

## Rate of teenage drinking rises

Most teenagers in the United States drink alcoholic beverages and one-third of them are "problem drinkers," according to a follow-up survey of research conducted in 1974. The report was issued by the Research Triangle Institute in Research Triangle Park, N.C., and was conducted for the National Institute of Alcohol Use and Alcoholism and the National Institute on Drug Abuse. The study looked at 5,000 students in the 10th through the 12th grades. The investigators called an adolescent a "problem drinker" if he or she was drunk at least six times in a year or had negative experiences with friends, family, school, the police or while driving that were related to drinking. Other findings: Three out of 10 high school students are moderate to heavy drinkers, drinking among girls is increasing and the easy availability of alcohol is related to heavier drinking.

## A boost for creationism in schools

What was only approached in California will soon be law in Arkansas. Even though educational policies were not found in violation of creationists' religious liberties, the widely publicized trial on the West Coast resulted in school officials being directed not to teach evolution as "dogmatism" (SN: 3/14/81, p. 165). Going a step further, the Arkansas House of Representatives passed a bill on March 17 that would require public schools to teach—along with evolution—the theory that a supreme being created man. Specific textbooks or class lectures to give "balanced treatment" to both views would not be called for. The measure, which already had been passed by the state senate, was signed by Governor Frank White two days later. It will take effect in the fall of 1982 and will apply to all public elementary and secondary schools.

## Piecing together problem solving

Do cognitive skills suffer irreversible setbacks as people grow older? Research is inconclusive, but there are suggestions that aging is associated with declines in information-processing ability as well as with the development of strategies that compensate for the loss. Neil Charness of the University of Waterloo in Ontario, Canada, proposes that the study of these factors be pursued by examining the performance of different age groups on the same problem-solving tasks. While some methods of processing information and learning, such as mnemonic devices, are under individual control, others, such as speed of processing and short-term memory capacity, are not as flexible. Charness says the effects of these different mechanisms can be ferreted out best by using his problem-solving approach. He studied 34 chess players ranging in age from 16 to 64 years of age and reports in the March *JOURNAL OF EXPERIMENTAL PSYCHOLOGY: GENERAL* that despite age-related declines in the processing and retrieval of information, older chess players match the problem-solving performance of equally skilled younger players. Players were shown chess boards with prearranged pieces and asked to choose the best move for the white side. Skill but not age predicted the accuracy of their choices. Skill was also a significant predictor of the ability to quickly evaluate the positions of one's chess pieces. But older players had a poorer recall for the positions pieces had been placed in previously. Charness says these results indicate that older players overcome their memory deficiencies to match the performance of younger competitors by more efficiently searching the given problem for the best solution. Whether the findings can be applied to other skills and a clarification of the ways in which chess moves are evaluated by older and younger players await future investigations.

## Building stronger bones for old age

More than 600,000 fractures annually in the United States can be attributed to osteoporosis. As people age, bone is gradually lost until it becomes so light that fractures occur from little or no trauma. By the time they are 90, 32 percent of women and 17 percent of men have had hip fractures, and an estimated 50 percent of Caucasian women have had spine fractures.

Several therapies to decrease bone loss are under investigation, but only one actually increases bone mass. B. Lawrence Riggs of the Mayo Clinic in Rochester, Minn., told an Endocrine Society seminar in New York that combination therapy with sodium fluoride and calcium stimulates bone formation in about half the treated patients. Because the new bone is not chemically identical to natural bone, the investigators were not certain that it would protect against fractures. But now a study of 28 patients suggests that the treatment can be beneficial. Riggs reports that when evaluated with new methods to measure bone, twelve of the patients showed increased bone density after sodium fluoride treatment. Those patients experienced less than 20 percent the incidence of fractures of patients whose bone density did not increase (and whose fracture incidence—more than one fracture every two years—was similar to that of an untreated population of osteoporosis patients). Most of the fractures in the group responsive to sodium fluoride occurred during the first year of treatment. To confirm these promising results, a larger study is currently underway. "We still need to know why one group responds and the other doesn't," Riggs says. He and his colleagues originally began studying sodium fluoride treatment because people in areas of the world with high natural levels of fluoride in the water have denser than average bones. Riggs points out, however, the amount of fluoride added to water supplies to prevent dental caries is not sufficient to avoid bone loss.

Given the extent of osteoporosis, Riggs believes the only cost-effective approach is prevention. Bone density measurements can help identify persons at risk before fractures occur. Several methods of preventative intervention are available. Estrogen has been used in postmenopausal women, but it has been shown to increase risk of endometrial cancer. Calcium supplements, sometimes with vitamin D to promote calcium absorption, also are commonly prescribed. New therapies under investigation include the physiologically active form of vitamin D (SN: 3/24/79, p. 181) and an inhibitor of bone breakdown (the diphosphonate  $\text{Cl}_2\text{MDP}$ ).

Recent research also has shown that dietary calcium intake should be increased, although there is no consensus on what the recommended daily input should be. Riggs says that recent metabolic balance studies indicate that to prevent bone loss 1 gram of calcium is required daily by premenopausal and 1.5 grams by postmenopausal women. (Three glasses of milk or servings of dairy products provide approximately 1 gram.)

## National study of surgery for myopia

Nearsighted patients are being recruited to undergo a controversial surgical procedure. Radial keratotomy is a surgical procedure intended to correct nearsightedness. In an outpatient operation that takes about 30 minutes under local anesthesia the surgeon makes a series of cuts that seem to flatten the cornea and improve the focus of the image in the eye (SN: 11/29/80, p. 346). Investigators hope to learn whether the surgery can reduce need for corrective lenses, whether the improvement is permanent, how to adjust the surgery for different degrees of myopia and what the risks of the operation are. The study is being conducted by the National Eye Institute at eight university-affiliated eye care centers across the country.