

Diet—A Factor in the Prevention and Treatment of Tuberculosis

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ONE of the most important factors in either the prevention or the treatment of tuberculosis is proper diet. In the presence of poor nutrition or a chronic febrile condition and consequent continuous loss of weight it is evident that one of the natural essentials is an adequate supply of suitable food. And to compensate for the increased tissue waste the amount required in such cases is much larger than that which is sufficient to meet the needs of persons in health. And as there is usually some accompanying digestive disturbance it is equally important that the food selected should be such as can be easily digested and assimilated. And while it is important to remember that no general rule can be made which will satisfactorily cover all conditions, since each must of necessity be considered on its merits, the fact remains that by a proper appreciation of the end in view on the one hand, and with a fair knowledge of the means at hand for accomplishing that end on the other, much can be done to provide patients suffering from tuberculosis and others suffering from poor nutrition with a diet such as is suited to their needs.

So much original work has been done in recent years along the line of food values that there is little difficulty in making a practical application of the available information concerning foods and their relative values for different purposes. In institutions of course the best opportunities are afforded for the application of recognized principles of diet. There the kind of food required by each individual is not difficult of determination after observations have been made for some weeks, and to plan a special dietary containing suitable food in proper quantities is comparatively easy. The greatest difficulty is to get people to realize the importance of paying strict attention to details. Advice as to which articles of food should be avoided and which consumed freely is often disregarded. But the practical value of such a careful supervision not only of the general dietary, but also of the kinds of food and the amount of each kind best suited to the individual is everywhere being recognized. At the Toronto Free Hospital for Consumptives some observations were made recently extending over four periods of six weeks each. These revealed the fact that the average gain per patient in six weeks increased from 2.9 lbs. in the first period when there was no supervision of diet, to 3.8 lbs. in the second period when there was a more or less complete supervision of the general dietary. In the third and fourth periods when there was in addition to a

general supervision a careful consideration of individual needs the average gain per patient for each period reached 4.46 lbs.

Diet, then, is important, and for a proper appreciation of the extent to which it may be made a factor in both prevention and treatment it is necessary that some knowledge be had of the principles of nutrition and the nutritive value of foods. And it shall be the aim in this article merely to explain briefly and without being at all technical some of the more important principles in connection with food and food values, leaving the matter of the different food materials, their relative values as food, comparative cost, and the various ways in which they may be used, to be dealt with subsequently.

Constant use has made us so familiar with the ordinary foods that we seldom realize just how complicated they are. And yet it must be very patent to all that the chemical substances of which foods are composed must be very similar to those of the bodies which they nourish. Foods are made up of from fifteen to twenty elements, of which the most abundant are oxygen, hydrogen, carbon, nitrogen, calcium, phosphorus and sulphur. These elements are so combined as to form a great variety of compounds in both the body and food. Of the compounds the most important are proteins, fats, carbohydrates, mineral matters and water.

Water enters into the composition of every tissue and forms more than 60 per cent. of the entire body weight of a full grown man. As it is not burned up in the processes of digestion and assimilation it does not furnish any energy and is eventually eliminated in the same form in which it was ingested.

Mineral matters form only some 5 or 6 per cent. of the body by weight, and are found chiefly in the bones and teeth, though of course they are present in the other tissues and in solution in the various fluids. These mineral matters are necessary to life and so are an important ingredient in food. Fresh meats and fish contain not far from 1 per cent., although in fat unsalted pork the quantity may be as small as 0.1 per cent. Milk contains about 0.7 per cent. In the cereals the proportion ranges from about 0.3 to over 2 per cent., while in green vegetables and fruits it is usually less than 1 per cent.

Of the actual nutrients the most important is the protein. It includes the principal nitrogenous compounds and is familiar to us as the lean and gristle of meat, the white of eggs, the gluten of wheat, etc. It forms about 18 per cent. by weight of the body, and when these nitrogenous compounds are