

## EPA bans six new chemicals

Last week, for the first time, the Environmental Protection Agency banned the manufacturing of several new chemicals slated for market introduction on the grounds that they may pose serious risks to human health and the environment. The six phthalate esters in question are plasticizers, used to make polyvinyl-chloride plastics more flexible.

What makes this order particularly interesting and important is that "evidence" used to call suspicion to the plasticizers was not based on toxicological tests of those chemicals. In fact, the manufacturer (which EPA is prohibited by law from identifying by name) offered no test data on health or environmental effects associated with the chemicals when it notified the agency that it was planning to introduce them. That such data have never been required of manufacturers for the introduction of new chemicals has proved a stumbling block for regulators when later they try to regulate those chemicals based on health risks eventually associated with them.

But citing a provision of the Toxic Substances Control Act, EPA can now shift the burden of proof—from EPA having to show which chemicals are toxic to the manufacturer's having to prove that its chemical is not toxic—"when there is reason to believe a chemical may prove toxic," according to Ernest Rosenberg of EPA's

premanufacture-notification office. As the manufacturer offered no data, EPA culled its files to make some kind of determination.

What it found was that the proposed chemicals were structurally similar to the chemical DEPH [di-(2-ethylhexyl) phthalate], some 400 million to 600 million pounds of which is produced annually. DEPH has shown a potential to cause chronic health effects in aquatic animals. But more seriously, a yet-unpublished report has linked DEPH exposure with cancer in rats and mice. "And our best judgment," says Rosenberg, "was that because of a variety of factors, [these six new chemicals] are likely to be at least as bad as DEPH in terms of a biological effect and possibly worse."

According to EPA's Carl Mazza, this order represents one of the first times the agency has used "structure activity arguments," wherein the similarity in structure between two chemicals is used to indict, or to raise suspicions, about a new chemical based on health-effects concerns associated with an existing chemical. Even DEPH has not been proved dangerous, though that is suspected. What the new EPA order does say is that unless and until data refute suspicions raised by the phthalate esters' similarity to DEPH, EPA will not permit their introduction.

To remove existing chemicals, like DEPH, from the market—should toxicity worries prove valid—takes much stronger evidence. That's an inconsistency under the law, Rosenberg says, but one Congress chose for us to live with. □

## Weight and mortality: Skinny isn't best

In spite of modern society's emulation of Twiggy models and the adjuration that "thin is in," skinny persons have a higher mortality rate than do more robust persons, findings reported in the May 9 *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* suggest. These results are all the more surprising because they do not jibe with the results of an earlier, long-accepted investigation.

In 1959 researchers analyzed the heights, weights and mortality data for thousands of Americans who had been insured by various life insurance companies between 1935 and 1953. They found that in general the heavier the subjects were for their stature the greater their mortality rate. These findings, part of the Build and Blood Pressure Study, provided the basis for tables of desirable weights that hang in doctors' offices and to which the public is encouraged to adhere.

Now Paul Sorlie and Tavia Gordon of the National Heart, Lung and Blood Institute and William B. Kannel of Boston University Medical Center have analyzed the heights, weights and deaths of 5,209 men and women who participated in the Framingham, Mass., heart study from 1948 to 1972. The researchers used the same definitions of body build and follow-up periods for mortality as did the BBPS. As they report, their findings only partially confirm those of the earlier study. The new results show minimum mortality for persons of average weight, increased mortality for those weighing less or more than the average.

The crucial question, of course, is why this study found a higher mortality rate for lean persons than did the BBPS. Cigarette smoking was ruled out as a confounding factor in the Framingham study—the mortality curve was similar for current smokers and nonsmokers and, in fact, among nonsmoking men, the leanest group was shown to have the highest mortality rate. Overt disease (not a significant factor in the BBPS due to the medical screening involved in insurance underwriting) was also eliminated as a contributing factor. The researchers tentatively suggest that

## Jog those blood clots away

Exercise reduces the risk of heart attack, according to a variety of epidemiological studies. But the mechanisms linking jogging, swimming and calisthenics with good health are still under investigation, and the relationship between exercise and health is often called "circumstantial." One concrete, biochemical finding has been that exercise reduces some types of cholesterol in the blood, while increasing levels of another, the protective high-density lipoprotein (SN:12/9/78, p. 408). Now Duke University investigators report a separate healthful development among persons on a vigorous activity program. Exercise increases the ability of the blood to respond to vein blockage via a boost in the factor that dissolves clots. Such a defense against blood clots may protect against strokes and pulmonary embolism, as well as against heart attacks.

In the May 1 *NEW ENGLAND JOURNAL OF MEDICINE* cardiologist R. Sanders Williams and colleagues report on 69 healthy adults between 25 and 69 years of age who participated in a 10-week physical conditioning program. Williams and co-workers used a new assay to measure the blood clot dis-

solving, or fibrinolytic, activity of the subjects' blood.

To stimulate the biochemical response to a medical crisis—blockage of a vein by a blood clot—the investigators inflated a blood pressure cuff around each subject's arm. After 5 minutes, blood drawn from the arm had an increased level of fibrinolytic activity. The researchers found that after the exercise program the background level of fibrinolytic activity had decreased and the increment in activity between the background and stimulated state was significantly increased.

The greatest boost in fibrinolytic activity in the simulated blood clot situation was among those who were least fit before the exercise program. In general women had a greater increase during the program than did men, and those with the lowest stimulated activity levels initially increased more than those who had higher levels at the start.

Smoking habits and levels of other blood proteins do not explain the results, the researchers say. They observed the expected increase in high-density lipoprotein, but the boost in fibrinolytic activity appears to be a separate effect. □

	Build Group by Weight, lb				
	1	2	3	4	5
<b>Man's height</b>					
58"-62"	<115	115-134	135-154	155-174	175-254
63"-66"	<115	115-154	155-174	175-194	195-254
67"-70"	<135	135-174	175-194	195-214	215-254
71"-74"	<155	155-194	195-214	215-234	235-254
75"-79"	<175	175-214	215-234	235-254	—
<b>Woman's height</b>					
52"-58"	< 95	95-114	115-134	135-154	155-254
59"-62"	<105	105-134	135-154	155-174	175-254
63"-66"	<115	115-154	155-174	175-194	195-254
67"-70"	<135	135-174	175-194	195-214	215-254
71"-75"	<155	155-194	195-214	215-234	235-254

Body builds: Group 3 lives longest.