

Nourishing the Internal Environment

By Kent M. Keith
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[Note: This is the first of four articles on nutrition that I wrote for the *Hawaii Observer* in 1976.]

Never has so much important information, which could help so many, been known to so few. In the last half century the science of nutrition has made remarkable advances. It is likely that more human happiness will result from applying what we know about nutrition than from applying what we know in any other field of science. Many important nutrition discoveries, even though supported by years of research and clinical experience, have been attacked by the medical profession, sniped at by the government, ridiculed by the mass media, and ignored by the general public. There has been a kind of “will to ignorance” which has resulted in significant nutrition findings being among the nation’s best kept secrets.

There is a reason for this: The implications of these findings are almost too vast to face. If nutrition were widely known and taken seriously in America, there would have to be large scale changes in the practice of medicine and the focus of health services and research. The multi-billion dollar food industry would have to drop entire product lines, and eventually decentralize production and distribution to improve the nutritional value of the food being marketed. Most of us would have to learn how to shop and eat differently than we do now.

Although the changes would be great, the rewards would be far greater. We would witness seemingly incredible declines in national killers like heart attacks and cancer, and tragedies such as mental illness and deformed children. Not all health and disease problems would disappear, but the number would be reduced in a way that seems like a fairy tale to those who have never studied nutrition. Fortunately for the future health of the nation, it is no fairy tale.

The fundamental “secret” of nutrition is simple. Each of us has a body. Our bodies are made of cells. We have billions of cells, in many different sizes and shapes, and they have thousands of different functions to perform. Each cell must be nourished. If the cells are nourished well, they will function well; if they are nourished poorly, they will function poorly; and if they are badly malnourished, they will not function at all. When they cease to function, a disorder occurs in the body. Some of these disorders are diseases; others lead to diseases.

Dr. Roger J. Williams, who identified, isolated, and synthesized pantothenic acid and also pioneered in work on folic acid, stresses the environment of the cell in his book, *Nutrition Against Disease*. He writes:

The cells of our bodies can become unwell and malfunctioning for two general reasons: First, they may be poisoned; second, they may lack a good supply of nourishing food. This nourishing food must be a complex mixture of chemicals (water is one of the “chemicals”) in about the right proportions. Included in this food must be about ten or more amino acids, about fifteen vitamins, and a similar number of minerals, all in addition to the fuel— carbohydrate and fat— that our bodies need to run on in the sense that an automobile needs gasoline... When and if all the cells of our bodies are well and happily coordinated— with no cells being seriously deprived or ailing— our bodies are well... If our bodies are ill, there must be cells and tissues somewhere that are out of order.

To be healthy and function properly, then, the body’s internal environment needs at least 40 nutrients. These essential nutrients form a kind of “nutritional chain of life,” and like any chain, the nutritional chain is no stronger than its weakest link. *All* forty nutrients are necessary for *each* nutrient to be optimally effective.

In addition to water, fuel, and roughage, the body needs iodide, cobalt, selenium, molybdenum, fluoride, copper, chromium, manganese, zinc, iron, magnesium oxide, calcium hydrogen phosphate, potassium chloride, sodium chloride, linoleic acid, choline, lysine, methionine, phenylalanine, leucine, valine, isoleucine, threonine, tryptophane, ascorbic acid, niacinamide, vitamin E, pantothenate, vitamin A, pyridoxine, riboflavin, thiamine, folic acid, vitamin K, biotin, vitamin D, and cobalamin. This may not be the final list— more nutrients are likely to be discovered, isolated, and named by researchers in the years to come.

The names of the nutrients are not well known to the public, but most people would recognize protein, vitamins, and minerals, and they are what compose the list. These forty nutrients are not needed in equal amounts— only a trace of some are needed, along with large amounts of others. All of these nutrients can be found in food, or can be purchased in tablet, capsule, or powdered form as supplements to food.

Although each person needs each of the forty nutrients, each person needs different amounts of them, depending primarily on hereditary characteristics. Some people will need five times as much vitamin C as others; or twice as much iron; or twenty times as much manganese; and so on. Thus the “minimum adult daily requirement” figures on cereal packages or vitamin bottles are not really helpful. First of all, there is no sense in trying to be a “minimum adult,” and secondly, personal variations can be so large as to render a statistical average meaningless.

Each of us has unique hereditary characteristics which are obvious from the moment we are born. Says Dr. Williams:

We know that babies differ remarkably in the sizes of their internal organs. Their circulatory and muscle systems are various; their nerve patterns are unique, and their brain structures are highly distinctive in cellular makeup... Functionally, newborn babies have been found to be distinctive from the very start: the functioning of their special senses, their neuromuscular operations, their responses to various stimuli, their breathing, and their heartbeats.

With different hereditary characteristics, we each respond differently to nourishment and disease. “The evidence is clear,” says Dr. Williams, “that a multitude of peculiarities of inheritance exist in the general population, and that drawing the line between what is normal and what is abnormal is virtually impossible. There is every reason to think that susceptibilities and resistances to *all* types of disease are the result of peculiarities of inheritance.”

It would be of great help to each of us if we knew what our own “peculiarities of inheritance” happened to be. That would allow us to pinpoint our unique nutritional needs. So far, however, scientists have not been able to do this. Researchers have only been able to identify individual nutritional needs on an experimental basis, controlling diets and vitamin and mineral intakes over a long period of time to check results. Someday, perhaps, laboratory tests will be developed which will give each of us a profile of our characteristics which we can use to attain optimal health by ensuring an adequate nutritional environment for our cells. In the meantime, there is more than enough information for us to act upon in improving the basic nutrition of all human beings in a significant way.

Nutrition is a controversial subject, and it is scientifically complex. But beneath the heated debates and uncertainties, there is a simple story to be told. We

know that we are healthy if our cells are properly nourished. We know *what* our cells need to be properly nourished. All we have to do is to put those things into our mouths, chew, and swallow. Doing so provides the only major hope for improving our health.