MEDICINE

New Key to Artery Ill

South African scientists discover that deposits of cholesterol in arteries are affected by kind of fat eaten. Hard fats cause high blood cholesterol levels.

➤ THE KIND of fat you eat rather than the amount is what determines whether or not you will have a lot of cholesterol in your blood to harden your arteries and perhaps bring on a heart attack or a stroke.

This finding of South African scientists is now being reported to U. S. scientists. (See p. 261.)

Those who already have a high blood cholesterol content may before long be able to take daily doses of a special oil to reduce the cholesterol while they go on eating a normal diet. This is a future promise of the research.

Whether this will pull the cholesterol out of deposits in artery walls and thus restore the arteries to normal is not known. Long-term experiments to learn this are now under way.

The new and hopeful approach to stopping the nation's greatest disease killer, atherosclerosis and consequent heart disease, results from a discovery by a team of South African scientists at the University of Cape Town.

The leader of the team, Dr. B. Bronte-Stewart, has gone to Japan with Dr. Paul Dudley White of Boston, consultant on President Eisenhower's heart attack. With Dr. Ancel Keys of the University of Minnesota, they are making a study of blood cholesterol and diet in the Japanese.

The fats that put a lot of cholesterol in the blood are animal fats, or hard fats. Beef drippings, butter, eggs and beef lead to a prompt and significant increase in blood cholesterol, Dr. Bronte-Stewart and associates found by diet experiments with humans in South Africa.

When they fed vegetable oils, such as olive oil, sunflower-seed oil and ground-nut oil in equivalent amounts, blood cholesterol did not increase.

When the ground-nut oil was fed in hardened or hydrogenated form, however, blood cholesterol promptly increased.

The findings do not mean that a person cannot eat hard fat such as occurs in eggs, beef and other animal fat. It is the balance between the hard fats and the non-hard fats that is important.

For example, in some experiments Dr. Bronte-Stewart fed his diet group as many as 12 eggs at one time, fried in hydrogenated fats. Their blood promptly showed a high amount of cholestrol. But if he fed the same number of eggs fried in peanut oil, the cholesterol in the blood did not increase.

Fats contain fatty acids. Some are what chemists call saturated, other are unsaturated. Animal fats contain only a small proportion of unsaturated fatty acids. Vegetable oils and fish oils contain mostly unsaturated fatty acids.

Dr. Bronte-Stewart and his group were able to separate from sunflower-seed oil a highly unsaturated and a saturated fatty acid fraction. They fed these to a patient whose blood cholesterol had been raised by adding cholesterol to his basic diet.

When the unsaturated fraction was fed, the blood cholesterol promptly fell, even though the patient went on getting extra cholesterol in his diet. When the saturated fraction was fed, the cholesterol in his blood rose.

These experiments led the Marine Oil Refiners of Africa Ltd. to divide fats into fractions. Using the solexol process they got on a commercial scale a cooking fat which they call Glennol. This is believed to contain a higher concentration of unsaturated fatty acids than the fat naturally contains.

One ounce of this taken daily for seven weeks reduced the blood cholesterol of one patient from 317 to the normal 245, although the patient continued to eat his usual normal diet.

Although Glennol is now on the market in South Africa, the Cape Town scientists are not making any claims for it until they have done further tests on patients.

They also point out that other factors besides fat in the diet may play a role in hardening of the arteries in some cases. Lack of physical exercise, occupational tensions, emotional states and perhaps also heavy smoking are among such factors.

The clue to the new finding about blood cholesterol and different kinds of fat in the diet came when the Cape Town scientists repeated some experiments done elsewhere. These earlier experiments seemed to show that a person could take any amount of cholesterol by mouth without raising the cholesterol in the blood.

The original experiments had been done giving the cholesterol in oil. The South African group by chance gave it in a hard fat, and found the blood cholesterol rose to a high level. This started them on further research.

The findings explain for the first time why Italians and Greeks, who eat a lot of fat in the form of olive oil, and the Eskimos, who live on fat which is fish fat, do not have large amounts of cholesterol in their blood and have very little heart and blood vessel disease, compared to "sophisticated" populations such as Americans and northern Europeans who eat most of their fat as hard animal fat.

The Japanese eat much fish, so the doctors in Japan expect to find their blood cholesterol lower than that of peoples eating animal fat.

Associated with Dr. Bronte-Stewart in his research were Drs. L. Eales, A. Antonis and J. F. Brock of the University of Cape Town.

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LARGEST REPTILE SKULL—This fossil sea monster with a nine-foot skull and 80 spiky teeth is being restored for exhibition at Harvard University's Museum of Comparative Zoology. The Kronosaurus *skeleton, 110,000,000 years old, will stretch at least 50 feet when mounted. Front pair of large holes were eye spaces, and jaw muscles were bunched in the second pair.*