

## Hypertension and weight control

Numerous studies have reinforced the link between obesity and hypertension, and weight loss has been associated repeatedly with a decrease in blood pressure. But reduced salt intake and drug therapy, not weight loss, are often called for in the treatment of hypertension. Classic studies by Lewis K. Dahl at Brookhaven National Laboratories (SN: 4/13/74, p. 239) established salt consumption as a causal factor in hypertension and suggested that a blood pressure drop with weight loss was due entirely to a concurrent decrease in salt intake. A report of the Joint National Committee on Detection, Evaluation and Treatment of High Blood Pressure in January 1977 suggested weight control as treatment only incidentally and only for borderline hypertension.

This suggestion may now have to be reevaluated. The conclusions of Efrain Reisin and co-workers at Tel Aviv University Medical School appear to promote weight loss without salt restriction as a major tool for decreasing blood pressure. Unlike previous studies, the Tel Aviv study, reported in the Jan. 5 *NEW ENGLAND JOURNAL OF MEDICINE*, separated the effects of weight loss and salt restriction. Two groups of patients, 57 receiving and 24 not receiving antihypertensive drug therapy, were placed on a two-month diet and encouraged to eat salty food. With a mean loss of 10.5 kg and a final sodium intake slightly higher than a control group, 61 percent of the drug group and 75 percent of the nondrug group returned to and maintained normal blood pressures during a two-month follow-up period. Of the control group which received drug therapy but no diet restrictions, none returned to normal, 65 percent remained the same and 27 percent got worse. Although the researchers acknowledge the problem of maintaining a lower weight, they say weight control may eliminate drug therapy for many patients.

"Weight control seems to offer an efficient low-cost means of blood pressure control that is free of side effects and often makes it possible to avoid, or to institute a lower dose of medication," Reisin and colleagues state.

Dahl's supporters disagree. Junichi Iwai at Brookhaven told *SCIENCE NEWS* that salt restriction is by far the most powerful tool in hypertension treatment. "Salt restriction alone would affect 25 to 30 percent of the hypertensive population; weight reduction alone would affect about five percent," he said.

However, a comparison of persons living in the Chilean Andes and in Minnesota also supports an obesity-hypertension link. William Weidman of Mayo Medical School reports no increase in blood pressure, or in body weight, among adult Chi-

leans. He suggests small gains in weight, rather than aging, may contribute to the increasing blood pressure of Americans throughout life.

In an editorial accompanying Reisin's report, Louis Tobian of the University of Minnesota says such results indicate weight control may have been overlooked in the "zeal to treat hypertensive patients with pressure-lowering drugs." He cautiously suggests it may be possible for some patients to do without drugs, but recommends weight control as only part of a total regimen. □

## Quiescent breast collects nicotine

Breast milk is laced with the extraneous chemicals to which a mother is exposed. But the breast's encounters with these chemicals are not restricted to its milk-producing periods. During most of adult life, the breast glands of women secrete and reabsorb small amounts of fluid. Researchers at the University of California in San Francisco have demonstrated for the first time a foreign substance—nicotine—in fluid collected from nonlactating women. Nicholas L. Petrakis and co-workers postulate that most substances that gain access to the blood will be concentrated in the "resting" breast.

Many environmental chemicals, if collected in the breasts, are likely to pose a cancer threat. Neal Castagnoli, a co-author of the report in the Jan. 20 *SCIENCE*, says that so far there is no epidemiological evidence linking smoking and breast cancer. However, because large numbers of women have been smoking for only a short time, he believes such a connection may be detected in the next 10 to 20 years.

"Nicotine and cotinine [a nicotine metabolite] were researched because there were nice populations," says Castagnoli. Groups of exposed women (smokers) and controls (nonsmokers) were readily available. "Nicotine can be a model for other xenobiotics — for a broad spectrum of foreign substances," Castagnoli explains. In other experiments, Petrakis and colleagues observed barbiturates and foreign fatty acids secreted into breast fluids.

A combination of delicate techniques allows the measurement of trace amounts of chemicals in the few drops of fluid that could be pumped from each woman. With gas chromatography, mass spectroscopy and selected ion recording techniques Petrakis and co-workers can quantify as little as 25 picograms of nicotine. No nicotine was detected in the breast fluid of two nonsmokers. However, among the four smokers, the level in the breast fluid was even greater than that in the blood plasma. In addition to nicotine, the breast fluid of the smokers contained cotinine at the same concentration as in blood plasma. □

## Making alcohol hard to swallow

The battle against alcoholism has had, at best, mixed results. A recent study that compared alcoholics who received intensive therapy with those who underwent only a single session of counseling showed essentially no difference (a 30 percent success rate) in recovery between the two groups (SN: 6/18/77, p. 392). The total abstinence approach of Alcoholics Anonymous and other groups has been successful, but only with persons motivated enough to seek out and adhere to such strict philosophies.

One anti-alcoholic drug treatment, disulfiram (Antabuse), produces a violent reaction to alcohol, and can carry other side effects as well. Other drugs, such as emetine and apomorphine, are difficult to control. And tranquilizers — previously thought to help some alcoholics withdraw from addiction — have been shown in animal tests to actually sustain alcoholic craving (SN: 10/29/77, p. 277).

Now, researchers report that an aversive conditioning technique, using no drugs, appears moderately successful in keeping former alcoholics away from the bottle. The technique involves the use of a chair — similar to those employed in aerospace training — that rotates about an inclined axis. Alcoholics who have had no alcohol for at least 48 hours are given a taste of alcohol and then placed blindfolded in the chair.

In the *JANUARY AMERICAN JOURNAL OF PSYCHIATRY*, psychiatrist Clive S. Mellor and medical student Hubert P. White of Memorial University in St. John's, Newfoundland report on their tests of 10 hospitalized alcoholics. Twice a day, for six consecutive days, the subjects went through the same process, sitting in the rotating chair (for anywhere from 5 to 20 minutes) until motion sickness was severe, just short of causing vomiting. The motion sickness disappeared in all cases, without side effect, within 10 minutes after the chair was stopped.

In a six-month follow-up of those tested, the researchers report that all but two either did not return to drinking or experienced nausea or vomiting when they did drink. Although the majority remained abstinent, two managed to overcome the sickness after drinking several times. Such relapses, say Mellor and White, might be prevented by longer initial training or by follow-up "booster" sessions.

The treatment is both easily controlled and free from side effects, they note, and "the results are sufficient to encourage a search for further improvements in the methodology. There are other behaviors, such as specific eating disorders and smoking, that may lend themselves to conditioned taste aversion therapy," the researchers suggest. □