



Too many cavities? Read about the vital influence of **VITAMINS IN DENTAL CARE**

BY ROYAL LEE, D.D.S., *President, Lee Foundation for Nutritional Research, Milwaukee*

The dental profession is recognizing the importance of nutrition and the fact that disorders of the teeth are part of a general malnutrition affecting many organs of the body

THE story of vitamin deficiency is a long one, but a review is necessary before discussing the specific reactions such deficiencies produce on the teeth.

When Dr. Alfred Hess, the eminent pediatrician was in charge of the Hebrew Infant Asylum in New York many years ago, he established the fact that vitamin deficiency was the all-important cause of heart diseases, susceptibility to pneumonia, grippe, nasal diphtheria, furunculosis, otitis and other diseases, as well as the more definite deficiency syndrome in beri-beri, scurvy and rickets. He also believed intestinal troubles and constipation were also accompaniments of malnutrition.

Heart disease and pneumonia alone, two major causes of death, are almost invariably the end result of years of deficient nutrition. White bread, other white flour products, corn syrup, glucose, white sugar, cold storage products of all kinds, are present in our diets to such a great extent it is appalling to think of the abuse we are inflicting on our bodies.

Dr. Weston A. Price was the first dentist to publish an article asserting that dental caries was primarily a result of vitamin deficiency. This was in 1927. In 1923 I had prepared a paper on the subject of "The Systemic Cause of Dental Caries," and read it to the senior class of Marquette Dental College, subscrib-

ing to the same hypothesis.

I called attention to the findings of Dr. Pollina who made a dental survey of 6,000 school children. The only ones he found with sound teeth were those who had NOT had a history of children's diseases. That showed, I argued at the time, that the real cause for both the incidence of children's disease and the accompanying tooth decay was one and the same vitamin deficiency. Dr. Price's findings were completely in accord with that hypothesis.

Dr. Price Answers His Critics

Dr. Price met with such opposition to his contentions that he decided to take an extended trip around the world and compile such a complete record of the damage wrought by civilized man in his commercial distribution of devitalized foods that his critics would be forever silenced. By examining the teeth of primitive men living close to Nature and consuming only natural and fresh foods, and finding only very sound and healthy teeth, he compiled the irrefutable proof that decaying and diseased teeth cannot exist where the nutrition is wholesome and rich in natural vitamins and minerals.

Dr. Price's book, *Nutrition and Physical Degeneration*, was the fruit of his studies of primitive aboriginal men. He also disclosed

that in all parts of the globe where the native population had changed from their natural foods to the use of commercial products, there began the infiltration of those dreaded diseases, tuberculosis, pneumonia and influenza, together with a significant rise in diseased teeth exactly parallel to the increase in their use of commercial foods.

Caries, pyorrhea, deformities of the dental arch, cleft palate and harelip were all now present where unknown before. It made no difference whether the change took place in a high valley in the Swiss Alps or in an island of the sea in the Eastern or Western hemisphere. The identically same results followed the introduction of the commercial foods of civilized man.

Vitamin deficiency conditions are not found in simple, uncomplicated syndromes which can be cured by a single missing vitamin. Such syndromes are mixtures of conditions in which there are almost invariably several deficiencies operating in unison. To catalog these conditions and refer each symptom to a deficiency of some one vitamin has been a difficult matter.

We can deprive test animals of one vitamin at a time and observe the reactions, but two things are wrong with that procedure. One is that different species of animals react differently to the same test, and the second is that a partial deficiency for a long time begets a quite different reaction than that of a complete deficiency for only a short time. The reactions to deficiency which I describe have in most cases been determined by treating human patients with vitamin concentrations. A condition consistently observed to be helped by such treatment has been accepted as a deficiency result.

Vitamin Deficiencies

The basic reaction to Vitamin A deficiency is a change in the epithelial (skin, mucous membranes and gland coverings) tissue. Mucous membrane becomes sensitive to irritation and degeneration, metaplastic changes (alteration of tissue) occurs. These of course are most rapid where destructive influences require the most rapid repair. (That is, in the most vital organs, such as endocrine glands.)

A predisposition to infection of any kind is set up. In the mouth this may mean pyorrhea or Vincent's infection with a pale color of the mucous surfaces. The pyorrhea due to A deficiency differs from that in C deficiency in that the teeth remain tight and there is not the characteristic bleeding.

The B complex is necessary to mouth in-

tegrity; otherwise an abnormal redness of the tongue and throat characteristic of pellagra occurs. Vitamin C deficiency primarily causes a degeneration of the intercellular substance of teeth and bone. The bone tissues lose their calcium and loose teeth result. If individual teeth become loose because of a pus pocket infection, that is not scurvy, but where several teeth are loose without evident infection it is quite apt to be incipient scurvy. Vitamin C deficiency also causes rapid resorption of the alveolar ridge (which contains the tooth sockets). Vitamin A deficiency increases the irritability of the mucous surfaces and adds to the difficulty of fitting dentures properly for satisfactory service.

Vitamin C deficiency is also responsible for a reduction in the germicidal enzymes normally present in the saliva. This adds to the general tendency to infection not only of pus germs but also of the systemic infective children's diseases. These same germicidal enzymes protect the teeth against caries, so we have here the reason why Pollina found good teeth only in those children who had never had those children's diseases.

Vitamin D

Vitamin D is another factor that co-operates with each of the vitamins so far mentioned, as it supplies the calcium that is essential for the metabolic changes that are regulated and controlled by those vitamins. The germicidal enzymes are inactive in the absence of calcium, and Vitamin C cannot maintain the bone integrity without a calcium supply.

The specific function of Vitamin D is to increase the affinity of the blood serum for calcium so that a normal assimilation of that element will take place from the alimentary supply. To unload that calcium when it arrives at its destination another factor is required and that factor is Vitamin F complex. Vitamin F is found normally associated with Vitamin D in its natural sources such as butter or cod liver oil.

If Vitamin F is not given with Vitamin D as when a purified concentrate is used, toxic effects can easily be produced. Those effects are purely the effect on an excessively high blood calcium. Nephritis (inflammation of the kidneys) and albuminuria are a common result of reckless administration of Vitamin D without the accompanying synergists necessary for conjunctive action.

I have received reports of cases like this: A nine-year-old boy dosed heavily by fond parents with a highly concentrated proprie-

tary form of synthetic Vitamin D during the winter months, developed kidney inflammation and a severe albuminuria in the spring. On getting the history, the physician on the case stopped the use of the D and prescribed Vitamin F and warned the parents to keep the youngster out of the sun. The parents distrusted the accuracy of the physician's diagnosis and put the boy out on the beach in a bathing suit next day to get a "healthy tan." A half hour of this absorption of Vitamin D from the sun's rays brought on a collapse which ended in death.

Cold Sores and Fever Blisters

Cold sores and fever blisters are specific signs of low calcium in the tissue fluids. A Vitamin F tablet or two with five grains of calcium lactate will produce a definite recession of the condition in two or three hours. A little Vitamin D at this stage invariably cause a prompt recurrence, because it draws the calcium back into the blood stream after Vitamin F has diffused it out. Vitamin D is therefore a "loader-up" of the transportation system and Vitamin F is the unloader. They are directly antagonistic from the viewpoint of the observer who watches only the blood calcium, but to the physiologist who sees the whole picture, they are necessarily synergists that act in unison to get calcium to where it belongs in the body. It is significant that Vitamin F is found in cod liver oil and in butter.

Balanced Vitamin Intake Necessary

We can see here the logic of trying to obtain a balanced intake of all the vitamins rather than to overdo the use of any particular one. Systemic diseases such as children's diseases, fevers and all infectious processes exhaust the reserves of Vitamin C and often rapid degeneration of the dental structures follow.

The requirement of many of the vitamins is subject to great variations so that an intake that is adequate at one time may be quite insufficient at another. The slow convalescence from fevers, pneumonia, etc. is mainly due to the increased requirement which is inadequately supplied at this time in the great majority of cases. If the requirement happens to be greater than the intake

for any reason, the patient declines into some fatal outcome such as heart involvement or a new infection is made possible by the low resistance.

That is why pneumonia so often recurs several times in one winter in the same patient. It is a tragic fact that no patient is known to die until his reserves of Vitamin C are completely exhausted. No Vitamin C can be found in any of the tissues of a victim of an infectious disease, while it can always be shown by color tests in other cases.

Vitamin C Most Important

The conclusion is obvious. Vitamin C should be invariably used as part of the treatment in infectious diseases. The reduction in temperature when Vitamin C is used is often amazingly rapid. The spread of infection sometimes seen after the extraction of diseased teeth calls for the immediate use of heavy doses of Vitamin C. There are so many other advantages in the use of Vitamin C as to be almost impossible to recount in this brief summary.

Vitamin C is the most important of the vitamins, and is the most difficult to get. It is oxidized so easily that it disappears in storage of citrus fruits and vegetables. Spinach is a good source if fresh, but loses its entire content within a week after it is cut at room temperatures. Potatoes are one of the good sources and more reliable than most. Fresh meats contain valuable amounts of Vitamin C but in cold storage it is completely oxidized. Milk is a good source unless pasteurized. Irradiation also destroys the Vitamin C in milk.

Obviously the secret of good diet and nutrition is to get ALL the required vitamins naturally in their normal and unprocessed state. Chronic infections, the symptoms of physical degeneration and malnutrition, can be corrected by improved diet. Dr. Price records many instances where caries and other diseases became alleviated in persons who returned to their native habits after much damage had been done by devitalized foods. The same improvements in the health of civilized man can be obtained by correcting his malnutrition caused by his inadequate foods and nutrition.

THE END

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