

Studies smoke out the risk of cataracts

Cigarette smoke may do more than temporarily cloud your vision. Two studies confirm that smoking boosts a person's risk of developing cataracts, an opacity in the lens of the eye. Both studies associate smoking with a particularly serious form of cataract for the first time.

The new data suggest that smoking causes 20 percent of all U.S. cataract cases, asserts Sheila West of Johns Hopkins Hospital in Baltimore. "It appears that the litany of ills associated with smoking is growing, as we add to it cataracts, the world's leading cause of blindness," she writes in an editorial accompanying the two research reports in the Aug. 26 *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*.

The two studies provide the strongest link yet between smoking and cataracts, says epidemiologist William G. Christen of the Harvard Medical School in Boston, who led one of the investigations. He and his colleagues used data culled from the Physicians' Health Study, a trial involving male physicians that began in 1982. The 17,824 men studied by Christen's group showed no sign of cataracts at the outset of the study, he says.

Over the next five years, the team monitored the volunteers, identifying 557 cases of cataracts. Statistical analyses

revealed that men who reported smoking at least a pack (20 cigarettes) per day at the study's start ran a significantly greater risk of cataracts than did men who had never smoked. Smokers faced an estimated 200 percent increased risk of developing a posterior subcapsular cataract — a visually disabling condition that strikes the back of the lens — and an estimated 100 percent increased risk of nuclear sclerosis cataract, a less serious form in which the opacity occurs in the center of the lens. This is the first time scientists have demonstrated an association between smoking and posterior subcapsular cataracts, which are more likely to require surgery, Christen says.

People with cataracts often experience progressive blurring of their vision as the normally clear lens becomes increasingly opaque. Surgical removal of the cloudy lens, followed by implantation of an artificial lens, restores vision in most cases, Christen says.

The cigarette-cataract connection seems to extend to women as well as men. In a separate report, Susan E. Hankinson, also at the Harvard Medical School, and her colleagues describe a study of more than 50,800 women who participated in the Nurses' Health Study, a trial of registered nurses that began in 1976.

After monitoring the women for eight

years, the researchers identified 493 cases of cataracts. Their statistical analyses showed that, compared with non-smokers, women smoking at least 30 cigarettes per day during the study had about a 60 percent greater risk of developing cataracts serious enough to require surgery. The study also linked smoking with posterior subcapsular cataracts.

For ex-smokers, the risk lingers long after quitting. Hankinson's team discovered that women who had once been moderate to heavy smokers continued to face a significantly higher risk of cataracts than nonsmokers.

Researchers have yet to pinpoint the mechanism by which smoking encourages cataract formation. However, Hankinson notes that many smokers have low blood levels of antioxidants, substances that protect cells from the damaging effects of molecules known as free radicals. Compared with nonsmokers, smokers may thus sustain greater free-radical damage to the lens. — *K. A. Fackelmann*

Which drug works best?

Although the drug zidovudine is an effective mainstay against HIV, the virus that causes AIDS, scientists know that its efficacy declines over time, perhaps because HIV-infected cells develop resistance to this drug. A new study suggests that HIV-infected people who have taken zidovudine for at least four months are better off switching to another antiviral agent called didanosine, or DDI.

Last October, the U.S. Food and Drug Administration approved didanosine for people with advanced HIV infection who had failed zidovudine therapy, in some cases because they developed severe side effects after taking zidovudine. However, the new study suggests HIV-infected people shouldn't wait for such ill effects before considering didanosine therapy.

James O. Kahn of San Francisco General Hospital and his colleagues report their findings in the Aug. 27 *NEW ENGLAND JOURNAL OF MEDICINE*.

The researchers studied 913 people with AIDS, a milder ailment called AIDS-related complex, or an asymptomatic HIV infection. All participants had been taking zidovudine for at least 16 weeks and had not experienced severe side effects. At the study's start, the researchers randomly assigned each patient to a group that stayed on zidovudine or to one of two groups receiving either 500 or 750 milligrams of didanosine per day.

After monitoring the volunteers for an average of 14 months, Kahn and his co-workers discovered that those receiving the lower dose of didanosine fared much better than those in the other groups. The low-dose didanosine group had fewer bouts with opportunistic infections and were less likely to die during the study period, the team reports. □

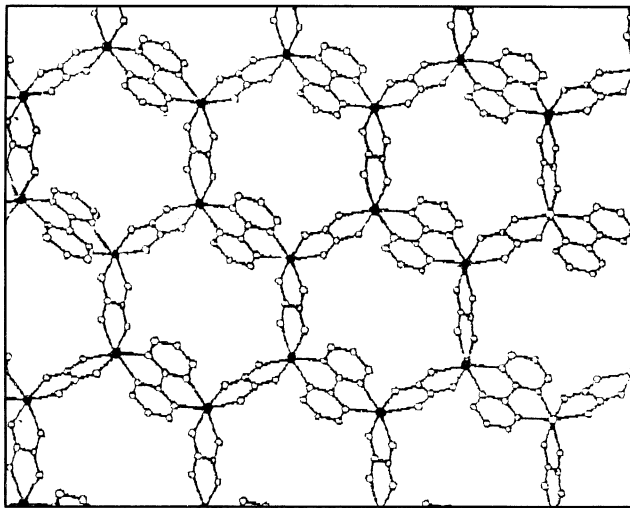
Magnetic coppers playing in the round

A study of magnetic forces between copper atoms yielded this unusual — dare one say, unique — compound whose molecules arrange like chicken wire.

Miguel Julve of the University of Valencia in Burjasot, Spain, dissolved copper with oxalate and pyrimidine molecules in water, expecting them to link up with the copper. The molecules spaced the metal ions close enough for one copper's electrons to

"feel" a magnetic influence of a nearby copper's electrons, but not so close that the electrons could jump between the metal atoms. Surprisingly, blue-green grains precipitated, Julve's team reported this week at an American Chemical Society meeting in Washington, D.C.

Using X-ray diffraction, Julve's colleague Ekkehard Sinn of the University of Hull in Kingston-upon-Hull, England, found that these crystals consisted of



infinitely long sheets of linked hexagonal rings. "There's no structure like that that we've heard of except graphite-like things," Sinn says. The copper atoms (black) lie at each corner of each hexagon. Oxalate molecules bridge copper in two directions. A double pyrimidine forms a third link and its orientation may help space parallel copper planes, Sinn explains. "I think this is a new magnetic material," he adds.

Sinn/Univ. of Hull