

MEDICINE

Cholesterol-Lowering Oils

SOME OF the fish that are frequently found on the American dinner table have been found to contain an oil that can reduce high cholesterol levels that are linked to atherosclerosis.

Salmon, mullet, mackerel and herring contain liberal amounts of body oils. Research on these oils has disclosed that there is an abundance of what is known as "unsaturated" fatty acids in the body oils of these fish. Furthermore, when fed to test animals, the oils reduced their cholesterol levels in direct proportion to the degree of unsaturation, the Bureau of Commercial Fisheries, Fish and Wildlife Service, U. S. Department of Interior, reports.

"Saturated" fat, such as lard, congeals at a low temperature. An "unsaturated" fat does not congeal readily. This is the property which permits oil-laden fish to move freely in waters of low temperatures.

Bureau research has shown that about half of the body oil of most species of fish is unsaturated and about 10% of it is highly unsaturated. This latter portion of the fish oil contains five or six unsaturated carbon atoms per "chain," compared with only two such atoms in vegetable oil. In other words, the potential of fish oil in reducing the cholesterol level is approximately three times that of vegetable oils.

Second only to the Bureau findings that unsaturated fish oils readily reduce the blood cholesterol levels is the development of a method to separate the highly unsaturated 10% from the rest of the oil. It is this method which makes it possible to

utilize only the essential part of fish oil in reducing cholesterol levels. Thus the patient would take only one-tenth of the calories contained in the whole oil.

Bureau officials hope their efforts will encourage clinical testing by responsible medical research staffs to evaluate the results obtained to date and to explore further the application of these results to conditions which may cause or aggravate atherosclerosis and kindred diseases. Atherosclerosis results from the formation of fat-like deposits in the arteries. The deposits can become so thick that they cut off the blood supply.

Bureau officials further state the research has opened the way for the development of a food supplement composed of those fractions of fish oils which are the most effective in lowering the blood cholesterol level.

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AERONAUTICS

Army's Ducted-Fan Plane Could Be Airport Taxi

See Front Cover

THE ARMY'S ducted-fan airplane may be tomorrow's airport taxi. It could serve passengers who discover it takes almost as long to get to and from big-city airports as to cross the United States in high-speed jets.

Demonstrated publicly for the first time by Doak Aircraft Company, the new Army research airplane replaces the usual engine-

driven propellers with two fans located on its wingtips. Each fan is approximately three feet in diameter and is enclosed in a shell.

Forward speed is classified, but the Army indicated the plane is "faster than our helicopters." It can climb at a rate of 2,000 feet a minute.

Doak Aircraft's president Edmond R. Doak said he believes this research plane ultimately could lead to big troop transports and "taxis" for use between the hearts of big cities and suburban airports. Ducted-fan planes would have higher speed, longer range and lower maintenance costs than helicopters, he said.

The research plane is powered by an 825-horsepower shaft turbine engine located in the fuselage. The fans are coupled to the engine with one and one-half-inch steel alloy pipe that spins like a drive-shaft inside each wing.

Other Army planes demonstrated in Washington, D. C., to the American Helicopter Society and Institute of the Aeronautical Sciences included light twin- and single-engine airplanes for carrying battle commanders and their staffs. The airplanes can be used on "unimproved" airfields, taking off and landing in distances of generally less than 300 feet. Also shown were several helicopters for reconnaissance, carrying combat troops and evacuating wounded soldiers.

The vertical take-off and land (VTOL) airplane has just completed the first cross-country flight ever made by a U.S. VTOL and has been formally accepted by the U.S. Army.

Known as the Doak 16-Army VZ-4da, the plane is equipped with ducted fans on its wing-tips that may be rotated through a 90-degree angle. When pointed straight up, they allow the plane to rise straight up like a helicopter. Pointed straight ahead, as shown on the cover of this week's SCIENCE NEWS LETTER, they drive the plane at high-speed, long-range forward flight like a conventional plane.

Designed, constructed and tested by the Doak Aircraft Co., Inc., of Torrance, Calif., for the Army Transportation Corps, the novel plane is powered by an 825-horsepower Lycoming YT-53 shaft turbine engine located in the fuselage. Drive shafts transmit the engine power to the interconnected ducted fans.

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ENGINEERING

Thermoelectric Device To Heat, Cool and Freeze

THE U.S. NAVY plans to experiment soon with a versatile device that will heat, cool and freeze without moving parts.

A contract for an experimental three-purpose thermoelectric unit has been awarded to Westinghouse Electric Corporation. To be delivered to the Navy's Bureau of Ships, the experimental unit will produce heat and cold with solid state materials that become hot or cold as electricity is passed through them, depending upon the direction of current flow.

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SOLAR SLIDE PROJECTOR—Dr. Gerald F. Winfield, chief of the communications media staff, International Cooperation Administration, holds a solar-energy powered slide projector which can be made for less than \$5. V. Roxer Short (second from the right), also of ICA, holds the hooded acetate screen, while inventor James A. Cudney is second from the left.