Behavior

Generic disposition for disease?

Some physical ills are often assumed to spring from specific personality characteristics. It is said, for example, that worriers get ulcers, anxious people get migraine headaches and workaholics toil their way toward heart attacks.

But studies of the relationship between personality and disease do not paint such a neat picture, say psychologists Howard S. Friedman and Stephanie Booth-Kewley of the University of California at Riverside. "Based on the existing evidence, it does not appear that different diseases have different personality traits linked with them," they report in the June AMERICAN PSYCHOLOGIST. "However, there may well exist a generic 'disease-prone personality.'"

Friedman and Booth-Kewley used statistical techniques to compare the results of 101 studies conducted between 1945 and 1984. At least one of five diseases — arthritis, asthma, coronary heart disease, headaches and ulcers — was investigated in each study. Personality measures, either alone or in combinations, consisted of anger, hostility, aggression, depression, anxiety and extraversion.

All of the personality measures, say the researchers, showed relatively strong associations with the risk of heart disease and weaker associations with the other diseases. The most striking single relationship was between depression and disease, they note, although anger and hostility have been more extensively studied in recent research.

The link between personality and disease cannot be dismissed as "folklore," say the psychologists. Psychological disturbance appears to undermine immune function and metabolic processes rather than particular organs, and, in their view, may predispose people to all sorts of illnesses.

A boost for low-weight babies

Newborns weighing less than 4 pounds face an uncertain future. The lower their weight and the more premature their birth, the greater the chances they will suffer developmental delays and mental and physical disabilities. Furthermore, parents are often fearful of giving care to these frail-looking, generally unresponsive babies.

But relatively inexpensive hospital and home treatments, combined with support and encouragement for parents, markedly improve the outlook for "low-birthweight babies" during the first two years of life, according to a report in the July PEDIATRICS. A total of 255 infants born weighing 4 pounds or less were studied, most of them from poor, rural families. About half were randomly assigned to an "infant development program." While still in an intensive care unit, these babies were put on insulated waterbeds and provided with daily activities, including gentle massage and motion exercises, oral stimulation with a pacifier and tape recordings of parents' voices, classical music and the human heartbeat. Parents participated in treatment from the start and were taught exercises to use with infants after discharge from the hospital. Parents also received regular counseling on infant care needs and difficulties.

The rest of the babies and their parents were given the care and referrals customarily provided in such cases.

Infants in the experimental program had significantly higher scores on mental and physical development scales at 1 and 2 years of age, say Michael B. Resnick and his colleagues of the University of Florida College of Medicine in Gainesville. Only 4 percent of the experimental group had severe impairments of mental development at age 2, compared with 26 percent of the control group.

Such hospital and home interventions cost about $3,600 per child, a "relatively low-cost" preventive technique, say the researchers. Future research will focus on how long-lasting the effects are and which methods were most critical.

Biochemistry

Why vitamin A may fight infections

Several recent studies have shown that asymptomatic vitamin A deficiency appears to make people — especially children — prone to infection (SN: 5/23/87, p.325). Now animal research at the University of Wisconsin in Madison suggests why: The vitamin appears essential to the proper functioning of T cells, one of three major cell types involved in a healthy immune system.

Susan Smith and Colleen Hayes fed pregnant mice — beginning in the second week of gestation — a diet balanced except for its absence of vitamin A. When the offspring were 6 weeks old, as soon as their immune systems were mature, the researchers measured vitamin A in the blood at levels that were half those in mice on a vitamin-A-sufficient diet. Though the vitamin-deficient mice appeared normal, Smith says, when given a "delayed hypersensitivity test" — to measure their ability to generate a slow, T-cell-mediated reaction to a foreign substance — their response was only 75 percent of normal. Smith and Hayes also found that levels of antibodies whose production was dependent on the involvement of T cells were severely depressed in these mice — at only about 30 percent of normal. Over the next two weeks, their immune function continued to deteriorate. Subsequent vitamin supplementation, however, reversed the condition. A report of these findings will appear in the Aug. 15 PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES.

Night blind? Carrots may not help

It's common knowledge that carrots, as a rich source of vitamin A, are useful in preventing night blindness. So when night blindness showed up among malnourished individuals, researchers assumed it was because a protein shortage disrupted the transport of vitamin A to the eye from its storage in the liver, says Daniel Bankson, a clinical biochemist at the University of North Carolina in Chapel Hill. While a protein shortage will disrupt vitamin A transport, Bankson says, his recent research, done while he was at the Agriculture Department's Human Nutrition Research Center on Aging in Boston, indicates that is not necessarily the primary reason malnutrition affects night vision.

Rats fed a growth-stunting diet (having only a third to a fifth of their normal protein intake) along with four times the daily requirement for vitamin A suffered night blindness, despite maintaining sufficient levels of vitamin A in the eye. Rats fed a fully balanced diet, but with only enough calories to maintain the size and weight of animals on the protein-deficient diet, suffered even worse night vision — again while maintaining normal eye levels of vitamin A. Bankson says this suggests that a lack of protein and/or energy can also cause night blindness.

How marijuana may affect immunity

It has been known for years that smoking marijuana harms the body's immune system, says Eliezer Huberman of Argonne (Ill.) National Laboratory. His new cell-culture studies now suggest why. He has found that although tetrahydrocannabinol (THC), the main psychoactive ingredient in marijuana, stimulates maturation of key immune-system cells called monocytes, "this maturation is defective." Monocytes not only help stimulate antibody production, but also can kill and engulf foreign cells, like bacteria.

When Huberman treated "highly immature" monocyte-precursor cells with THC, the maturation suddenly stopped in a middle, incomplete stage. Huberman says that if similar monocyte impairment occurs in heavy marijuana smokers, it could heighten their susceptibility to infection. Details of the study will appear in the Aug. 15 PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES.