BEHAVIOR

What diet are you on?

Obesity used to be a sign of affluence (look at the "fat cats" in a Thomas Nast cartoon), but that idea has been rendered obsolete. Our current obsession is with the ultrathin look. There's no doubt that this raised weight consciousness can have some beneficial effects on health, but it might also have some detrimental effects on mental health. A report in the November JOURNAL OF THE AMERICAN DIETETIC ASSOCIATION suggests that society's preoccupation with slimness is distorting the self-images of young women.

A recent survey of college women found that 91 percent are dissatisfied with their body image. Almost 70 percent see themselves as overweight, but only 39 percent could be so classified by objective measurement. "This tendency can be interpreted as mild body image disturbance," say researchers Toby M. Miller, Judith G. Coffman and Ruth A. Linke of the department of home economics and nutrition at New York University.

The researchers also found a greater than expected degree of weight anxiety among men, but most of the men questioned were found to be relatively realistic in their perceptions of their body size. About 20 percent of the men, however, did report thinking of themselves as underweight, though none actually was. The researchers suggest that dietary counseling and weight control programs should emphasize realistic concepts of body image.

It's a bird, it's a snake, it's . . .

There's been a lot of talk about talking apes in recent years, and the debate still simmers over whether or not chimps and gorillas trained to use signs actually have true language ability (SN: 5/10/80, p. 298). A similar ability in wild, untutored animals, however, has not been thoroughly investigated. It involves an important aspect of language — semantic communication, or making systematic use of signals to refer to specific objects. It has been reported, for instance, that vervet monkeys in Kenya's Amboseli National Park give acoustically different signals in response to three different predators: leopards, eagles and pythons. Robert M. Seyfarth, Dorothy L. Cheney and Peter Marler of Rockefeller University Field Research Center in Millbrook, N.Y., spent 14 months observing and tape recording groups of free-ranging vervets in Amboseli and found evidence for "rudimentary semantic signals" (SN: 11/24/79, p. 357).

The monkeys regularly see more than 100 species of mammals, birds and reptiles, but they make alarm calls almost exclusively in response to predators. Leopard alarms are short tonal calls; eagle alarms are low-pitched, staccato grunts; and python alarms are high-pitched "chutters." The animals respond to these calls with "adaptive strategies for coping with the hunting behavior of the predators involved," say the researchers in the Nov. 14 SCIENCE. The leopard alarm, for example, is likely to cause the monkeys to run up trees; the eagle alarm makes them look up and sometimes run for cover; and the snake alarm causes them to look down. Infant monkeys are less precise but not arbitrary in their alarm calls. They give leopard alarms primarily for terrestrial animals, eagle alarms for all birds and python alarms for any snake or long, thin object.

To see if the monkeys were responding to cues other than the alarm calls (such as the situation or the behavior of the alarm-giver), the researchers played tapes of the alarms from hidden speakers. In response, the animals looked toward the speaker and, after scanning their surroundings, usually took the called-for adaptive action. "Variation in the acoustical call types was the only feature both necessary and sufficient to explain response differences," say the researchers, suggesting a semantic interpretation.

BIOMEDICINE

Whose child is this?

Amniocentesis, used to check for chromosomal abnormalities in fetuses, and HLA typing, a procedure commonly used to determine paternity, have been combined for the first time to determine the father of an unborn child, according to a report in the Oct. 24 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

Researchers from the Memorial Sloan-Kettering Cancer Center used the two procedures to determine paternity for a rape victim found to be pregnant a few weeks after the rape. Marilyn S. Pollack and her co-workers studied the white blood cells of the mother and her husband and characterized a series of cell surface proteins known as HLA antigens. After they had established the parents' HLA types they studied fetal cells obtained by amniocentesis and found that the fetus had inherited HLA antigens from both the mother and her husband. Based on the prevalence of the HLA types in the mother, her husband and the fetus, they were able to conclude with 96 percent certainty that the woman's husband had fathered the cells they were looking at. When the accused rapist was caught and his tissue typed by the same procedure, the researchers were able to exclude him as the father when he was found to have no HLA antigens in common with the fetus.

The procedure is possible, explains Bo Dupont, head of tissue typing at Sloan-Kettering and one of the authors of the study, because HLA antigens are co-dominantly expressed. Each person has two varieties of each HLA antigen type (and there are many), one from the mother and the other from the father. Thus, every HLA type for the child will be found in either the mother or father.

The researchers have also used the procedure to identify a number of metabolic and immunologic diseases that are closely linked on the chromosome to the HLA genes and are presumably inherited along with it.

A curious sequel to the story: The woman delivered twins, causing the researchers to caution that a careful examination of the woman must be made in a paternity determination. If twins are suspected, cells from both fetuses must be sampled, since in very rare instances twins can be born of different fathers. In this case, the twins were identical.

With zinc, enough is enough

Zinc, a mineral necessary for life, causes a decrease in the "good" form of cholesterol in doses not much higher than those contained in some diet supplements, according to a report in the Oct. 24 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

Philip Hooper of the Veterans Administration Hospital in Albuquerque, N.M., and his colleagues fed 12 healthy adult males 440 mg of zinc sulfate (160 mg of elemental zinc) every day for five weeks. At least one zinc-containing diet supplement contains 220 mg of zinc sulfate. Normal dietary intake is about 12 mg of elemental zinc. The researchers found that blood concentration of high density lipoprotein (HDL), a cholesterol component associated with lower incidence of coronary artery disease, dipped an average of 25 percent, while total cholesterol levels did not change.

"The nonbeneficial effect of zinc on serum lipoprotein value suggests that zinc supplementation should be reserved only for clinically indicated disease states," the researchers conclude. Says Hooper, "there's no real data to indicate that we need more zinc in our diet."

HDL cholesterol has in the past few years been recognized to have an inverse relationship with some forms of heart disease. A study released by the National Heart, Lung and Blood Institute earlier this month indicates that life-styles associated with a low risk of heart disease correlate with high blood levels of HDL.