

Alcohol: The starvation diet

Aside from liver damage, alcoholism — even over a relatively short period — can trigger at least one other potentially life-threatening consequence: starvation. No matter how much he or she eats, the heavy drinker is likely to develop nutrient deficiencies, says Hagop S. Mekhjian, professor of medicine at Ohio State University.

Mekhjian, investigating intestinal effects of drinking in human volunteers, reports that six or seven drinks a day for a period as short as two weeks can throw the digestive system into reverse. Instead of absorbing vitamins and minerals from food (the volunteers were fed a balanced, nutritious diet), the small intestine secretes fluids, flushing the food from the body before it's used.

These intestinal complications of alcohol consumption do not appear to develop prior to about two weeks, he says. But after that, "the intestine will go into a secretory state where it will pour out fluids, resulting in a loss of minerals and vitamins," Mekhjian says. And the alcoholic who does not eat an adequate diet compounds these effects, he adds.

Such alcohol-induced changes in the intestine can be partially corrected by supplementary doses of folic acid, and "all of these abnormalities are reversible when a person stops drinking," Mekhjian says. "The public thinks sclerosis of the liver is the main danger [of] drinking. But approximately 16 percent of the people who drink get it. A much, much larger proportion develop the nutritional or intestinal effects of alcohol."

Hoisting many too many

Psychiatric problems and alcoholism have reached record proportions in Ireland, reports an Irish psychiatrist. According to Dermot Walsh, psychiatric hospital admissions there jumped by 249 percent between 1966 and 1976, and alcohol consumption is almost twice as high as in the second-place country, The Netherlands.

Baby vision is highly developed

An infant's baby blues, browns, greens or hazels are capable of seeing and discerning colors by two or three months of age, according to a University of Minnesota researcher in child development. In addition, a three-month-old can also recognize geometric-patterned images, as opposed to plain surfaces, reports Philip Salapatek.

These findings, says the researcher, help dispel previous views that a baby's visual world is essentially a confusing blur. Salapatek's results come from a series of experiments using a method he says may be as exciting as the findings themselves.

Placed in a research room on the laps of their parents, each baby was fitted with a denim headband. Salapatek was not interested, however, in casting an infantile remake of the late-'60s counterculture movement. Rather, each headband contained eight electrodes, positioned at various points on the baby's scalp.

As slides of various striped patterns and colors were flashed intermittently on a screen, the electrodes recorded brain signals and transmitted them to a computer. The results, Salapatek says, are peak-and-valley pictures associated with "higher mental activity." Aside from possessing color vision, three-month-old babies appear to recognize geometric patterns in one-half a second — almost as quickly as adults do, he says.

Salapatek says he expects this brain-wave measurement method to be used to check an infant for a defective cortex, brain damage induced by oxygen-deprivation and possible complications of premature birth. It might also be used to map the brain more precisely, and to study longer-term memory in infants.

If not earthquakes, then landslides

If geologists can't predict earthquakes, maybe they can do better on a second California headache — landslides and mudflows. Based on climatic and geologic conditions, some slides and mudflows — those that are triggered in the spring by the melting winter snowpack — may be predictable a year or two before they occur, a U.S. Geological Survey report says. The report, based on data collected during the past 12 years in Wrightwood, Calif., and authored by Douglas M. Morton, a geologist at the USGS in Menlo Park, Calif., outlines what appears to be a three-stage cycle in landslide development:

- First-stage landslides, which contain millions of cubic meters of debris, fill some canyons of the Wrightwood area. Possibly due to major earthquakes, they occurred hundreds to thousands of years ago and are still active or unstable.
- When a canyon has become filled by a first-stage slide, erosion begins cutting a new canyon. The steep slopes cause second-stage landsliding. Second-stage slides follow several wet years and may be active for two to three years.
- If a wet winter coincides with an active second-stage landslide movement, third-stage landslides, or spring mudflows, are more likely to occur.

Ocean bottom ore deposits

Treasures from the deep: Ore-grade deposits of zinc, copper and iron sulfide have been recovered on the East Pacific Rise, an ocean spreading center just off the Mexican coast below the Gulf of California. Reporting in the Feb. 15 *NATURE*, a French, American and Mexican team led by J. Francheteau and H. D. Needham of Centre Océanologique de Bretagne says the deposits "throw a fresh light on the whole question of the concentration of metal deposits of the oceanic crust... Their discovery will... [lead] to new assessments of the concentration of metals in the upper layers of the oceanic crust."

Though predicted, no observational evidence existed for the deposits, and their discovery shows that metal deposition is not restricted to young oceans or slow-moving ocean ridges as previously thought. The samples were taken by a manned diving saucer from "tall, columnar edifices" found along small submarine gullies at water depths of about 2,620 meters.

Survey finds untapped water supply

A vast underground reservoir — an estimated 140 trillion to 350 trillion gallons — of "good quality water" lies beneath nine Mid-Atlantic states, according to a recent report by the U.S. Geological Survey. According to Allen Sinnott, senior author of the report and a USGS hydrologist in Reston, Va., the groundwater reserve covers a 108,000-square-mile region including parts of New York, Pennsylvania, Vermont, Massachusetts, Maryland, West Virginia and Virginia and all of New Jersey, Delaware and the District of Columbia. The report also estimates that the underground supply feeds about 39 billion gallons of water per day to major aquifers which then discharge to streams.

Despite the huge reserve, however, most of the area's needs are met by surface water resources, the report said; groundwater provides less than 10 percent of the region's needs. And, Sinnott notes, even though groundwater is abundant overall, local problems of groundwater development and management still exist, primarily because small areas of groundwater tend to be pumped dry or the water is of poor quality due to natural or human causes. In addition, not all the groundwater is easily accessible; the report estimates only about half of the stored water would be available as reserve for emergencies such as regional droughts.