

PHYSIOLOGY

Eight Biotin Vitamins

Vitamin believed to play important role in cancer, has seven sister vitamins. Discovery means that research in field must be re-evaluated.

➤ BIOTIN, widely distributed vitamin believed by some to play an important role in cancer, has seven sister vitamins, or vitamers, Dr. Dean Burk and Dr. Richard J. Winzler, of the National Cancer Institute and the National Institute of Health, have discovered.

Vitamers, they explain in their report to *Science* (Jan. 15), is a newly coined term for compounds that act to overcome a given vitamin deficiency in one or another animal, plant or microorganism. Several compounds with vitamin D activity are known to exist, and there are likewise several vitamers for vitamin K and for some of the other vitamins.

Discovery of the vitamers for biotin, Dr. Burk explained, means that a great deal of the work on the role of biotin in nutrition and in relation to the cancer problem will have to be re-evaluated. Some of the results obtained may, for example, be due to one of biotin's vitamers rather than to biotin.

The biotin vitamers are: miotin, tio-

tin, rhiotin, pimelic acid and three derivatives of biotin (methyl ester, sulfoxide, and diaminocarboxylic acid). Miotin, tiotin and rhiotin have not yet been identified chemically but are believed to be very closely related to biotin.

Miotin, tiotin and diaminocarboxylic acid do not combine with avidin, the chemical in raw egg white which combines so greedily with biotin that it or raw egg whites have been fed to patients to produce a deficiency of biotin in the hope of curing cancer. The theory behind this attempt to cure cancer rests partly on a report that cancer tissue contains a high content of biotin.

It may be that miotin, rather than biotin, is the growth-stimulating substance used by cancer tissue. If this should be so, it would change the line of attack on cancer, but there is no evidence yet on this point.

Miotin, in addition to failing to combine with avidin, is unlike biotin in being easily destroyed or changed by heat, whereas biotin is heat stable.

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felt better and was able to eat well, although he was still unable to open his eyes. After six days of treatment his temperature was normal, he could open and move both eyes normally, and except for loss of vision in his right eye, appeared and felt well. The loss of vision is believed due to swelling of the orbit which produced neuritis of the optic nerve.

"It seems likely that penicillin was responsible for recovery of the patient in the case reported," the doctors stated.

Penicillin was discovered by an English scientist, Dr. Alexander Fleming. It was first used to treat disease in man in 1941. Only limited amounts have been available for trial on patients.

Besides its ability to overcome certain disease germs, it has the advantages of diffusing readily into practically all the tissues of the body and of being relatively nontoxic and safe to use.

The Mayo Clinic doctors believe it offers considerable advantages over other remedies now available for treating severe infections but point out that to avoid loss of time and discouraging results, this new remedy should be used only for infections with germs known to be vulnerable to it.

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ENGINEERING

New Sashless Storm Window Is Easily Installed

➤ THOSE who want to save more fuel can quickly install storm windows which require no lumber sash. Just attach two three-inch strips of picture-frame type molding to the bottom of the window. Then fit a pane of ordinary window glass into the molding. Pressing the glass pane over the regular window, secure the sides and top of the glass with other strips of molding. To complete the job, run a strip of all-weather tape around the edge of the storm window.

This Victory storm window is mounted on the outside of the upper half of a window and the inside of the lower half. This permits opening and closing of the window for ventilation which is not possible when the storm window is mounted in a sash of its own.

The new window is recommended by engineers of the Federal Housing Administration who estimate that installation costs about two dollars.

The regular storm sash should be used when available, OPA officials emphasize, but as a temporary wartime measure the sashless window will make substantial savings of fuel.

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MEDICINE

Saved by Penicillin

Patient dying of blood poisoning was restored by germ-killer produced from mold. Blood was freed of germs in 22 hours.

➤ PENICILLIN, a germ-killing substance produced by mold, has saved the life of a 33-year-old man at the Mayo Clinic. His case was reported at a staff meeting of the clinic by Dr. W. E. Herrell, Dr. Dorothy H. Heilman and Dr. H. L. Williams.

The patient was dying of what the layman would call blood poisoning. His illness started with a soreness on the right side of his nose. Within a week the entire right side of his face was swollen, red and painful, and the side of his nose was discharging pus. Both eyelids were swollen and red, and his right eye was displaced downward and outward and he could not move it normally. His temperature was 104 degrees

Fahrenheit. At this time he entered the hospital but in spite of moist, hot packs on his face and large doses of sulfadiazine, his condition grew worse and he was unable to open his eyes.

When the laboratory reported staphylococcus germs were in his blood, the doctors stopped the sulfadiazine and started giving penicillin. Some two quarts of salt solution containing penicillin were given each 24 hours for two days, the solution being dropped into the man's vein at the rate of 25 to 30 drops per minute.

Within 22 hours after starting the penicillin his blood was free of germs. Two hours later his temperature had dropped to 100 degrees Fahrenheit, he