

Washing out cholesterol

In the bloodstream, low-density lipoproteins (LDLs) play the guys in the black hats: These cholesterol-carrying particles are associated with atherosclerosis, whereas their cousins, high-density lipoproteins (HDLs), are believed to exert an equally strong anti-atherosclerosis effect.

Scientists attempting to lower cholesterol levels have to be careful that they lower only the LDL level and not the HDL level. Researchers from New York City's Rockefeller University, Rogosin Institute and New York Hospital-Cornell Medical College evaluating an experimental LDL-removal process have now found that it *raises* the HDL level at the same time.

The experimental process, called LDL-pheresis, involves drawing blood from a patient, running it through a device that strips out the LDL and returning the blood to the patient. The technique was developed by Wilhelm Stoffel of West Germany.

The researchers "washed" the blood of five patients who have genetically mediated high LDL levels that can lead to early heart attacks. They found that when they decreased the LDL levels, the HDL levels increased in four of the five.

Understanding how LDL-pheresis raises HDL levels may suggest less technically complicated ways to increase HDL levels in others at risk of heart disease, says Rogosin Institute's Thomas S. Parker, one of five researchers on the project. "If we can find out what it is that's raising HDL levels in our patients," he says, "then we can try to find a simple way to mimic it."

Begin the decline

Those trendsetters in the Northeast and on the West Coast have done it again. According to a study by Steve Wing and his colleagues at the University of North Carolina at Chapel Hill, Northeast and West Coast states were the first to show the decline in deaths from heart disease, a trend now being enjoyed by the entire country.

"Heart disease mortality rose during most of the first half of the century rather dramatically," he says. "At the national level, mortality began to drop starting about 1968."

When he and his colleagues analyzed the decline by "state economic areas" — groups of similar counties — they found some areas had had a head start. Looking at the statistics for heart disease in white men between 35 and 74 years old, the researchers found that metropolitan state economic areas experienced the decline before nonmetropolitan areas, and northeastern and Pacific Coast states beat out the South and midsection of the country.

"We don't have any data on the reasons for the pattern," says Wing, who presented the findings at last week's Conference on Cardiovascular Disease Epidemiology in San Francisco. Causes for the earlier decline could be any of the social, labor, economic, cultural or dietary changes that began first on the coasts, he says. But the findings didn't surprise him. "It's part of American folk culture that we expect things to spread from the coasts."

Fixing teeth permanently

Teeth, it has been said, are the first things to rot in living people and the last things to rot after death. Finding replacements in living people hasn't been easy: Gum ridges that serve as seats for dentures tend to wear down, and permanent implants often break down over time. Mayo Clinic researchers in Rochester, Minn., are among several U.S. groups evaluating a technique devised at the University of Göteborg in Sweden. In the process, permanent implants are attached with titanium and gold fixtures into which the jawbone grows. After two years 98 percent of the fixtures remain stable in the 70 patients studied, they report in the February issue of *MAYO CLINIC PROCEEDINGS*.

U.S. firms: Half import researchers

Over the past 15 years, U.S. industry has developed "a substantial dependency" on foreign-born scientists and engineers, according to a National Science Foundation survey of hiring practices by more than 300 firms. Half of the surveyed firms, regardless of size (152 were large, Fortune 500 respondents), reported employing foreign scientists. Among such firms, foreign nationals accounted for an average of 9 percent of the science and engineering work force. However, because many foreign workers become naturalized citizens, "data on foreign citizens understate the participation of those from abroad in the science-and-engineering work force," says the study, published Feb. 28. Among surveyed firms hiring non-U.S. citizens, another 11 percent of their science and engineering workers were naturalized U.S. citizens.

On average, the survey found, foreign researchers were better educated than their U.S. counterparts; 35 percent of them had Ph.D.s, as opposed to 12 percent of the U.S.-born researchers. The distribution of foreign-born workers was greatest in electronics firms, where noncitizens represented 14 percent of all scientists and engineers hired since June 1984. This compared with 12 percent of new workers in independent research and development laboratories, 7 percent in chemical and drug firms and 2 percent in all other industries — for a combined total of 8 percent of all new hires. Electronics firms were three times more likely than the average to hire experienced, noncitizen workers. However, while 55 percent of the foreign hires by electronic firms held bachelor's degrees and only 15 percent had Ph.D.s, the trend was reversed in chemical firms; there, 8 percent of noncitizen hires had bachelor's degrees and 75 percent held doctorates.

New policies for war on world hunger

Roughly 730 million people — or some 34 percent of the developing world (excluding China, for which data are unavailable) — lack sufficient food to lead an active working life; nearly half of them are so undernourished that the health of children is imperiled and their growth is in danger of being stunted, according to a World Bank study published March 10.

Since the 1970s, many of the efforts to stem hunger in the developing world "have emphasized food self-sufficiency — often at any cost," says G. Edward Schuh, director of agriculture and rural development at the World Bank in Washington, D.C. But that philosophy hasn't paid off, he says: "Though India's a perfect example of a country that is now considered self-sufficient, it has hundreds of millions of malnourished people."

In fact, the report notes, "the world has ample food"; hunger persists largely because so many people lack the income to pay for food. Development would ultimately bring income, employment and therefore hunger relief — but the time it would take to deliver significant change is too long to benefit most who are now chronically hungry, the report says. However, "at a reasonable cost, you can make a considerable dent in the food problem — before economic development is achieved," says Schlomo Reutlinger, one of the report's authors.

For example, he says, instead of drawing on bumper-crop harvests to store grains for a bad year — itself a costly enterprise — it may be more cost-effective to sell the surplus and instead store the proceeds. Then, in bad years, the money can be used more effectively to feed the poor with food imports or well-targeted food subsidies.

Although these food subsidies can help reduce hunger, many programs have backfired. Schuh points to a program in Brazil, where subsidies — sometimes costing as much as \$1 billion — went for wheat. While the program was aimed at helping the poor, officials soon found out, he says, that "the poor [there] don't consume wheat."