BIOMEDICINE

Hormones and impotence

For years doctors have thought that 90 to 95 percent of cases of impotence are due to depression, stress or other psychological factors. Now it appears that a much higher percentage of impotence results from hormonal imbalances than was previously thought, Richard F. Spark and co-workers at Beth Israel Hospital in Boston report in the Feb. 22/29 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

Spark and his colleagues screened levels of the male sex hormone testosterone in the blood of 105 impotent patients aged 18 to 75 and found that 37 (35 percent) of them had low testosterone levels. The researchers then went on to search for the causes of the low testosterone levels and found that they were due to other hormonal imbalances in the body — excessive levels of the pituitary hormone prolactin or excessive levels of thyroid hormone, or a pituitary gland tumor. And once specific defects were pinpointed, appropriate therapy was initiated, and potency was restored in 33 out of 37 (90 percent) of the patients.

Exercise, not diet, elevates HDL's

Four studies have indicated that vigorous exercise can elevate heart attack-preventing, cholesterol-carrying high-density lipoproteins in the blood. It was possible in these studies that diet, not exercise, accounted for the elevated HDL's. To see whether diet might be a confounding factor in these results, G. Harley Hartung of Baylor College of Medicine and Methodist Hospital in Houston and his colleagues conducted a similar study, but looked at diet as well as at exercise.

They studied the diets and HDL levels of 59 healthy, middle-aged marathon runners, 85 joggers and 74 inactive men, and, as they report in the Feb. 14 NEW ENGLAND JOURNAL OF MEDICINE, the marathon runners and joggers did not differ substantially in their dietary habits from the inactive men, yet had significantly higher HDL levels. In fact, the runners had even more HDL's than the joggers did. Exercise independent of diet can increase HDL's, the researchers conclude. How might exercise raise HDL's? One possibility is that it increases the activity of lipoprotein lipase, a fat tissue enzyme. Activity of this enzyme strongly correlates with HDL amount.

Viruses spark inherited allergies

Children born into allergic families will probably themselves become allergic following the onset of a common cold or other minor viral infection, Oscar L. Frick and John Mills of the University of California at San Francisco reported last week at the annual meeting of the American Academy of Allergy in Atlanta.

Frick and Mills studied, over a five-year period, 13 children born into families in which both parents suffered from hay fever, eczema, asthma and other allergic conditions. Three-quarters of the youngsters suffered their first allergic symptoms following a viral respiratory infection.

Shaping the lens of the eye

The lens of the eye consists of two cell types — epithelial and fiber. Now David C. Beebe and co-workers at the Uniformed Services University of Health Sciences in Bethesda, Md., have identified a chemical in the vitreous humor of the eye that stimulates embryonic lens epithelial cells to specialize into lens fiber-type cells. The chemical thus must be responsible for stimulating lens fiber cell formation and plays a crucial role in determining the shape and polarity of the lens, the researchers conclude in the January PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES.

EARTH SCIENCES

Shakier U.S. in 1979

Despite a 1979 worldwide decline in the number of significant earthquakes — those ranking 6.5 or greater on the Richter scale — the United States last year experienced the greatest number of significant quakes since 1975. In fact, overall U.S. earthquake activity was up about 30 percent in 1979, according to a recent U.S. Geological Survey report.

Based on data from about 3,000 seismograph stations around the world, the worldwide number of 6.5 or greater quakes declined from 62 in 1978 to 58 last year, says Waverly Person of the USGS. The strongest quake struck Indonesia on Sept. 12, hitting magnitude 8.1, creating tsunamis (giant sea waves) and killing about 15 persons.

Five of the recorded significant quakes occurred in the United States — three in Alaska and two in California. In addition, the number of "felt" U.S. earthquakes — usually measuring 3.0 or greater — increased from 345 in 1978 to 452 in 1979, says Person. With 164 reported to the National Earthquake Information Service in Golden, Colo., Hawaii, not California, took the 1979 title for the most U.S. quakes. Person adds, however, that the many California aftershocks often are not reported individually. Alaska lays claim to the strongest U.S. quake, according to the report, with the magnitude 7.1 shock on Feb. 28 (SN: 3/24/79, p. 185). The 6.8 magnitude temblor that struck California's Imperial Valley was the largest to hit the lower 48 since the 1971 San Fernando quake (SN: 11/3/79, p. 310).

In spite of the increased activity, no earthquake deaths occurred in the United States in 1979, continuing a trend begun in 1975. Similarly, worldwide earthquake deaths showed a sharp decline in 1979: 1,479 deaths resulted from quakes last year, compared with 15,195 in 1978 and 2,800 in 1977. The long-term average is 10,000 deaths each year. The deadliest quake of 1979 shook the coast of Colombia and Ecuador on Dec. 12, killing at least 600 persons.

Counseling on quake predictions

There's no such thing as genuine earthquake predictions, but that hasn't stopped the federal government from establishing a council to evaluate them. The National Earthquake Prediction Evaluation Council, which was mandated by the 1977 Earthquake Hazards Reduction Act (SN: 7/8/79, p. 22), held its first meeting Feb. 4 and 5 at the U.S. Geological Survey headquarters in Reston, Va. When predictions that pinpoint the time, place and size of a quake become a reality, the Council will review the available data and recommend to the USGS director whether or not a formal prediction or advisory is warranted. In the meantime, the eight-scientist team, chaired by Clarence Allen of the California Institute of Technology, will analyze and interpret pertinent geophysical data.

U.S.-China earth science research

Tightening the knot of cooperation in science and technology, the United States and the People's Republic of China recently signed two protocols to carry out earthquake studies and earth science research. The agreements, signed Jan. 24, follow a year-old accord by the two governments to promote research cooperation (SN: 2/10/79, p. 83). The earthquake studies protocol includes cooperation in earthquake prediction, earthquake hazards evaluation, earthquake engineering and other basic and applied studies. Joint research in these areas will begin immediately. The second protocol outlines other possible areas for joint investigation such as mineral resources, energy resources, marine geology, geophysics and geochemistry. Specific projects in these areas will be discussed later this year.