Anxiety and Alzheimer’s
A lifetime of stress could lead to memory problems and disease
Mounting evidence indicates that chronic emotional stress, such as anxiety or fear, can make a person more susceptible to Alzheimer’s disease. The latest study comes from a team at the Salk Institute for Biological Studies in San Diego, that replicated the body’s reaction to mild stress by physically restraining mice for half an hour. The incident modified the tau protein, which gives neurons structural support, rendering it unable to fulfill its role. “This conversion is a key event in the development of Alzheimer’s,” says Robert A. Rissman, lead author of the study. After a single stress episode, tau morphed back into its original state within 90 minutes. When the team induced stress every day for two weeks, however, tau remained in its modified state long enough to allow the individual protein molecules to clump together. These protein heaps are the first step toward neurofibrillary tangles, one of the hallmarks associated with Alzheimer’s.

Simply being prone to worry and tension can cause memory problems in old age, another recent study shows. Robert Wilson and his colleagues at Rush University Medical Center evaluated the distress susceptibility of more than 1,000 elderly people by rating their agreement with statements such as “I am often tense and jittery.” Over a period of up to 12 years, volunteers who were anxiety-prone had a 40 percent higher risk of developing mild cognitive impairment than more easygoing individuals did. Mild cognitive impairment is thought to be a precursor for Alzheimer’s.

Brain autopsies on participants who have died did not turn evidence of neurofibrillary tangles or any of the other known features indicative of Alzheimer’s, Wilson says. But he thinks it is possible that chronic distress gradually compromises memory systems, ultimately rendering a person more vulnerable to the physical changes in the brain associated with Alzheimer’s. —Nicole Branan

Smooth Thinking about Sexuality
“Gay” and “straight” are misleading terms
Is sexual orientation similar to eye color, consisting of fairly discrete categories? Or is it more like height—that is, falling along a continuum? As a psychologist, I have explored that question in several venues, including the February/March 2006 issue of SCIENTIFIC AMERICAN MIND [“Do Gays Have a Choice?”]. Although common thinking holds that everyone is either “gay” or “straight,” my new survey of 18,000 people who voluntarily answered an online quiz shows that these terms are highly misleading. Sexual orientation actually lies on a smooth continuum, and the way people state their orientation is often a poor predictor of their true sexual behaviors and fantasies. Someone can call himself “gay” but behave “straight,” and vice versa.

At the Society for the Scientific Study of Sexuality meeting in November, I will report that the same continuum of scores exists in the U.S., and in the average of scores from a dozen countries outside the U.S. I also find that fewer than 10 percent of subjects scored as “pure” heterosexual or homosexual and that females placed, on average, farther toward the gay end of the continuum than males did. My study suggests that characterizing sexual orientation properly requires two numbers: mean sexual orientation (where a given person lies on the continuum) and sexual orientation range (how much flexibility or “choice” the person has in expressing that orientation, which also forms a continuum).

—Robert Epstein