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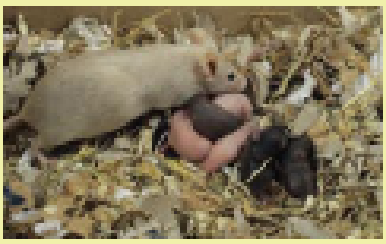
PLEASURE

Song of the Mouse

The noises mice make give clues about pleasure and emotions in the brain

The squeak of a mouse tells most people to buy a mousetrap, but it tells some researchers a lot more. According to a new study, mouse noises indicate certain states of mind, and monitoring their sounds can help scientists learn more about emotion, reward seeking and communication.

In addition to audible squeaks, mice produce ultrasonic noises—squeaks so high that humans cannot hear them. Males sing a complex song during sex and squeak when they are tickled, females chirp when around other females, and mouse pups squeak when their mothers abandon



them. These vocalizations transform as the situation changes, too—male mice squeak more frequently as they get closer to ejaculation, and female mice make a ruckus when their female playmates have chocolate on their breath. Scientists at the University of Toronto, Northwestern University and the National Institutes of Health speculated that these noises and their intensities were linked to the activation of dopamine, a brain chemical involved in pleasure and reward seeking. They bred mice to lack certain aspects of dopamine function and monitored the resulting din. Sure enough, the dopamine-deprived mice were quieter on all counts, suggesting that mouse squeaks relate both to the experience of pleasure and to the desire for it.

The specially bred mice can teach scientists much about both mouse behavior and the human brain. "Because mouse genes are so similar to many human genes, it gives you a way of studying the genes for complex behaviors," says John Yeomans, a psychologist at the University of Toronto and the lead researcher of the study. Labs are already starting to use mouse noises to study language development, social bonding and diseases that have symptoms related to communication, including schizophrenia and autism. —Melinda Wenner

Optical illusions may fool the brain because it is trying to predict the future.

ILLUSION

Motion Magic

The brain looks forward

The brain takes nearly one tenth of a second to consciously register a scene. But the scenery changes far more quickly than that when we move. How does our brain cope? By constantly predicting the future, posits Mark Changizi, now at the Rensselaer Polytechnic Institute. This ability explains many visual illusions—look **here**, for example, as you move this page toward and away from you. The extra motion results from your brain estimating where the ellipses will be in several milliseconds, Changizi says. He and his colleagues explain this illusion and 50 others in April's *Cognitive Science*. —Lucas Laursen

DAVID MURRAY SPL/Photo Researchers, Inc. (top); MARK CHANGIZI *Rensselaer Polytechnic Institute* (bottom)