

MEDICINE

Arteriosclerosis Tendency

Tendency toward artery hardening can be predicted by three comparatively simple laboratory tests, two of which measure the size of fatty particles in blood serum.

► A TENDENCY to develop arteriosclerosis, or artery hardening, can be predicted by three "relatively simple" laboratory tests, Dr. Thaddeus D. Labecki of the Mississippi State Board of Health, Jackson, Miss., declared at the meeting of the American Society for the Study of Arteriosclerosis in Chicago.

This artery disease often leads to crippling and even fatal heart attacks. The tests, made on samples of blood and blood serum, reflect the body's efficiency in utilizing fatty substances.

Many factors, such as sex, age, high blood pressure and diabetes, contribute to development of arteriosclerosis and heart disease, Dr. Labecki explained. However, he pointed out, it is generally accepted that persons who develop disease of the heart arteries do not utilize fat in the proper manner.

Dr. Labecki's research is part of a long-range project planned to investigate in what ways the tendency to hardening of the heart's arteries reflects itself in certain substances circulating in the blood. These are the lipoproteins, that is, large molecules of fat combined with proteins.

"In certain individuals," he explained, "some of these particles deposit themselves in the lining of the arteries, particularly arteries leading the blood to the heart muscle itself (coronary arteries), and eventually the thickening which results from the deposition causes obstruction to the blood flow. If a vital coronary artery is

suddenly obstructed, a heart attack occurs which the patient may survive or which may result in instantaneous or subsequent death."

To determine how to find out whether a subject had a tendency toward, or actually had, arteriosclerosis, a group of 33 patients with coronary occlusion was compared with a group of 197 presumably normal patients.

In each of these reported cases, the performance of three tests, including two tests, ultracentrifuge and chylomicron determination, which so far have been limited predominantly to research centers, showed the disease could have been suspected in all patients, even if they failed to show definite clinical symptoms of the disease, Dr. Labecki reported.

Two of these tests measure the size of the fatty particles in the blood serum. The large particles, called chylomicrons, are large enough to be studied with the aid of a high-power, dark field microscope. The tiniest of the particles, lipoproteins, are too small to be seen, but can be studied through separation into several categories through the use of a centrifuge rotating about 55,000 times a minute.

The third test is based upon the determination of how much cholesterol, a fat substance excessive concentration of which has often been associated with arteriosclerosis, circulates in the patient's blood. This latter test has been long known to the medical profession.

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MEDICINE

Lung Cancer Increase

► POLLUTED AIR over our big cities is more to blame for the increase in lung cancer than tobacco smoking, Dr. Paul Kotin of the University of Southern California School of Medicine, Los Angeles, charged at the meeting of the American Cancer Society in New York.

Air-extracted aliphatic hydrocarbons and their oxidation products give signs of being concerned with tumor production in skin painting experiments with mice, Dr. Kotin's researches show.

In cooperation with the University of Southern California's School of Engineering, he studied the exhaust products of gasoline and diesel engines running at various speeds. Benzene extracts of materials caught on filter papers placed over the engine exhaust pipes produced skin tumors on approximately 50% of the mice on which

they were painted. Petroleum, natural gas and coal are the main sources of the air-polluting hydrocarbons. Previously, Dr. Kotin said, they have not been considered associated with tumor formation.

These same aliphatic hydrocarbons, their oxidation products and ozone cause a person's eyes to water on a smoggy day, and may be blamed for damage to the body's respiratory tract.

"We are creating a marked cancer hazard in the air over our big cities," Dr. Kotin said, "by dumping all manner of fumes and gases into the atmosphere.

"The increasing frequency of lung cancer in cities as compared with rural areas all over the world indicates that the atmosphere may be the principal cause of this disease. The agents responsible for the accelerated rate of lung cancer in man are

almost universally distributed, and evidence points to the air we breathe as their source.

"Until it can be explained why many persons who never smoke get lung cancer, or why more cases develop in air-polluted cities than in rural areas, or why there is less cancer of the larynx than of the lung which smoke reaches last," he declared, "smoking can be considered only as one possible source but not necessarily the principal offender."

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BIOCHEMISTRY

Cranberries Give Aid To Penicillin Effect

► A CHEMICAL from cranberries has been purified and converted into a compound that may prolong the effect of penicillin in the body.

The cranberry chemical is ursolic acid, found also in the shiny skins of other fruits such as apples. An amino derivative from it is the compound expected to prolong penicillin's effect, Prof. Lloyd M. Parks and Betty Y. T. Wu of the University of Wisconsin found in research aided by a grant from the National Cranberry Association.

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TECHNOLOGY

Devise Process for Reclaiming Asbestos

► SCIENTISTS AT the National Bureau of Standards have learned to reclaim critically short asbestos from discarded pipe insulation.

Working at the request of the Navy's Bureau of Ships, Elmer W. Zimmerman, a bureau chemist, discovered the asbestos can be reused if discarded pipe insulation is broken down with acids or alkalis to liberate the asbestos fibers from extraneous material.

Asbestos-cotton fabrics that do not contain paint can be treated with a five percent solution of hydrochloric acid, then rinsed. Fabrics painted on one side are boiled in a five percent solution of sodium hydroxide for 15 to 30 minutes. In both cases the fabric is rinsed, but in the latter case a detergent is added to remove paint pigment.

When cotton strands are mixed with the asbestos fibers, they can be "burned" out in a muffle furnace operating between 750 and 840 degrees Fahrenheit. Careful control must be exercised at this point to prevent the asbestos from becoming brittle due to a lack of moisture.

After the asbestos has been freed of its extraneous matter, the cloth is reduced to fiber in a rotary food blender or paper pulp beater and is ready to be worked into new insulation, paper and plastics. The recovered asbestos is unchanged chemically and its fibers shrink little, if any, during the recovery process.

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