

Rock-a-bye nutrients

No one can guarantee a restful night of slumber to the parents of a newborn baby, but there are indications that nutrients can affect how an infant sleeps.

Newborns under about 3 months of age have sleep patterns that differ from those of adults, says pediatrician Michael W. Yogman of Children's Hospital Medical Center in Boston. Newborns begin rapid eye movement (REM) sleep immediately after dozing off. This "active" sleep cycle is also characterized by startle movements. During a "quiet" sleep cycle that follows, the infant's eyes remain closed and the body does not move. These two sleep patterns alternate every 45 minutes.

Yogman reported in Arlington, Va., at a recent conference on diet and behavior that infant sleep patterns are altered when nutrients that affect serotonin, a chemical messenger in the brain, are consumed. Yogman and colleagues gave 20 healthy newborns an evening feeding containing tryptophan—an amino acid precursor of serotonin—in a 10 percent glucose solution. Serotonin is thought to influence sleep, mood, appetite and pain in people of all ages. An increased ratio of tryptophan to other amino acids improves the chance that tryptophan will get into the brain to produce serotonin (SN: 4/7/84, p. 216). Another 20 newborns received an evening feeding containing valine—an amino acid that lowers brain serotonin—in a 5 percent glucose solution. Experimental feedings were given every other evening for several weeks. Infant sleep was monitored for three hours after feeding.

Yogman says that infants fed tryptophan had a significant increase in active sleep, whereas those fed valine showed a similar elevation in quiet sleep. The results, however, are preliminary and difficult to interpret, he cautions.

"Variations in brain serotonin may modulate newborn behavior," Yogman suggests. "But good research on the relationship between diet, neurotransmitters and behavior is rare."

The staying power of aggression

The mix of environmental and constitutional factors that coalesce into an aggressive personality has long been a subject of heated debate among scientists. But a report in the November *DEVELOPMENTAL PSYCHOLOGY* suggests that once a person's relative degree of aggressiveness is established during childhood, for whatever reasons, it remains remarkably stable across time, situations and even generations within a family.

L. Rowell Huesmann and Leonard D. Eron of the University of Illinois at Chicago and colleagues followed 632 male and female subjects in New York State, evaluating them first at age 8 and again at age 30. The researchers analyzed personal interviews and public data on criminal and traffic offenses. When the subjects reached 30, 165 of their spouses and 82 of their children were also interviewed.

The most aggressive 8-year-olds at the beginning of the study were the most aggressive 30-year-olds at the end of the study, say the investigators. Early aggressiveness among males and females carried over into adulthood through increased criminal convictions, self-reports of physical aggression and spouse reports of physical punishments for children. Among males, early aggressiveness was also related to later moving-traffic violations, such as driving while intoxicated, and reports of spouse abuse. The data clearly show, add the researchers, that aggressive parents have more aggressive children.

Levels and types of aggression can change dramatically with age and in different situations, they explain, but the aggressiveness of an individual relative to that of the population as a whole remains reasonably constant. "The development of aggressive behavior, at least in this large sample of subjects, is testimony more to constancy than change in human development," conclude the researchers.

Hold the NaCHO₃s

Ever thought you would burst after a heavy meal? A Virginia man—or at least his stomach—did, and Michael R. Mastrangelo and Edward W. Moore of the Medical College of Virginia, in Richmond, believe it was due to the baking soda (NaHCO₃) the man had taken to relieve his feeling of fullness.

The man had taken in two margaritas, an order of nachos and a large Mexican combination plate for dinner. "Because of the size of the meal," Mastrangelo and Moore report in the November *ANNALS OF INTERNAL MEDICINE*, "he did not have dessert." When the man got home he reportedly took 1/2 teaspoon of baking soda in water—the amount recommended on the package—and within one minute had severe abdominal pain. Emergency surgery revealed a ruptured stomach, from which the patient recovered following a rocky postoperative course.

The rupture, Mastrangelo says, occurred when the baking soda, which is sodium bicarbonate, hit the hydrochloric acid in the stomach and produced carbon dioxide gas. While in most people gas can leave the stomach through one end or the other, in this man's perhaps overly filled stomach the tubes for intake and outflow were choked off.

Spontaneous rupture of the stomach is rare, Mastrangelo and Moore note—only 71 previous cases have been reported in the medical literature and only four were related to sodium bicarbonate.

The take-home message? "Absolutely stay away from sodium bicarbonate on a full stomach," Mastrangelo told *SCIENCE NEWS*.

The Virginia man, who had taken Arm & Hammer baking soda, sued the company, and the parties settled out of court. But a spokesperson for the Piscataway, N.J.-based company says the product is completely safe, though baking soda boxes now warn not to put anything into an overly full stomach. "The product has been used safely as an antacid for well over 100 years, with over 1 billion uses," says James Rogula. "We do not believe the material in Dr. Mastrangelo's report is accurate."

Will the real culprit please stand up?

After 10 years of being not type A and not type B hepatitis, non-A, non-B hepatitis has gained an identity. Or two or three.

Food and Drug Administration (FDA) researchers recently reported finding evidence of a retrovirus in blood from non-A, non-B victims (SN: 11/3/84, p. 287), and two weeks later Alfred Prince and colleagues at the New York Blood Center say they have found a non-A, non-B virus in chimpanzee livers. But this virus, says Prince, is not a retrovirus. (Retroviruses have a single strand of RNA, rather than DNA, as their genetic material and are marked by the peculiar way in which the RNA reproduces itself.) About 90 percent of the 100,000 cases of blood transfusion-related hepatitis cases in the United States are non-A, non-B hepatitis. Identification of the culprit(s) is needed so that an accurate screening test and vaccine can be developed.

The New York group reports in the Nov. 10 *LANCET* their observations of changes in chimpanzee liver cells following inoculation with plasma from chimps and a human with non-A, non-B hepatitis. The virus, Prince says, has "an unusual combination of properties," including a solid core structure and protein spikes sticking out of its surface. To complicate matters, the New York group believes there may be two agents at work, though, notes Prince, "This is not a hard conclusion by any means."

But Robert J. Gerety, one of the FDA workers, thinks it may be the same virus that his laboratory found. In September Zsuzsa Schaff, a Hungarian pathologist who had been working in Gerety's laboratory, reported at a European Association for the Study of Liver Morphology meeting that she found particles from human liver biopsies that turn out to be the same size as the New York particles. This virus was associated with enzyme activity that would make it a retrovirus.