresh air. We have developed sanatoria for treatment, both State and private. The death rate has been cut in half during the past twenty years. But we fall down in not attacking this problem at the fountain-head of the stream, as it is generally considered now that ninety percent of all tuberculosis starts in childhood, with a lighting up process in latter life, due to lowered resistance. So it appears to me, if we are to make greater strides in the fight against this great plague, we must pay more attention to the undernourished child.

I believe a child twenty percent under weight should be considered a case of potential tuberculosis, whether you can find any other signs or not, except when you can give a definite reason for this loss of weight, as some acute disease. I will go even further, and state that a child over ten per cent under weight, without a definite reason, should be looked upon with enough suspicion that the question of his nourishment should be taken seriously and not lightly brushed aside with the idea that "he will gain after a while, so just leave him alone."

Remember these children will be the future fathers and mothers of the nation, and upon the nutrition of the children depends very largely the future of the race from a physical standpoint, and one might almost say from an economic standpoint also.

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The value of a really great student to the country is equal to half a dozen grain elevators or a new trans-continental railway.—Sir William Osler.