
Zoology

Wolf pups's survival in the wild

A wolf pup's weight may be a good indication of its chances of survival, David Mech and Victor Van Ballenberghe conclude in the February *JOURNAL OF MAMMALOGY*. After a four-year (1969–1972) tagging and tracking project in northern Minnesota, the zoologists concluded that pups born in the same year, and even in the same litter, show marked differences in their relative weights and growth rates. Differences in nutrition, genes or birth dates affect a pup's development; a wolf's ability to adapt to periods of food scarcity and abundance also enhances its chances of survival. Wolf pups grow at highly variable rates, sometimes maintaining weight over long periods instead of growing, or losing weight rapidly during growth spurts. Mech concludes that relative pup weights and their blood chemistry are useful indices of the general condition of wolf populations. But guessing how many pups a pack produced each year simply by looking (either from the ground or aerially) could be misleading. Healthy pups born in the spring would be full-grown by winter, leading to the false conclusion that no pups were produced that year. In years of poor pup production, underweight pups might readily be apparent as smaller members of packs, leading to the incorrect conclusion that the production and condition of pups were good that year.

Sea otters: Life on the ice

Sea otters can tolerate severe ice and bad weather as long as there's plenty of food and areas of water to dive for it, Karl B. Schneider and James B. Faro conclude in the February *JOURNAL OF MAMMALOGY*. After studying what sea otters do when they're iced in, the zoologists, researchers for the Alaska Department of Fish and Game, found that rather than migrate over entrapping ice, otters simply wait for warmer weather, and consequently, many die of malnutrition. If otters are caught on moving ice, they hunt as it drifts, and in time, extend their range.

Sea anemone: Bisexual oddities

Sea anemones (*Epiactis prolifera*) may be the only known animals whose populations consist only of females and hermaphrodites (individuals with both sets of sex organs). The phenomenon, called gynodioecy, is fairly common in plants. Daphne Fautin Dunn, a University of California at Berkeley zoologist, reports in *NATURE* (253: 5492) that anemones brood their young externally, with females and hermaphrodites spawning a relatively few, large yolk eggs, which adhere to the parent's ectoderm. It appears that sea anemones are all born as females, and those that live long enough become hermaphrodites. Thus gynodioecy in sea anemones occurs as a series of growth stages, whereas in plants it is fixed and genetic. The system has obvious advantages: When the environment is favorable, the animal lives longer, and has more time to develop testes, thus raising the proportion of hermaphrodites in the population and thereby the potential for inbreeding. When conditions are such that few anemones survive long enough to develop testes, inbreeding declines, thus increasing the proportion of heterozygous offspring with greater genetic flexibility to meet the stressful conditions. It is crucial to the species' success that as many egg-producing individuals as possible survive, since continuation of the animal depends on maximum brood space (on the ectoderm).

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Biomedicine

Aspirin: A no-no in colds?

For years cold-inflicted victims have been advised by physicians to rest, drink plenty of liquids and take aspirin. A new study reported in the March 24 *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* now challenges the aspirin advice. It suggests that aspirin does not help cold victims much, and worse, it may increase the spread of cold germs to other people.

Edith D. Stanley and colleagues at the Abraham Lincoln School of Medicine of the University of Illinois conducted two double-blind trials in which volunteers were exposed to cold virus, then treated with aspirin or placebo. Aspirin treatment, they found, did not alter the rates of infection or illness, but was associated with a moderate reduction in the frequency or severity of some symptoms. On the whole, though, the overall benefit of aspirin in combating colds was not statistically significant.

What's more, the aspirin treatment appeared to cause a highly significant increase in the amount of virus in nasal secretions of treated subjects. "The increase in virus shedding," the Chicago investigators conclude, "must be considered an adverse event that could influence the course of the disease in the individual and increase the likelihood of the spread of the infection to contacts."

Insight into myasthenia gravis

Myasthenia gravis is a disease that causes muscular weakness. It can lead swiftly to death. Past research has suggested that the disease might be due to some autoimmune defect because antibodies in victims have been found to be directed against their own muscles. But how, exactly, might the antibodies impair the muscle so that it degenerates? A possible answer appears in the March 14 *SCIENCE*.

S. Satyamurti, Daniel B. Drachman and Fred Slone of the Johns Hopkins School of Medicine found an abnormal number of acetylcholine receptors at the nerve-muscle junctions in myasthenia patients. They then blocked the receptors in experimental animals; the muscles began to degenerate. So they are convinced that the underlying cause of myasthenia gravis is abnormal acetylcholine receptors. They conclude: "Whether the receptor protein itself is defective, whether the receptor packing in the postsynaptic membrane is abnormal or whether the receptor is damaged or blocked, perhaps by autoimmune mechanisms, must be elucidated by future investigations."

Synthesis of nerve microtubules

Not until the powerful electron microscope came along were scientists able to visualize the minute tubules that run through the axon of the nerve cell. The function of these fine proteinaceous threads is at present much debated. And what exactly is the chemical composition of the microtubules, and how are they synthesized?

Israeli biochemists partially answer this latter question in the February *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES*. Illana Gozes and her colleagues at the Weizmann Institute have isolated a messenger RNA from the brain that synthesizes the protein tubulin in the test tube. Tubulin is the material that makes up microtubules. Determination of the amino acid sequence of the synthetic tubulin, the investigators conclude, should clarify whether it is identical to natural tubulin or whether it represents a slightly larger precursor molecule.

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