

Out of the frying pan...

Protecting yourself against the Sun may expose you to a hidden risk

GENDER-BENDING chemicals that mimic the effect of oestrogen are common in sunscreens, warns a team of Swiss researchers who have found that they trigger developmental abnormalities in rats. "We need to do more tests to see how they might be affecting people," says Margaret Schlumpf from the Institute of Pharmacology and Toxicology at the University of Zurich, Switzerland.

Researchers know that chemicals which behave like oestrogen can cause health problems. They can have a dramatic effect on animals, for example turning fish into hermaphrodites. Some researchers claim that hormonally active chemicals from the urine of women taking the birth control pill are already swamping the environment, and may be causing a decline in sperm counts.

Schlumpf and her colleagues tested six common UV screening chemicals used in sunscreens, lipsticks and other cosmetics. All five UVB screens—benzophenone-3, homosalate, 4-methyl-benzylidene camphor (4-MBC), octyl-methoxycinnamate and octyldimethyl-PABA—behaved like oestrogen in lab tests, making cancer cells grow more rapidly. Three caused developmental effects in animals. Only one chemical—a UVA protector called butyl-methoxydibenzoylmethane (B-MDM)—showed no activity.

One of the most common sunscreen chemicals, 4-MBC, had a particularly strong effect. When the team mixed it with olive oil and applied it to rat skin, it doubled the rate of uterine growth well before puberty. "That was scary, because we used concentrations that are in the range allowed in sunscreens," Schlumpf says.

Nobody knows if doses are high enough to create problems for people, says Schlumpf. "Evidence that they're a real health concern is still lacking," says Richard Sharpe from the Medical Research Council's Reproductive Biology Unit in Edinburgh. But he adds, "It's not good news that we are lathering ourselves with creams with hormonal activity."

The Cosmetic Toiletry & Perfumery Association, which represents sunscreen manufacturers in Britain, replies that the levels found by Schlumpf are well below anything that would cause an effect after a single application. A study by the association, not yet published, shows no effect from these chemicals in rats. But, it adds, "If levels are increasing [in the environment] then we're aware something would have to be done soon."

That day may be here since 4-MBC and other sunscreen chemicals have been shown to accumulate in fish from lakes where people swim. More worryingly, they have been found in breast milk at levels of nanograms per kilogram of fat—about the same as other known environmental contaminants. Schlumpf worries that the large amount of sunscreen used by bathers, especially children, could dramatically increase this exposure.

Schlumpf says the other 25 or so chemicals used in sunscreens should also be tested for hormonal activity, and she will be looking more closely at 4-MBC to see if the offspring of exposed rats develop health problems. For the moment, she isn't advising people to ditch sunscreens completely, but suggests that sunblocks like zinc oxide might make a healthier alternative.

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More at: *Environmental Health Perspectives* (vol 109, p 239)

