

Heart risk drops in women ex-smokers

The risk of a first heart attack declines rapidly in women smokers who kick the habit, approaching within a few years the risk seen among nonsmokers, new research indicates. This risk reduction, previously observed in men but never before documented in women, should provide new incentive for women to quit smoking, say the researchers and others.

Moreover, the study may fuel the fire of public opinion against tobacco companies that target their advertising at specific audiences such as women — a technique used increasingly by those companies as they attempt to recruit new smokers to replace the growing ranks of those who have quit. Last week, R.J. Reynolds Tobacco Co. canceled its plans to test market a new cigarette aimed at blacks, after consumer groups and others — including Health and Human Services Secretary Louis W. Sullivan — lambasted the company for its planned campaign.

The prevalence of smoking has steadily declined in the United States in the past two decades, but the trend among females is less robust than among males. Between 1964 and 1986, for example, the proportion of cigarette-smoking men declined by almost one-half, to a level of 29 percent of the U.S. male population; the proportion of women smokers dropped by only one-third, to a level of about 24 percent. The difference stems in part from women's lower success rate in quitting smoking, as documented in several studies. Rather than stop smoking, many women switch to "low-yield" brands, despite evidence that these cigarettes carry about the same risk of heart attack as higher-yield brands.

"Women don't seem to realize that if they smoke they greatly increase the risk of heart attack," says Lynn Rosenberg, who performed the latest study with Julie R. Palmer and Samuel Shapiro of the Boston University School of Medicine. "Now they should also recognize that if they give it up, that risk will virtually disappear within three to four years."

With that knowledge, women might be more inclined to quit than to switch brands, the researchers conclude in the Jan. 25 *NEW ENGLAND JOURNAL OF MEDICINE*. Their data, drawn from more than 3,000 women, show that the risk of heart attack three years after a woman quits — no matter how long she smoked or how many cigarettes she smoked per day — is "virtually indistinguishable" from that of a woman who never smoked.

The finding is "very important" and supports the view that smoking-related heart attacks result from more than a simple accumulation of fatty plaques inside coronary blood vessels, says Bernard Gersh, a cardiologist at the Mayo

Clinic in Rochester, Minn. He speculates that cigarette smoke may disrupt these plaques and attract circulating platelets, which can collect at the site and trigger a heart attack. Others suggest smoking can initiate fatal spasms in arteries supplying blood to the heart.

The Women vs. Smoking Network, a consumer group based in Washington, D.C., hails the Boston group's finding as

one more reason for women to resist the barrage of cigarette advertising focusing exclusively on women. By the mid-1990s, the proportion of women smokers will exceed that of men, predicts physician Michele Bloch, who directs the Network. "That's a change of historic significance," she says, but the trend might be averted if women recognize that quitting can reverse their high-risk status. — R. Weiss

Talent search honors student scientists

One young mathematician used a home computer to explore the chaotic world of nonlinear dynamics, while a budding biologist studied antibodies in the blood of AIDS patients as part of the search for a vaccine. These two students are among the 40 finalists in the 49th Annual Science Talent Search, a nationwide competition designed to honor and encourage the next generation of scientists and engineers.

Selected from a field of 1,431 high school seniors who entered the competition, the finalists completed projects in a diverse range of disciplines including mathematics, biology, chemistry, medical engineering, sociology and anthropology.

One student investigated the behavior of a parasitic African wasp, recently introduced into Hawaii to control pineapple-munching beetles. Another explored the field of artificial intelligence by developing a computer program that gradually improves its ability to play a child's game. In a biochemical project, a student investigated how cholesterol initiates atherosclerosis.

Most students worked with researchers at nearby universities, hospitals or other institutions. Some turned personal experience into the focus of their research projects. A debilitating knee injury during a lacrosse game, for instance, led one student to redesign a stationary cycle so that patients with limited mobility can get off to an early start in rehabilitation therapy.

The young researchers, 11 females and 29 males, won a five-day, all-expenses-paid trip to Washington, D.C., beginning March 1, when they will compete for \$140,000 in science scholarships. Through a series of interviews, a board of judges will select 10 top winners to receive four-year scholarships ranging from \$7,500 to \$20,000. The remaining 30 will each receive \$1,000 scholarships. The talent search, administered by Science Service, Inc., of Washington, D.C., is sponsored by Westinghouse Electric Corp.

In the past, many finalists have gone on to distinguished careers in scientific research. Five have won Nobel prizes.

This year's finalists, aged 15 to 18, will display their work to the public on

March 3 and 4 at the National Academy of Sciences in Washington, D.C.

The 40 winners are:

CALIFORNIA: Tae Hoon Kim, Bullard H.S., Fresno; Jennifer Lynn Ryder, Edison H.S., Fresno; David Ruchien Liu, Poly H.S., Riverside; Royce Yung-Tze Peng, Rolling Hills H.S., Rolling Hills.

CONNECTICUT: Justin Yale Bernold, Fairfield H.S., Fairfield.

HAWAII: Ryan Mamoru Iwasaka, Henry Perrine Baldwin H.S., Wailuku.

ILLINOIS: Matthew Peter Headrick, University of Chicago Laboratory Schools H.S., Chicago.

MARYLAND: Sacha Alexis Malin, Frederick H.S., Frederick; Jennifer Alice Newbury, Quince Orchard H.S., Gaithersburg; Maneesh Agrawala, Joshua Bailey Fischman, Montgomery Blair H.S., Silver Spring.

MASSACHUSETTS: Corey Cheng, Framingham North H.S., Framingham.

MONTANA: Renee Lynette Doney, Helena H.S., Helena.

NEW JERSEY: Jared Ian Muroff, Hightstown H.S., Hightstown; Roopak J. Shah, Holmdel H.S., Holmdel.

NEW YORK: Jed Elijah Mowshowitz, Mamaroneck H.S., Mamaroneck; S. Kareem Anderson, Put Cheung, Brooklyn Technical H.S., New York; Tsz Wang Ng, Midwood H.S., New York; Laura Andrea Ascenzi, Angela Wai-Yuah Choy, Yee Cheung Ho, Soojin Ryu, Johannes Sebastian Schlondorff, Bronx H.S. of Science, New York; Esther Chen, James Chien-Hsun Liao, Bianca Denise Santomaso, Alexander Sragovich, Mitchell Wong, Stuyvesant H.S., New York; Jason W. Victor, Martin Van Buren H.S., New York; Peter David Asnis, Elissa Michele Blum, Paul D. Schreiber H.S., Port Washington; David D. Ben-Zvi, Shinpei Kuga, Ward Melville H.S., Setauket.

PENNSYLVANIA: Raymond D. Meng, East Pennsboro Area H.S., Enola; Joseph Howard Karlin, George Washington H.S., Philadelphia.

TEXAS: Sean Eric McGuire, Keystone School, San Antonio.

VIRGINIA: Mina Kim Yu, Thomas Jefferson H.S. for Science and Technology, Alexandria; Andrew Matthew Lines, Yorktown H.S., Arlington.

WASHINGTON: David Michael Shull, Henry Foss H.S., Tacoma.