Retinoids versus chemical carcinogens

During the past decade, retinoids (nontoxic cousins of vitamin A) have emerged as promising cancer preventives. They have been found, in animals, to prevent various types of cancers caused by chemicals, viruses or radiation, and a trial is now underway to see whether retinoids can prevent cervical cancer in women. Yet at an American Cancer Society cancer prevention meeting this spring, Michael B. Sporn, a retinoid-cancer researcher at the National Cancer Institute, warned scientists and the public against expecting too much from the retinoids as cancer preventives. And now, in the June 19 NATURE, Michael S. Dickens and Sam Sorof of the Institute for Cancer Research, Fox Chase Cancer Center in Philadelphia report that retinoids' ability to prevent chemically induced cancer appears to have certain limitations.

Chemical carcinogens cause cancer by a multi-stepped process: First a chemical has to enter a victim's body and become altered so that it can bind to electron-rich molecules in cells. Then, with the help of a promoter chemical, it turns cells into cancer cells (SN: 6/23/79, p. 41). Now Dickens and Sorof have found that retinoids' ability to prevent chemically induced cancer seems to be very much caught up in this multi-stepped process and also limited by it.

The researchers tested the ability of one retinoid, retinylidene dimedone, to prevent cancer in mouse mammary glands in tissue culture that was triggered by low or high concentrations of procarcinogens (chemical carcinogens not yet altered so they can bind to electron-rich molecules in cells) or that was triggered by low concentrations of carcinogens (chemical carcinogens already so activated). They found that whereas the retinoid could prevent cancer caused by low amounts of the procarcinogens, it could not prevent cancer caused by large amounts of them, and that the retinoid could not prevent cancer caused by low amounts of the carcinogens, with the exception of one, a nitrosamide. □

Laetrile clinical trial?

Although the National Cancer Institute announced in 1978 that it would be conducting a clinical trial to determine whether the controversial drug Laetrile is effective, such a trial has still not gotten underway. However, six cancer patients at the Mayo Clinic did receive Laetrile during April and May to see whether Laetrile is safe when taken along with a special diet that is to be used in the NCI Laetrile trial. No adverse effects were found, a Mayo spokesman announced last week. □

The joy of running in regular cycles

People dream up plenty of reasons for not exercising. But recent findings by a New York City fertility specialist indicate that women who rationalize that exercise will stop their menstrual cycle or increase male hormone production to masculinizing levels will have to find a new excuse. In fact, the study shows that exercise may help women regain their regular cycles.

At the International Congress on Women and Sport held in Rome this week, obstetrician/gynecologist Mona Shangold presented results from her study of the menstrual cycles of women marathon runners. She reports that more women went from being irregular to regular than from being regular to irregular when they began training.

Too often a woman who exercises will visit a gynecologist to complain of irregular menses and be told to stop exercising, says Shangold. But irregularities, she maintains, should not be presumed to be exercise-related until all other factors, including stress, are ruled out: "Women athletes deserve the same full medical evaluations as non-athletes."

In her study of 394 women who ran the 1979 New York marathon, 93 percent of the women with regular cycles maintained their regular cycles after they took up running. Of the women whose menses were irregular before they began running, 26 percent regained their normal cycles. Seventeen percent of the amenorrheic women reported that they had begun menstruating when they started exercising.

Looking at the women's histories prior to running, Shangold found that more of them had menstrual irregularities than did women in the general population. "It's interesting that the incidence of irregularity in these women both before and during training is higher than in a random study," says Shangold. "It may be the type of person attracted to running has a certain amount of drive or other stress-related factors which may be leading to irregularity," she suggests.

Shangold has also looked at the presence of the male hormone testosterone in female athletes, since excess testosterone can cause menstrual irregularity. In a study presented at the Endocrine Society meeting last month, Shangold reported on testosterone changes in 30 female nonprofessional athletes before and after a half-hour of exercise. While testosterone levels did rise, they remained well within normal levels for women. Studies that have shown a significant rise have failed to consider stress-related factors or the normal daily variations of testosterone levels, says Shangold. □

Psychiatrists to ERA: Never mind

It may not have been unusual to San Franciscans, but the sight — and sound — of the rather odd alliance of equal rights amendment supporters teamed with former mental patients seemed to throw 11,000 visiting psychiatrists somewhat off balance. That was early in May, when the vocal demonstration apparently influenced those attending the American Psychiatric Association's annual meeting sufficiently for them to move its 1981 meeting from originally scheduled New Orleans to an ERA-ratifying state. At least that's what the APA board of trustees voted as ERA supporters marched outside the convention center.

But then came June, and a change of mind: The trustees, meeting in Washington, decided to rescind the May vote and hold the 1981 meeting in New Orleans. An APA news release cited "legal opinion presented by counsel" as a major reason for reversing the board's decision. In two previous referenda (prior to the San Francisco meeting), members had voted to go to New Orleans. Stating that the association is "extremely sympathetic" to ERA supporters, APA president Donald Langsley added in a prepared statement that "we are also mindful ... [of] adhering to the democratic vote of our members. Neither the actions by the board nor the referendum vote of the membership should be interpreted as a reversal of American psychiatry's long-standing and ardent support of the equal rights amendment."

Not all psychiatrists appeared to agree with Langsley, however. A group of "psychiatrists for ERA," along with feminist Gloria Steinem, scheduled a news conference to protest the latest trustee vote. Langsley said in an interview that he did not expect the reversal to trigger a significant drop from expected attendance at the 1981 meeting. However, he revealed that in an effort to accommodate dissenting members, APA is considering adding "additional meetings" in ERA-ratified states for those psychiatrists who refuse to attend the New Orleans meeting. □

Toxic shock linked to use of tampons

The possibility of a tampon connection in the mysterious toxic-shock syndrome recently was reported by investigators for the Center for Disease Control in Atlanta, Ga.

Toxic-shock syndrome — which most often strikes women under 30 — is a sometimes fatal disease characterized by high fever, vomiting and diarrhea and, ultimately, severe prolonged shock and

hypotension (low blood pressure). First described in 1978, the disease received national attention in May when CDC officials suspected an increased incidence of the syndrome (SN: 5/31/80 p. 343). At that time, epidemiologists theorized that toxin produced by the bacteria *Staphylococcus aureus* causes the disease.

While evidence continued to mount in support of that theory, investigators uncovered an association between the syndrome and tampon use. Results of one study comparing toxic-shock patients with healthy women of similar age indicated nearly 100 percent of the syndrome victims and only 86 percent of the healthy women had used tampons, a statistically significant difference.

While the precise reason for the tampon connection is unknown, various explanations have been proposed. "The most likely [explanation]," says CDC epidemiologist Kathryn Shands, "is the tampon somehow acts as a culture medium to promote growth of the bacteria or to promote release of the toxin or to promote absorption of the toxin from the vagina into the bloodstream." □

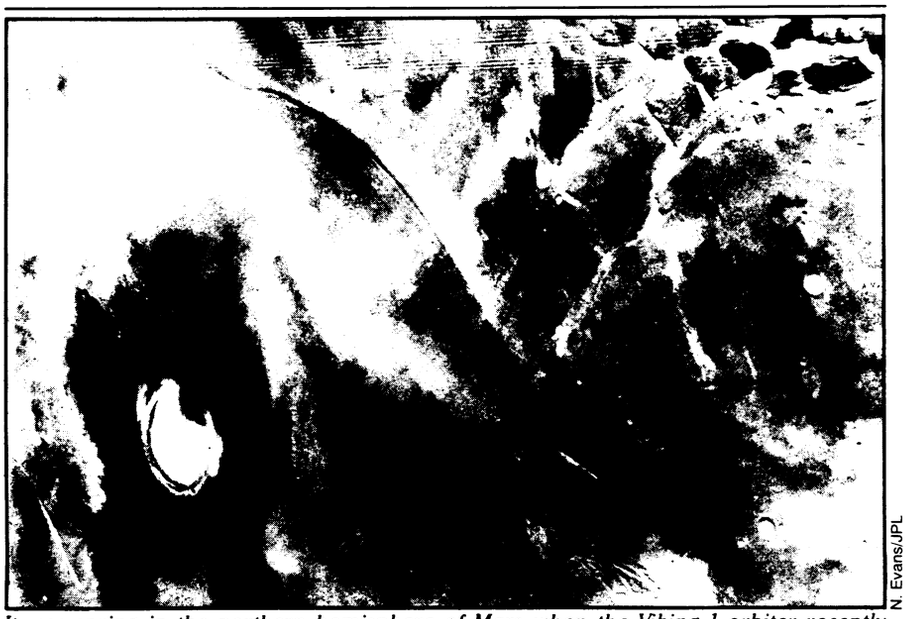
THC-cancer update

Although a Food and Drug Administration advisory panel recently voted to recommend wider use of the marijuana derivative THC to treat nausea and vomiting in cancer chemotherapy patients, the THC issue is far from resolved. In fact, the advisory panel chairman was forced to cast a tie-breaking vote in the decision.

Moreover, an absent — and, therefore, non-voting — member of the panel, Charles G. Moertel, wrote a letter expressing concern that "weight of the current political hysteria for general release of THC" may "exceed the scientific evidence justifying release." Moertel, director of clinical cancer research at the Mayo Clinic in Rochester, Minn., says release of THC for wider use among cancer patients is premature, partially because favorable THC studies have involved only young patients. "The guidelines simply warn against treating the elderly patient. How old does a patient have to be to be considered 'elderly' and what data do we have to support any specific age limit we might choose," Moertel wrote.

Alice O'Leary of the National Organization for the Reform of Marijuana Laws also is concerned that only a small portion of the cancer patient population will benefit from wider use of THC: Some cancer patients will have trouble retaining the pill; others will suffer "serious psychic anxiety." O'Leary says that even though natural marijuana is as effective an antiemetic as THC, use of it results in less psychic anxiety. "There are a number of cannabinoids in marijuana interacting to give the best therapeutic action," she explains. □

Rare Martian weather wave — with a kink



N. Evans/JPL

It was spring in the northern hemisphere of Mars when the Viking 1 orbiter recently photographed the unusual weather feature shown above, curving around to the north of the great volcano Arsia Mons atop the Tharsis bulge. The oddly sharp, dark line has been seen only over this part of Mars, and only in spring—and never before with the sharp kink leading to the straight portion at right. According to Philip James of the University of Missouri, the feature could be a wave propagating along a sensity stratification in the atmosphere (such as might form in the early morning above the cold, near-surface "air"), possibly driven by atmospheric thermal tides or by movement down the volcano's slopes. As for the straight portion, says James, "it's a mystery," perhaps related to the influence of some topographic feature located at the kink.

Iodide: Yes or no after nuclear accident?

Participants in a recent debate on the use of potassium iodide pills as protection from radioactive iodine gas, a fission byproduct that can be released in a nuclear plant mishap, agreed on certain things: Radioactive iodine can cause thyroid cancer, potassium iodide (KI) is an effective prophylactic and radioactive iodine's eight day half-life dictates that any preventive measures must be initiated immediately. They disagreed on just about everything else.

Humans can incorporate inhaled or ingested radioactive iodine into their metabolism-controlling thyroid glands, but it will be excreted if the thyroid is in no need of iodine. Potassium iodide, therefore, can be used as a sort of ingestible bomb shelter to prevent the absorption of radioactive iodine. But therein lies the catch — who needs KI, and how and when should they get it?

At the debate at the annual Endocrine Society meeting in Washington Nobelist Rosalyn Yalow spoke against the idea of distributing KI. Her chief concerns were the problems of side effects and distribution.

Yalow cited studies noting severe reactions to KI in people with systemic diseases, the development of potentially dangerous hyperthyroidism in older patients with heart conditions and frequent skin eruptions.

As for the potential danger of radioactive iodine in the event of a meltdown, she said, "The short and long term consequences are far less than the possible injury from the mass panic arising from the effort to get the blocking agent."

Jan Wolff, an endocrinologist at the National Institutes of Health, favors having KI on hand. "What will hurt gets in immediately," he said. "We must be prepared to act if we want to act."

Wolff cited government studies on nuclear energy that, he said, "concluded that barring the need for evacuation, the best available method for blocking the thyroid gland is KI." Invoking some of the same studies as Yalow, Wolff said many of the reports neglected to mention the dosage of KI, and noted that reactions were for the most part quite mild. "For the one million people who take KI," he said, "there has been extensive exposure and rather few reactions."

Rather than distributing KI, Yalow suggested investigating alternate methods to prevent iodine uptake. She suggests, for instance, that people could remain indoors and breathe through handkerchiefs soaked in baking soda. Wolff maintains that this technique will not work. □