

## SOME INTERRELATIONS BETWEEN VITAMINS AND HORMONES

by Royal Lee

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Vitamins are the catalytic factors in foods. Hormones are the catalytic factors made within the body by the endocrine glands. We probably would not be far off if we said vitamins are the hormones of plants.

Vitamins are precursors of various enzyme systems built up in the tissues, an enzyme being definable as a catalytic factor of local type, made by cells for use within the cell or in the immediate locale of the originating tissue as distinguished from the hormone that is transported by the blood stream for controlling action at a distance.

A catalyst is best defined as a factor that stimulates chemical or metabolic change, enzymes being one class of catalysts that by reason of their protein nature are not readily diffusible and are easily destroyed by heat, their disintegrating point being that at which milk is pasteurized, 145° F.

Some hormones are of protein nature, and some are not. Those that are, or that have the antigenic properties of a protein, are dangerous to use as therapeutic agents. They can create antibodies by their presence in the blood stream that in turn may destroy any traces of such hormones subsequently ingested, injected or secreted.

In fact, the patient then has an allergy against the hormone in question, and is certainly worse off than if never treated at all. That is one of the reasons for looking askance at the whole hormone system of therapeutics. We may well ask ourselves, what is the logic of treating a patient with starved, atrophic endocrine glands with glandular hormones, when the right nutrition may revive those glands into something like normal activity? Once the antibody is set up in his blood stream, the atrophy becomes completely irreparable in all probability. Certainly, the nutritional approach is the best if it offers any practical possibility of results, for it cannot do harm while the hormone approach may.

The use of dried glandular materials by mouth is a different proposition, especially of those glands whose hormones are destroyed by the digestive fluids. They act by supplying determinants that aid in regenerating the weak gland, in all probability. Experimental measures have definitely established that possibility in the promotion of growth of specialized structures in the dog. (1)

These determinants are protected from enzymatic destruction by lipid wrappers whose integrity depends upon the antioxidative value of the tocopherols, and on the presence of phospholipids and fatty acids of the vitamin E complex, for in deficiency of this complex the chromosome factors of the cell disintegrate. (2)

It is such loss of determinants that appears to be responsible for the failure of tissue to be properly maintained and regenerated in some conditions, such as

novocain dermatitis, petroleum dermatitis (oil dermatitis of screw machine operators), bursitis, and some muscular dystrophies, if not multiple sclerosis. These local depletions of vitamin E are here due to the oil, bathing the skin for too long a time each day. Mineral oil as a laxative does similar things to the mucosa. Fatigue poisons, novocain, and some oils all are destructive to the chromatin "blueprints" of the cell, essential to reproduction. (3)

The vitamin F group of the unsaturated fatty acids, first found in wheat germ oil, are also apparently an essential part of this complex; the general decay and degeneration of senility seems to be accelerated by its deficiency, the most outstanding clinical aspect being the relief of most prostatic hypertrophies by its use. (4)

Vitamin F is now officially accepted in the vitamin family, after fifteen years of existence, during which all followers of dogmatic officialdom have been deprived of its life-saving values, thousands of unnecessary prostate operations having been promoted as a consequence. (5)

This prostate derangement might be considered as a collateral aspect of the male climacteric. The female menopause, on the other hand, seems to respond better to the wheat germ oil treatment (6), although in some cases the use of the F complex is necessary for complete relief.

Various estrogenic and androgenic effects are now being found in wheat germ oil in addition to the tocopherol effect, which seems to be only that of an antioxidant to protect the more important fractions. Here is where there seems to be a true overlapping action of vitamins and hormones. This work is in progress and soon will be published. There seems to be no possible doubt at this time about the life-shortening effect of such vitamin deficiencies. If a man or woman becomes old and senile at 65 instead of 90, no special attention or alarm is aroused. But if a dog or valuable animal, race horse or prize record-breaking milk cow suddenly loses its physical integrity long before its time, the owner looks for some reason.

I recall a recent instance of where a chicken rancher in the west consulted his physician because his veterinarian could not find the cause of an 80% drop in egg production attended with many sick and dying hens. The doctor after a few questions found that the grain being fed was a new lot, and on investigation was found to have been steam treated to kill weevils, pasteurized in effect. On restoring grain feed that was uncooked, by a germination test, the hens immediately responded with their normal health and productivity.

We certainly do not take such care to look into the bad nutritional background of the many diseases of human experience. We simply accept it as the unfathomable doings of providence. The hens just mentioned were deprived of calcium for their bones and eggshells by the loss of the phosphatase destroyed in the grain by the heating. We calmly drink pasteurized milk and bleach-treated flour and cereal products that have lost both the enzyme and vitamin content, and do not even wonder why we lose our teeth just like any test animal does, put on the same diet. In fact, the test animals also become constipated,

get peptic ulcers, gastritis, liver disease, colitis, heart disease, arthritis and nervous disorders exactly like our friends and neighbors. Still we do not realize what is the cause, but gullibly continue to eat what some food processor has, after great research, discovered how to make worse so he can sell it for less.

Oleomargarine and other hydrogenated fats, processed so that all traces of vitamin E or other essential factors are removed and destroyed, are actually castrating our population wholesale, by degrees. You do not have to wait until premature menopause arrives for both sexes to see the effect. Here it is. Boys and girls now cannot be distinguished from one another if lined up nude, face to the wall. The broad shoulders of the man and the shorter, broader hipped physique of the female of the species has actually disappeared. In tests of the relative effect of butter and oleo in feeding adolescent groups, it was definitely proved that this effect was taking place, by growth rates and measurement figures. Girls grew taller than boys instead of vice versa, and were made to gain weight faster. What happens when such females become mothers you can imagine. Childbirth now becomes a real ordeal. (7)

In a long-continued low intake of the vitamin B complex, such as is common to users of commercial bread, cereals and flour that has been both degerminated and bleached, the secondary sex characteristics are not developed by reason of atrophy of interstitial cells of the gonads. (8)

The oxidizing bleaches commonly used in commercial flour destroy both the B vitamins and the E and F complexes. Commercial whole wheat flour commonly carries much more of the bleach, test animals dying far quicker on a diet of whole wheat bread than on white. (9)

The interstitial cells are now known to be the secreting source of the androgenic hormones. (10) So the exact mechanism of how a deficiency of the B and E complex vitamins can cause castration is known. Truly, as Bicknell and Prescott say in their book, The Vitamins in Medicine, "White flour does more than Malthus can to sterilize the Englishman."\*

Sir Robert McCarrison back in 1921 told us how the endocrine glands were the first structures to atrophy or degenerate following vitamin and mineral deficiencies. The adrenal glands, now looked to as the source of the wonder hormone cortisone, stopped functioning and soon became atrophied. We know today that the adrenals must have vitamins A, B, C and G to perform properly. The pituitary, which stimulates the adrenals to action by its ACTH factor, ceases to function also in the face of similar deficiencies, and if the E complex is lacking, the sex glands fail to activate the pituitary. (11)

To go into a little greater detail, the vitamin C content of the adrenal tissue may drop over 50% in six hours after an injection of ACTH (pituitary adrenotropic hormone). Tyrosine seems to be a precursor of adrenal hormones, and

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\* Bicknell, F., and Prescott, F., The Vitamins in Medicine. New York: Grune and Stratton, 1948, p. 738.

it can be only made from the amino acid phenylalanine if sufficient ascorbic acid is present. (12) Then, unless a sufficient supply of tyrosinase is present, this tyrosine may be unavailable for hormone synthesis. (13) (We get tyrosinase from raw potatoes and raw mushroom.) Tyrosinase is a part of the normal vitamin C complex, we believe; and we have recommended its inclusion in all vitamin C preparations for almost twenty years. It seems the key to a proper action of the natural vitamin C, which must contain vitamin P as well as ascorbic acid. The widespread need for cortisone is nothing more than another sign that we eat too much cooked food. The only substitute for raw milk, raw potato or raw mushrooms, or raw meat preparations like liver, brain, or sweetbread cocktails made in a liquefier, is tablets of dehydrated concentrates from similar sources, concentrated without heat or other destructive influence.

ACTH seems to be another false alarm like the sulfa drugs, simply a means to write checks on our own poor reserves of vitamin C complex, bringing on a state of bankruptcy in a hurry. The sulfa drugs mobilize vitamin C from the tissues into the blood stream, thereby creating a temporary activity of the phagocytes against any infection present. The use of the real factor, vitamin C, certainly is a more physiological and a sounder measure. The initial good effect of sulfa is, too commonly, promptly followed by a precipitation of scurvy reactions.

We must realize that no food producer cares much about the quality of his product. He is paid on the basis of quantity. The new hybrid corn that affords many more bushels per acre is a good example. It is no longer capable of functioning as a seed, so many of the normal seed elements are absent, one for example being the new vitamin of organically combined cobalt, B<sub>12</sub>, so essential to prevent pernicious anemia. (14) Certainly, more of any product can be made worse so it can be sold for less if essential parts are left out. As long as the buyer does not know how to inspect his purchases, nor even know what they are supposed to accomplish, he will continue to be swindled. We eat counterfeit butter, counterfeit lard, degerminated cereals, oxidized flour, bread also puffed with water by the use of hygroscopic chemicals so it never gets stale, and forget that all these things are a violation of the pure food laws, permitted simply because we sleep in ignorance. Policemen seldom bother to enforce a law that the people do not know exists, and if nobody complains about its violation.

The alcohol makers have already found hybrid corn unsatisfactory by reason of its inability to support yeast life. But we will be eating beef and beef liver for a long time before it is discovered to aggravate pernicious anemia and various new diseases yet to appear, no doubt, in the bovine and human species.

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It is highly interesting to find that tests of oleomargarine feeding to human subjects in comparison with commercial butter (having relatively low content of the fragile "X" factor), HAD THE SAME EFFECT of failing to bring out the secondary sex characteristics: not only a delay, but a failure to promote sex changes in toto. Here are the results:

160 Children were fed oleo, 107 butter, over a period of two years. Ages up to 17 years.

Average gain in weight on oleo for girls, 8.2 pounds. Yearly average growth in height, 2.2 inches. Girls on butter gained 6.3 pounds per year, grew 0.9 of an inch.

Boys on oleo grew 2.2 inches per year, gained 8.1 pounds. On butter, boys gained 6.7 pounds, grew 1.6 inches.

(From Science News Letter, February 14, 1948, page 108, reporting work of Leichenger, Eisenberg and Carlson.)

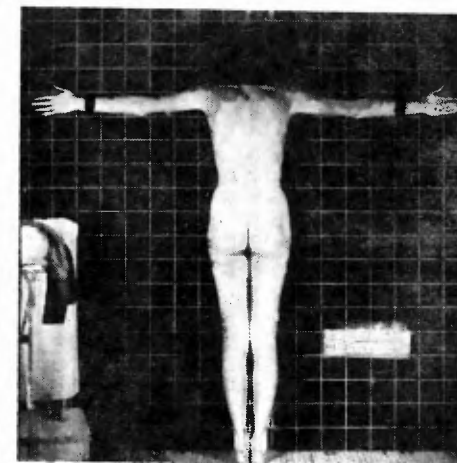
A characteristic effect of castration of the child is a stimulation of growth and greater height.

The investigators say the results vindicated oleo. What do YOU say?

Dr. F. M. Pottenger, Jr., of Monrovia, California had previously called attention to the castrating effect of devitalized foodstuffs. In the News Letter of The Academy of Applied Nutrition for September, 1948, the following comment and photograph were published:



1



2



3



4

**WHICH ARE GIRLS AND WHICH ARE BOYS?**

Numbers 1 and 4 are boys, numbers 2 and 3 are girls. Ages are between 15 and 17. An explanation is in order.

Experimental work with animals shows a loss of secondary sexual characteristics after two or three generations on impoverished diets. Males lose their heavy masculine frame, their make up begins to resemble the female. Females also tend to lose their distinguishing build so that both sexes approach a state of physical neutrality. The male no longer has the strength of body that normally makes him the breadwinner and dominant personality. The female no longer has the pelvic capacity required for easy child bearing. Other undesirable changes go along with these among individuals of either sex.

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