Dextrose Glucose-I-II B12 Amino Acids Food factors IV

THE ROLE OF NUTRITION IN PHYSIOLOGICAL THERAPY

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Physiological therapy may be defined as a philosophy of treating disease by removing the cause, as distinguished from the use of weapons that are aimed at controlling symptomatic evidences of disease, and that often do no more than enable the patient to endure his misfortune without any effect on the disease itself.

The weapons that the medical profession uses are provided by the associated science of pharmacology. The medical profession seems at this date to have been a victim of a series of serious blunders made by unscientific and unthinking pharmacologists, who had the authority to extinguish all opposition to their narrow views as set up in their official dogma, a characteristic aim of cults in general, by which their faith becomes fixed and immutable.

Here is where the departure from the path of progress was taken, and a course begun that must be retraced to its beginning before an actual advance can be re-established. Potter's Materia Medica tells us (1) that von Haller, the Swiss pharmacologist, in 1755 set up this principle that is adhered to, to this day:

> Drug proving is the only true basis of drug using. A drug to be acceptable as such must be tested on the healthy body (or healthy test animal), and its effects noted--it must have a demonstrable action on the activities of that body, and as a corollary to that effect, must of necessity be a poison, for any action carried to an extreme will be detrimental. Cushny later said, "It is quite impossible to distinguish between drugs and poisons." (2)

Now, certainly, all will agree that nutritional or therapeutic dosages of any essential food factor, whether fats, amino acids, sugars, enzymes, minerals, or vitamins will seldom produce an observable change in a healthy subject. Their effects are only demonstrable when fed to a subject very carefully prepared by a pre-treatment of long continued deficiency of the exact factor in question, that has set up in that animal some specific syndrome of either functional disturbance or degenerative change which then specifically responds to the administration of the food factor being tested.

When the pharmacologists set up this screening test for the weapons that the medical profession depends upon for its success, it automatically closed the door against all nutritional factors, and doomed the medical doctor to a career of treating starving patients exclusively with poisons of every description known to science while all vitamins, minerals, enzymes, amino acids, hormones, fats, and carbohydrates were forthwith abolished, only to creep in by the back door in

occasional instances at more recent dates. For a hundred years cod liver oil was officially a quack remedy considered "quite inferior to butter," and the homeopath was ostracized because he used "cell salts" on the principle that they helped the sick although they were without effect on the healthy. (Here we must distinguish between the Schussler school as opposed to the Hahnemann group.) If you doubt the usefulness of the Schussler schedules, try his fluorine treatment on the next aneuryism you find. I know of twelve in succession that recovered on this homeopathic remedy. Fluorine today is just beginning to be appreciated as an essential food factor; its effect in improving the integrity of the protein matrix of the tooth is no doubt related to its effect on the elasticity and integrity of the aortic wall. As a parenthetic comment, it is quite probable that diverticulosis is another exhibition of fluorine deficiency.

There is a great reluctance on the part of officialdom to accept anything new. As Louis Bromfield in his recent book, Out of the Earth, reported about the dean of an agricultural college, who replied when asked what his college was doing about trace elements: "Well, we haven't done anything yet, but we are being forced into it." Adding, "But if I authorize any special research, it will make an awful row because some of my professors don't believe in trace elements." As Bromfield comments, this is a fine basis for advancement of science or education.

This attitude is certainly not rare, but the conventional state of affairs in most of our institutions of learning. Before organic cobalt as vitamin B_{12} was discovered, our highest authorities were responsible for the statement that no mineral element had to be in an organic form to be nutritionally useful, and cobalt was declared to be nutritionally non-essential. The discovery of B_{12} proved both pronouncements to be wrong.

It seems strange that men who pretend to be scientists will jump to an unwarranted conclusion, and argue that they are sound in their position just because no evidence can be mobilized at the moment to refute their opinions.

We must realize that human life and health, actually a matter of life or death, is the issue here where experts are so free with unsound opinions that seem to have no purpose but the protection of some business enterprise at the expense of human health.

These opinions of the experts that serve to protect commercial interests are most often from men paid out of public funds, but in a position where commercial pressure can be applied. You can see that the State of Minnesota cannot spend public money to prove that degerminated flour will specifically cause heart disease, although such a project was once begun at their College of Agriculture. (3) The job was never completed for "lack of money," according to word received from the director of the project. Millions meanwhile are being raised to find the cause of heart disease, cancer, polio, and arthritis. If you check into each, you will find that the deficiency angle is not being investigated, but some trick drug or non-physiological treatment is being sought. Something that can be synthetically made in vast quantities and sold at high prices. The history of nutritional medicine is a history of unsound promotions, and the

suppression of honest nutrition.

First came Viosterol, and its unsavory story of the promotion of irradiation of every known food from milk to marmalade. The sensibility of destroying more valuable factors while increasing the vitamin D to a toxic point was not investigated. The enormity of the racket was exemplified by the publication in the Journal of the American Medical Association in 1946 (5), of the story of the deaths of two children poisoned by Viosterol on doses no greater than recommended for the prevention of rickets. Now that we know that vitamin C deficiency is as important in preventing rickets as that of D, we can see that the irradiation of milk, and its destruction of the C and G vitamins, was a poor bargain.

As Viosterol was tested on rats to determine its merit, it is interesting to learn after the entire civilized population was used for test purposes on the human species, that the rat could successfully use the synthetic vitamin only by virtue of its unique possession of a digestive enzyme that aided it to assimilate calcium. The human subject does not have this enzyme, phosphatase, but must get it in raw milk or raw bran. (4) Since neither today is considered fit food for fastidious folks, most of us cannot assimilate the calcium or iron in whole grain cereals or any other kind commonly available. (4) Therefore, we progressively lose our teeth, just like Dr. Pottenger's cats did when fed pasteurized milk with raw or cooked meat, to say nothing of the constipation, peptic ulcers, liver disease, colitis, arthritis and heart disease and even the homosexuality that concurrently afflicted the suffering cats. (6) Dr. Pottenger also tried a vitamin D enriched milk with still more disastrous effects.

The idea that a synthetic chemical can substitute for a natural food is probably the most expensive misapprehension the world has ever harbored, in terms of health.

As an introduction to that subject, the first fact to note is that natural organic substances are almost universally capable of existing in two forms, in which the molecules of each are mirror images of the other, just as the mechanic uses right and left handed screw threads. Only one of these forms is useful in living cells; the other often is not only useless, but even poisonous, just as left handed bolts would be dangerous to the orderly assembly of machines if present in the supply to an assembly line, in mixture with the necessary right handed bolts. (7)

In synthetic chemicals, the usual situation is to find equal amounts of each form. In the case of sugar, synthetic right hand sugar is known as dextrose, and will cause diabetes in test animals if fed in any considerable amount, and has very little sweetness, but sells for four cents a pound. Therefore, it is a common food adulterant. The more desirable left hand sugar, levulose, is well tolerated even by a diabetic, is almost twice as sweet as cane sugar, and is listed at eleven dollars a pound. Honey is our main source of levulose; it is not available as a synthetic product.

Dr. Joslin, the diabetic authority, says that if we do not change our habits of

using so much of these sugars, half the population will be diabetic in another 50 years. Just how much of the increase in diabetes is directly chargeable to the introduction of glucose during the last 50 years, cannot be accurately estimated. Very likely the greater proportion. Glucose (dextrose) has no place in nutrition, as it is not very sweet, but used mainly as an adulterant and filler to cheat the buyer of canned goods, dried fruit, soft drinks, candy and cakes because it is so cheap and adds weight and bulk.

Synthetic amino acids have been pretty much of a failure to date by reason of the difficulty of separating the toxic right handed molecules from the useful left handed. The reason amino acids are being brought forward as important nutritional links seems to be because we are suffering deficiencies in our foods through, again, the effects of glucose, that synthetic rascal. Proteins cooked with glucose lose their most important of the rare amino acids by reaction with the glucose. Histidine, tryptophane, threonine, lysine, methionine and phenylalanine are lost in more or less degree. (8)

Histidine deficiency is known to predispose to peptic ulcer. Tryptophane deficiency is suspected to be a basis for susceptibility to tooth decay, probably more important than fluorine deficiency in this connection. Lysine deficiency creates fatigue and lassitude. Methionine deficiency predisposes to fatty degeneration of the liver.

Maybe you say--But glucose is found in the blood, it is a physiological sugar. Here is a reference that tells us that the glucose secreted by the liver into the blood is GAMMA GLUCOSE, and the exogenous synthetic stuff acts to block the normal secretion and use of natural gamma glucose (9) if used as "food." All these facts are very little known to the people who should know them. There are few books in this country that review the literature on nutrition. One is now available from England, The Vitamins in Medicine,* by Bicknell and Prescott, published by Grune and Stratton. Its 1200 pages represent a fairly complete report on the present status of the available clinical information. This status, however, is highly unsatisfactory. We are in the middle of making up our minds on the role of malnutrition as a cause of disease, for in almost every syndrome of malnutrition there are many unanswered questions, many interrelations of different deficiencies that need elucidation biochemically and otherwise.

New vitamins are being discovered with regularity, and the number of diseases that will ultimately become listed as a result of malnutrition is not predictable. For instance, we know today that undulant fever is invariably curable by the administration of trace minerals (10), just as beriberi or scurvy are cured by the appropriate vitamin. The brucella organism is NOT the cause, just the aggravating factor, just as erysipelas or diphtheria are fulminating forms of scurvy, where the infective agents are completely non-pathogenic in the presence of vitamin C.

Medical science has a big job to reorient itself and start to build a literature on malnutrition that is not contaminated with ideas of will-o-the-wisp cures to be made with newly synthesized drugs. We have a back yard full of diamonds to explore in the way of physiological remedies that are crying for

* Available from the Lee Foundation for Nutritional Research, Milwaukee 3, Wisconsin: The Vitamins in Medicine--

classification and appraisal. As a nation we are starving to death in the presence of medical men who know more about poisons than they do about food, and who think first about what poison to use instead of what food to use when confronted with a therapeutic problem. One medical man who independently arrived at his own conclusions on this question of nutrition vs. drugs after being misled by the pharmacologists is E. E. Rogers, M. D., of Vancouver, B. C. His book, The Philosophy and Science of Health* is, we believe, one of the most outstanding examples on record of a man who became distrustful of the foundation on which was built the entire philosophy of his profession, and proceeded single-handed to rebuild it from scratch. It is a book so absorbing that you cannot lay it down until you have finished it.

Dr. Robert McCarrison did the same thing over thirty years ago when he wrote Studies in Deficiency Disease.* Those who read these books will find them most useful in getting a clear perspective of the situation today, a situation that is beclouded on every hand by the commercial propaganda of those who build their business by making something worse so they can sell it for less, regardless of either the pure food laws or the public health.

REFERENCES

1. Potter, Materia Medica. 12th edition. Philadelphia: Blakiston, 1913, p. 3.

2. Cushny, Pharmacology and Therapeutics. 10th edition. Philadelphia: Lea and Febiger, 1947, p. 17.

3. Science, 104:312-313, 1946.

4. Hutchison, Food and the Principles of Dietetics. 10th edition. Baltimore: Williams and Wilkins, 1948.

5. Bauer and Freeburg, Jol. A.M.A., April 27, 1946.

6. Pottenger, F.M., "The Effect of Heat-Processed Foods and Metabolized Vitamin D Milk on the Dentofacial Structures of Experimental Animals." Amer. Jour. Orth. and Oral Surgery, Vol. 32, No. 8, pp. 467-485, Aug. 1946.

7. Walden, Salts, Acids, Bases, Electrolytes, Stereochemistry. New York: McGraw Hill, 1929.

8. Friedman and Kline, "The Relation of the Amino Acid-Sugar Reaction to the Nutritive Value of Protein Hydrolysates." Jol. Nutrition, Feb. 1950.

9. Sandler and Berke, Amer. Rev. Tuberc., 46:238-261, 1942. (Abstract attached.)

10. Pottenger, F.M., Jr., M.D.; Allison, Ira, M.D.: Albrecht, W.A., Ph.D. "Brucella Infections--Possible Relation to Deficiency of Trace Elements in Soil, Plants, Animals, and Man." Merck Report, July 1949, p. 13.

*Available from the Lee Foundation for Nutritional Research, Milwaukee 3, Wisconsin: The Philosophy and Science of Health, Studies in Deficiency Disease--

Sugar?

ABSTRACT OF REFERENCE 9

"Treatment of Tuberculosis With a Low Carbohydrate Diet,"
B. P. Sandler and R. Berke. Amer. Rev. Tuberc., 46:238-261, 1942.

Guinea pigs fed carbohydrate-rich diet and inoculated with TB developed a more severe and virulent form of TB.

Continued high carbohydrate consumption results in a depression of blood sugar levels and "may cause susceptibility to infection."

An active form of glucose (gamma-glucose) has long been suspected although not definitely proven. The two forms found in the blood are the reactive gamma-glucose (all glucose from liver glycogen is in this form) and exogenous glucose or preformed glucose present in the blood after ingestion of glucose or carbohydrate-rich foods.

The exogenous or preformed glucose is poorly oxidized and must either be converted directly into the gamma-form or first converted into glycogen and liberated as gamma-glucose. The liver output of gamma-glucose is depressed when there is an influx of exogenous glucose. (High carbohydrate diet or glucose injections.)

"The preference of organism for endogenous over exogenous (preformed) sources of energy is not confined to glucose, but is also true of amino acids." There is no increase in specific dynamic action when alanin and glycin are added to natural protein. This has been explained by the suggestion that "perhaps cells prefer the natural product to the artificially prepared material."

Hypoglycemia depends upon two factions: the amount of glycogen stored in the liver and its rate of discharge as glucose, and its rate of discharge depends upon the amount of exogenous glucose ingested, high carbohydrate diets preventing the discharge.

Oxygen consumption (energy cycle) is DEPRESSED on a high carbohydrate diet due to the inhibition of the gamma-glucose from liver. Blood levels of REACTIVE GAMMA-GLUCOSE will fall although the overall blood glucose levels may rise.

THIS EXPLAINS THE SUSCEPTIBILITY TO INFECTION CAUSED BY HIGH CARBOHYDRATE DIETS. . . .

Ten patients with advanced pulmonary TB were placed on a low carbohydrate diet. (Bread, sugar, etc., completely eliminated.) All ten patients improved in strength, some gained weight, general improvement, healing of cavities and clearing of infiltrations. DIGESTIVE, CARDIAC, RESPIRATORY, NERVOUS, and MENTAL symptoms were rapidly relieved and relief was sustained.