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THE RELATION OF ALIMENTATION TO SOME DISEASES.[1]

BY JAMES WOOD, M.D , BROOKLYN, N.Y.

THE general statement that one has partaken for a considerable time of an incorrect diet gives the impression, and true, that the body generally is affected, and nowhere is this more strikingly seen than when acute disease attacks an organism whose habit of feeding has been faulty. We have therefore the salient thoughts that improper food induces abnormal functional performance, which by continuance becomes organic; that an improper diet lessens the chances of recovery from acute and chronic conditions, and that improper alimentation prolongs convalescence from disease processes and predisposes to a diminished vitality.

The thought of first importance, however, is, To what extent does disease depend on alimentation? This is answered by considering the subject of the relation of health to alimentation. As a usual condition we each had given to us at birth a body very well suited to continue to exist if properly nourished. Any hereditary influence, with the exception of a few instances, is merely a decrease in the complement of vitality. What is meant by that is best illustrated in the case of consumption. It is a very common error to hear both the profession and laity remarking that consumption is hereditary. This we dispute, and on the best of grounds consider the one factor of the three, a lowered vital tone only as being transmitted. This lowered vitality being so often dependent on transmission makes the consideration of what food should be partaken of by progenitors of the race their most important thought if we desire to give to our offspring a constitution capable of withstanding the adverse influences met with in life. This can be done only by using a diet whose quantity and quality bear a proper relation to each other. Why you ask? Because the single cells and their sum the body does not remain in an unchanged condition: there are two great phenomena constantly taking place in each individual cell. Nature calls for such a quantity of proteid matter as, when appropriated by the organism, will meet the daily nitrogenous expenditure as shown by the excretion of the normal amount of urea. The intake of oxygen and food meets the demand on the part of the various cells for nutritive pabulum to carry on the anabolic or constructive processes of the body.

The second phenomenon commences with combustion or oxidation, and passes through a long series of destructive or katabolic phases to the formation of nitrogenous metabolites, "and this process is carried on in an organism with an activity which is dependent on the activity of the living substance itself, and on the quantity of material supplied to it."

The discharge of these products of katabolic metabolism is termed excretion. From a study of these we are enabled, as it were, to glance back over the whole series of vital processes and ascertain in which one there exists an abnormality.

To continue in perfect health, therefore, such food products must be partaken of which shall insure the perfect functional workings of the body, supply elements to carry on vital action and give material to build up degenerated tissue, or, to be more general, we must supply each day the needs of the body which have been brought about by its activity. More than this quantity or such as is improper in quality will act as a deleterious agent and destroy to that extent vitality. The subject of the use and misuse of vitality is very large, and we must, to be brief, consider it as an element whose quantity is limited, depending largely on the physical condition of our ancestors. We have such a proportion given us as will, with proper care, last us for the natural allotment of years. To misuse it means succumbing to disease before our time, just as the athlete by the expenditure of such a large amount of vitality each day in the perfect training of his muscular organs uses more than can be formed for any length of time by the transforming powers of the organs of digestion. When these become used up then he, of necessity, must die. Had these organs been the study of successive generations, the standard of their power to produce vitality could have been raised and physical and mental vigor prolonged and increased.

As we have before stated, there must exist an equilibrium between production and destruction if we will have perfect health. The condition of production is dependent solely on the quantity and quality of the food; and when we consider that the whole process of animal life is a constant metamorphotic progression, only limited by the varied isomeric forms which the nutritive elements are capable of assuming under the pressure of organic influences, we are capable to some extent to appreciate what a great influence the nature of the nourishing bodies must have on a continued normality.

If we use up a large part of the oxygen of the body by oxidizing a diet composed largely of the starches, sugars, and fats, we will have but an insufficient amount left for the complete transformation of the food ingested into its kenitic or final products. It was shown in an article written for Merck's Bulletin of last year that these products of suboxidation of the proteids belonged to the most poisonous agents of which we have any knowledge, i. e., ptomaïns, leucamaïns, etc. The absorption of these products of but partial oxidation, leads to a profound state of malnutrition, with all its accompanying symptoms and sequelæ.

Jaksch, in his investigations, found that in anæmia the precursors of uric acid in the blood united in that fluid instead of the renal epithelium, so greatly were the functions of the body at fault.

Is it not evident in this condition that we have a frequent source for the derangements of bodily action and disease?

By the suboxidation of the proteid food-stuffs from the ingestion of large quantities of the corbohydrates, which is the general evil, we have another cause or predisposing factor besides the ptomaïnic poisoning to a certain distinct line of abnormal conditions.

If the quantity of food ingested is too large, we have, from the inability of the system to transpose such a large bulk completely, the same conditions as above, or a quantity beyond what nature demands exhausts the limited oxygenating capacity of the blood and causes the appropriation of that oxygen which should go for the complete transformation of the more difficult nitrogenous compounds. Thus, from an incomplete oxidation of these latter compounds, we get but partial metabolic changes; derangement of the organs of secretion and excretion rapidly follows, which in turn gives products antecedent to perfect metamorphosis, and the final result is a systemic poisoning.

Thus we see if a larger quantity of food is eaten than can be perfectly oxidized in the body, and especially if the starches, sugars, and fats be in preponderance, imperfect results of general bodily oxidation must take place. If this supra-feeding should continue for a certain time, with its resultant incomplete products, a devitalization of the protoplasmic elements of the hepatic cells occurs, with serious deterioration of the most important func-

[1] A portion of a paper read before the regular meeting of the New York Academy of Anthropology, Jan. 17, 1893.