

MEDICINE

Cancer Growth Stopped

One of the most promising discoveries in cancer research this year is an unidentified cell substance that stops the growth of cancer cells, Faye Marley reports.

► AN UNIDENTIFIED cell substance that stops the growth of cancer cells without harming healthy tissue is one of the year's most promising cancer research advances reported by the Memorial Sloan-Kettering Cancer Center.

Studies are continuing to determine the nature of this inhibiting substance found in mixed tissue cultures, Dr. Frank L. Horsfall Jr., president and director of the Center's Institute for Cancer Research, said in an annual report.

The substance is not yet ready for even animal trials, much less application to patients.

New drugs such as Cytoxan (cyclophosphamide) and Velban (vinblastine sulfate), among the most active ever found as a weapon against leukemia in mice, are presently being tried in humans.

Urethane, the alkylating agents and mitomycin, as well as methotrexate, 6-mercaptopurine and the corticosteroids have shown activity against leukemia in both mice and men and are being tried in various forms of cancer.

Efforts to immunize against chemical causes of cancer are getting encouraging results through experiments showing that chemically induced cancers in animals have distinctive antigens, or substances that stimulate the production of antibodies.

Because animal tumors have abnormal chromosomes that undergo additional change through resistance of previously susceptible tumors to anti-cancer drugs, studies of similar conditions in humans are underway.

A newly developed total body scanner is being used to detect early spreading in the bones of cancer patients through injections of radioactive calcium or strontium.

Because white blood cells and plasma of cancer patients have held back growth of a patient's own cancer cells, future studies are planned to find out if this inhibiting effect can be increased.

Work in drug therapy with outstanding physicians in Nairobi and Kampala, East Africa, who previously had treated tumors of the head and neck only surgically, is showing promising results.

In studies of steroid hormones two metabolites of testosterone, the male hormone, have been isolated and identified. These compounds, androsterone and etiocholanolone, appear to be present only in trace amounts in healthy persons but increase materially in various diseases.

Methods for improving the early detection of cancer, important in cancer control; the identification and control of precancerous abnormalities and the study of environmental factors, such as gasoline engine exhaust and tobacco, that may contribute to the

occurrence of cancer were further investigated.

Research activities in pathology included studies on cancer cells in the circulating blood, abnormal cells, electron microscope studies of human cancers and investigations of a tumor-localizing substance in the chick.

Efforts to improve the technique for detecting cancer cells in the blood are being continued. Identification of cancer cells in the blood is difficult because other abnormal cells may be mistaken for cancer cells.

Nuclear alterations in human lymphoma cells and their relationship to cancerous change, which have been detected with the electron microscope, are also under study.

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MEDICINE

Armadillo Study Shows Identical Twins Differ

► RESEARCH with armadillos indicates that identical twins may not be exactly alike.

The novel research animal that has child-bearing habits similar to man is being studied by Dr. Kurt Benirschke and others at Dartmouth Medical College, Hanover, N. H.

Scientists have assumed that identical twins, being genetically alike, would accept tissue or whole organ grafts from each other. Dr. Benirschke found that armadillo young born as identical quadruplets will not exchange skin grafts.

The armadillo studies indicate that organ grafts may be dependent on factors other than genetic similarities. Differences in the armadillo quadruplets are thought to result from the fact that each one occupies its own segment of the mother's placenta. This would place the young in slightly varying environments and cause their developments to be slightly different. This difference is enough to make the young unable to tolerate skin grafts from each other.

Surgeons recently have been successful in grafting whole organs such as the kidney in man. In doing this, it is essential that the "donor" and the "recipient" be genetically similar to accept each other's tissues. It was previously thought that such exchanges would "take" only among identical twins.

A simple skin graft was used to test "identicalness." If there are differences between identical twins the armadillo studies indicate the graft might cause a person to develop immunity to the foreign tissue.

Dr. Benirschke has acquired statistics on 250 sets of human twins in his studies on identicalness begun at Harvard.

The study is being supported by The National Foundation-March of Dimes.

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MEDICINE

Too Much Salt May Cause High Blood Pressure

► HIGH BLOOD pressure may be a matter of taste.

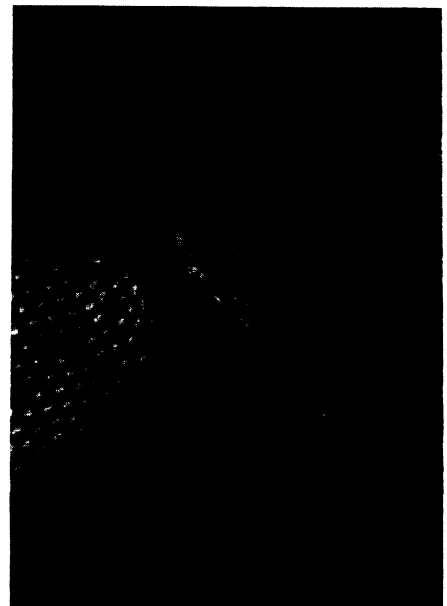
Johns Hopkins University scientists have found that a person with high blood pressure eats more salt than a person with normal blood pressure because he can not taste it as well as a person with normal blood pressure. The high salt intake may cause high blood pressure, Drs. Norman Fallis, Louis Lasagna and Leon Tetreault reported in *Nature* 196:74, 1962.

In taste tests at Johns Hopkins University School of Medicine, Baltimore, 20 persons with high blood pressure and 20 with normal blood pressure were asked to sample different solutions. Each person was presented with a number of rows of cups with four cups in each row. Three of the four cups contained distilled water while the fourth contained either a salt or a sugar solution; the location of the fourth cup was at random. Both of the groups had similar ages and background.

Scientists determined the lowest concentration at which a patient could distinguish a substance and the concentration at which he could identify it. The tests were made one and a half hours after the last meals and the persons being tested were asked not to smoke during this period.

Findings revealed that the group with high blood pressure needed concentrations two to 16 times greater than the control group to distinguish salt in a solution. The two groups identified the same concentrations of sugar.

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National Foundation

ARMADILLOS FOR RESEARCH—
Studies on the role of heredity in tissue transplantation were made with armadillos by Dr. Kurt Benirschke, at Dartmouth Medical College. Skin was taken from the young and grafted to the mother.