

## Cancer — Nutritional Factors in:

1. Vitamin A deficiency causes cell changes similar to those preceding cancer (1).

Vitamin A is present in subnormal amounts in the liver of cancer susceptible animals (2).

Vitamin A administration improves human cancer cases after operation or X-rays, and test animals are rendered immune to tar cancer by feeding vitamin A (3).

The ability of the liver to convert carotene to vitamin A depends upon the action of vitamin C. In cancer the vitamin C requirement is "conspicuously increased" (4).

2. Cancer patients have a high blood cholesterol, and a high urinary cholesterol.

The vitamin B factors that reduce blood cholesterol and promote its elimination (the lipocaic group), and barley extracts have cured cancer in test animals (5).

Rice bran extract prevented butter yellow from causing cancer in test animals (6).

3. Cell determinants collect in connective tissue, and in time reach toxic proportions after the age is reached where the endocrine eliminators are less effective. The spontaneous development of a malignancy depends upon the presence of these toxins, and mechanical irritation or chemical agents of certain types will then bring on cancer (7).

The value of iodine in preventing cancer (8) is no doubt a result of its effect of promoting the physiological elimination of determinant toxins.

The value of vitamin A in preventing cancer is probably a result of its effect in promoting the physiological insulation or lipoid wrapping of determinants.

The effect of the vitamin B factors in preventing cancer is probably the result of their synergistic effect of promoting cholesterol transport and elimination, thereby increasing the tissue permeability, permitting antibody reactions that otherwise would be blocked. The cancer to be considered as a foreign protein, attacked normally by an antibody that would promote its lysis and elimination. If antigenic factors

could not diffuse away from the cancer, no antibodies would be formed. The cancer in that case would be permitted to grow undisturbed.

The general effect of all cholesterol metabolizers as cancer inhibitors is thereby explainable. These may be listed as:

1. Chlorophyll.
2. The lipocaic or fat metabolizing group, otherwise known as transmethylators. Includes betaine, choline, inositol, some amino acids such as methionine and cystine. (Found in beet and cane molasses).
3. Unidentified factors in cereals, probably the active principle in barley water, rice and buckwheat that reduces blood pressure, no doubt promotes the diffusibility of antigens as well.

- (1) Zwick, *Med. Bull. Univ. of Cincinnati* (Nov. 1935).
- (2) Goerner, "Vitamin A & Liver Cell Tumors", *Jol. Biol. Chem.* 128, 2:559-565 (May 1939).
- (3) Chidester, *Med. World* 56, 4:246-250 (April 1938).
- (4) Stepp, Kuhnau & Schroeder, *The Vitamins and their Clinical Application*, (Vitamin Products Co., 1939) p. 74, (Translation from the German).
- (5) *Science News Letter* (June 19, 1943) p. 393. Reporting on work of Drs. Laszlo and Leuchtenberger. *Science News Letter* (Oct. 26, 1928) Salmon & Copeland.
- (6) *Cancer Research* Vol. 1, No. 1, p. 3.
- (7) *Protomorphology*, Lee & Hanson, (Lee Foundation, 1947) (Contains bibliography and discussion).
- (8) *Nutrition and Glands in Relation to Cancer*, Chidester (Lee Foundation, 1945).

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