BEHAVIOR

Diet drugs: More hindrance than help?

Losing just half a pound a week can be agonizingly slow for someone dozens of pounds overweight, but results of a recent study indicate that behavioral therapy that leads to slow but sure weight reduction by modifying eating habits keeps pounds off longer than a faster-acting weight reducing drug.

"At this point, behavioral therapy is still the treatment of choice," says Linda Wilcoxon Craighead of Pennsylvania State University. Craighead and colleagues tested four methods of losing weight in their study of 120 women, reported in the July ARCHIVES OF GENERAL PSYCHIATRY. The six-month treatment programs for the women, who were 63 percent overweight on the average, included: a simple prescription of the relatively mild diet drug "pondimin"; a regimen of the drug and supportive group therapy; a treatment combining behavior modification with drug therapy; and behavior modification alone.

Although initially women in the drug treatment groups lost more weight than those in behavioral therapy, a follow-up one year later showed "a striking reversal in the relative efficacy of the treatments." Women who had depended on the appetite suppressor to curb their hunger pangs regained, on the average, 63 percent of the weight they had lost, while those who had relied on behavioral techniques alone regained only 17 percent. Learning techniques to lose weight, such as keeping a food diary and putting the fork down between bites, gave patients in the behavior modification group a structured regime to fall back on once the treatment stopped, the researchers suggest, in contrast to those in drug therapy who were forced to rely on willpower to keep unwanted pounds from reappearing.

Sex and altruism

The sugar and spice view that little girls are more helpful than little boys falls apart if one compares classroom behavior of the sexes, suggest researchers at the University of Utah. Carol C. Shigetomi, Donald P. Hartmann and Donna M. Gelfand first asked 279 fifth and sixth graders and their teachers to rate privately other class members' willingness to share or "do things to make others feel good." Though the survey showed girls in the class had far greater reputations for altruism than did boys, the psychologists found no strong sex differences in tasks they used to test the children's willingness to share time and resources.

The discrepancy between reputation and behavior described in the July DEVELOPMENTAL PSYCHOLOGY replicates results of a similar study published in 1929. Although the source of the long-lived discrepancy remains to be determined, the researchers suggest that "girls' greater verbal fluency and their readiness to express empathy with those in distress may lead others to overestimate their helpful behavior."

Stress promotes accidents and errors

Underscoring evidence that stressful events increase one's vulnerability to illness (SN: 5/24/80, p. 335) and even sudden death (SN: 7/25/81, p. 54), a pilot study from Massachusetts General Hospital suggests that clusters of stressful events can affect subsequent rates of everyday accidents and errors. By tallying both positive and negative "challenging events" (ranging from illness or injury to the birth of a grandchild) in the lives of 31 student nurses, David V. Sheehan and colleagues were able to predict which nurses were most like to suffer from a rash of physical accidents and job related errors in the following weeks. "Accidents and errors" ranged from muscle strains and "dropping or spilling things" to automobile mishaps and major errors in judgment, according to the study, published in PSYCHIATRY IN MEDICINE (Volume 11, Number 2).

EARTH SCIENCES

The Cretaceous: A gradual end?

In recent years, physical scientists and paleontologists have pondered the unusual abundance of iridium and other elements evident in the thin layer of clay that marks the boundary between the Cretaceous and Tertiary periods. The layer, they suspect, was deposited 65 million years ago after a huge meteorite or other extraterrestrial body hit the earth. A dust cloud rose that blocked out sunlight for several years (SN: 1/2/80, p. 22), inhibiting photosynthesis and dooming the plants that formed the base of the terrestrial food chain. When the dust cleared, more than half of the living species on earth, from simple plants to dinosaurs, were gone.

In the face of mounting evidence for this cosmic disaster (SN: 7/18/81, p. 36), paleobotanist Leo Hickey of the Smithsonian Institution reports in the Aug. 6 NATURE that his studies indicate a gradual, rather than catastrophic, change at the end of the Cretaceous. Based on field study of the fossil and sedimentary record in Wyoming and Montana, he finds that the levels of extinction and diversity in land plants are geographically uneven and generally moderate. Further, plant extinctions were not necessarily synchronous with the extinctions of dinosaurs. Only in western North America, he writes, have sections of strata been found that contain both the last dinosaurs and plants. The growing affinity of plants in the late Cretaceous and early Paleocene to cooler temperatures, the increase in cold-tolerant plant forms with toothed leaves in the western United States, and what he and others view as the gradual demise of the dinosaurs toward the end of the Cretaceous also are compatible with a gradual change, such as climatic cooling. "However persuasive and well-documented the evidence for an iridium anomaly," he writes, "the connection between it and the terminal Cretaceous extinctions is tenuous at best."

Prospects improve for ocean energy

Intrigued engineers long ago noted the potential for harnessing the ocean's energy through ocean thermal energy conversion (OTEC), but engineering problems and the cost of the energy produced discouraged commercial development. In 1978 the U.S. Office of Technology Assessment reported that OTEC probably would "not become a viable part of the U.S. energy supply system in this century" (SN: 7/1/78, p. 8). Now, though, prompted by rising prices of foreign oil and promising results from demonstration projects, the U.S. Department of Commerce is touting OTEC not only as an answer to world energy needs but as a potential goldmine for savvy U.S. businesses. Profits from U.S.-built OTEC facilities exporting to the more than 60 foreign countries where OTEC technology is applicable easily could reach $200 to $300 billion between 1990 and 2010, Commerce reports.

To encourage investors, Commerce recently simplified regulations for licensing OTEC facilities. Possibly, says Lowell Martin of the National Oceanic and Atmospheric Administration's Office of Ocean Minerals and Energy, a commercial plant generating 40 to 80 megawatts will be operating in U.S. waters by 1986 to 1988. The OTEC process uses the temperature differential between warm ocean surface waters and cold, deep waters to convert stored solar energy into electricity. The power modules of the first sites, Martin said, probably will be on land in locations such as Hawaii or Guam where the continental shelf drops off steeply near the shore. This would avoid tricky engineering problems of ocean-based systems while allowing relatively easy access to the 20° C temperature differences needed for the OTEC process to operate efficiently. Energy generated by an OTEC plant offshore can be fed to a shore-based power grid or used on-site to smelt aluminum or produce such energy-intensive products as hydrogen or ammonia.