

Nutrition and Tuberculosis

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Good nutrition in tuberculosis is fundamentally similar to good nutrition in any chronic disease or illness. The theory that there are specific foods that possess certain curative factors is undoubtedly open to scientific criticism. But that there are foods which have greater value in promoting the well being of an individual is not a point of controversy. Therefore, in laying down adequate dietary procedure for an individual suffering from such a chronic illness one has to ask himself, primarily, what is the result that he is trying to accomplish. This is simply, the providing of the individual with a general, well rounded dietary, which to the best of our knowledge, will contain a maximum amount of factors essential for rebuilding the body. It must be a dietary that is palatable and one that will be well tolerated by an individual who, through the nature of his illness, must be restricted in his physical activity.

Chronic illness imposes upon the organism three primary factors that are not conducive to optimum biological efficiency.

- (1) The toxicity of his illness upon the body a chemical reaction which affects the ability of the patient to utilize food.
- (2) His physical inactivity is not conducive to the stimulation of the appetite, inasmuch as relatively little of the food consumed is demanded for physical output.
- (3) The monotony of the life of the chronic invalid creates psychic inhibitions that further interfere with his normal enjoyment of food.

When in 1944, Dr. M. Brieger¹ reported on a 25 year survey of Papworth Village, it became evident that there were three primary factors that enabled the 108 children born in the village to remain free from clinical tuberculosis, in spite of the fact that 25 of these children were born to families known to present positive sputum. The secrets of Papworth Village were, for the most part, hygienic methods of living, consisting of good dietary, fresh air, and careful disposal of infected material. The principal conclusion that can be drawn from this experiment is that given adequate nourishment and clean air, the healthy human child can withstand infection, and in similar manner that those who become infected, given the same conditions, can apparently recover from their disease and can again be useful citizens.

A high protein diet² has³ long been acknowledged to be essential in treating the tuberculous patient; tubercular sanatoria,

in general, have served dietaries that have been superior to those consumed by the general public. Chronic illness of any nature, requires adequate food, prepared in such a manner that it will best be assimilated. Greater and greater refinement has taken place in the diet of modern man until the important vital elements have largely been removed. However, the sitionologists have long recognized that fresh milk, eggs, and meat products should constitute the major intake of their patients.

A typical dietary used by the Pottenger Sanatorium is as follows:

Breakfast Menu: A cooked whole grain cereal such as rye, oats, barley, wheat or corn, to which is added one-half ounce of raw wheat middlings; one pat of butter; three ounces of 20 per cent raw cream; eight ounces of raw milk; a citrus fruit equivalent to one-half grapefruit or one orange; four prunes; a choice of two eggs and four slices of bacon or a serving of sausage; one slice of whole grain toast, a cup of coffee substitute, and a glass of gelatin drink, containing one-half ounce of gelatin with a suitable flavoring.

Luncheon menu: Meat stock soup; a meat with liberal use of heart, brain, liver, tripe, sweetbreads or kidney, raw liver three times a week, a raw green salad; two cooked vegetables; a dessert such as custard, ice cream, junket or jello, or fruit in season; one slice of whole grain bread and one pat of butter; one glass of gelatin drink; eight ounces of raw milk; one drachm of rice molasses concentrate or one-half ounce of malt extract.

The evening meal follows the luncheon plan except that a roast is usually served in place of other meats. With this amount of food, there is no demand for between-meal feedings.

Whole grains are used in cereals and breads in order to provide adequate minerals. The bread used for all meals is made of whole wheat or rye. The raw wheat middlings are an excellent source of the vitamin B complex and of vitamin E. The prunes are given for their laxative action.

We serve fertile eggs of hatching quality because of their superiority in estrogenic substances. We use certified raw milk because of the presence in this product of important enzymes necessary in calcium metabolism. Experimentally, we have demonstrated that cooked meat and heat-treated milks, when fed to cats, interfere with proper calcification of the bones, enhance susceptibility to bacterial infec-

tion and bring about demineralization.

Raw liver served in tomato juice is an excellent source of the known necessary minerals and vitamins. We serve other visceral meats whenever possible to provide the patient with nuclear proteins.

The purpose of the gelatin is to give a hydrophilic colloidal base to the stomach content, reducing the irritation of the gastric mucosa. This is of inestimable value to patients suffering from extensive tuberculous enteritis, most of whom are able to tolerate the diet well, and are apparently aided in the healing of their intestinal lesions.

Analysis of this diet, in daily amounts estimated on weekly consumption is as follows:

	1	2
Protein.....	231 g.	223 g.*
Fat.....	187 g.	252 g.*
Carbohydrates.....	310 g.	233 g.*
Calories.....	3,840	4,000 *
Calcium.....	1,697 mg.	
Phosphorus.....	3,007 mg.	
Iron.....	29 mg.	
Iodine.....	107 mmg.	
Vitamin A.....	19,337 I.U.	
Thiamin.....	4,168 mmg.	
Riboflavin.....	5,086 mmg.	
Nicotinic acid.....	48 mg.	
Ascorbic acid.....	120 mg.	
Vitamin D.....	107 I.U.	

As you will see, this is a high caloric, high protein, high fat, relatively low carbohydrate diet.

*Analysis of our diet by Michael Walsh⁴ was on the basis of usual servings. Inasmuch as this diet is prepared with desserts free from sugar and most of the food preparation is done without sugars, the figures given in Column 2 represent our estimate of the protein, fat and carbohydrate values.

The result of the consumption of this dietary even by patients confined to bed is that it maintains a good tissue tone. Usually the tuberculous patient who has been confined to bed for a long time finds that when it is necessary for him to begin his exercise and move about, his muscles are quite soft and tender and rehabilitation is slow. In a dietary such as recommended above, the muscles do not lose their tone in spite of a lack of physical exercise. Although the amounts in volume appear to be excessive, it is surprising

1953 ANNUAL MEETING
May 20 to 24
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Pasadena, California

how patients, even at bed rest, are able to handle such meals without difficulty. Even the roughage can be handled by those who are suffering from tuberculosis of the bowels without using the bland, soft diets that have frequently been used in the past. The use of adequate vitamins and vital foods accomplishes this without the necessity of providing a bland dietary.

¹M. Brieger, The Papworth Families. A Twenty-five Years' Survey, William Heinemann, Medical Books, Ltd. 1944.

²Pottenger, F. M., Jr. and Pottenger, F. M., The American Review of Tuberculosis, Vol. LIV, No. 3, Sept. 1946.

³Pottenger, F. M., Jr., Am. Academy of Tuberculosis Physicians, July, 1941.

⁴Analysis by Michael J. Walsh, M.Sc., F.R.I.C., A.I.Ch.E., Los Angeles, Calif.

GIVE A GOOD EGG A BREAK BY GIVING IT GOOD CARE

Give a good egg a break—before you put it into the pan—simply by giving it good care after you gather it or buy it at the store. Many a good egg has lost its high quality just by lack of proper care.

Eggs are such excellent food that it is small wonder the words "a good egg" have come to mean an expression of approval.

Briefly, here are a few of the contributions eggs make to the diet.

They add protein which is of the same high quality found in meat and milk for building and repairing body tissue, says Miss Josephine Flory, Missouri University extension nutritionist.

And eggs give you the B vitamins—thiamine, riboflavin, niacin—and also vitamins A and D. These vitamins help protect your health.

The egg yolk holds a rich store of iron for red blood cells and has phosphorous and other minerals needed by the body.

So you see, eggs are such a valuable food they deserve good care. Here are some suggestions which may remind you that eggs are perishable and should receive immediate attention when brought from the store or the laying house.

Don't leave them in a hot car while you go on a shopping tour.

Don't leave them stand in a hot kitchen while you sort the other groceries and do other chores about the house. Put them in the refrigerator at once.

Don't store them in a warm place. Always put them in a refrigerator.

Don't take the container of eggs out of the refrigerator every time you want to use one or two. Take out only those needed.

Don't store eggs uncovered. Don't store them near strong-flavored food. They can absorb flavor and thus lose quality.

Handle eggs carefully. They are perishable. Eggs are one of the really good buys among the protein foods so necessary for health and well being.