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Mice serve as research models to study mechanisms of obesity

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If current estimates prove accurate, half of the American population will be clinically obese by the year 2030—up from about 30% today. Being obese predisposes one to a number of additional health problems, including hypertension, heart disease, and diabetes.

The direct costs of treating complications of obesity, plus the indirect costs from lost productivity, represent a \$100 billion annual burden on the U.S. economy. Given that these costs are expected to double in the next 30 years, an effective treatment for obesity is the subject of intense study.

Fat accumulates in the body in adipose tissue. The historic view has been that this

tissue is a passive participant in the process, merely acting as a repository for excess consumed calories.

That perception changed with the discovery of leptin by Jeffrey M. Friedman at Rockefeller University in late 1994.

Researchers now recognize that this peptide is a satiety hormone produced by adipose tissue that communicates the status of energy stores to the brain.

The discovery of leptin energized the study of obesity. It revealed adipose tissue as a complex endocrine organ. Research has shown that it serves not only as the source of leptin but also as an important target for brain-mediated effects on how energy is utilized in the body.

MODELS OF OBESITY

The epidemic of obesity in Westernized societies is strongly linked to consumption of high-fat diets. Some people appear to be particularly sensitive to high-fat diets and have a significantly higher tendency to deposit body fat, even when consuming similar amounts of food.

A similar variation in sensitivity to dietary fat has been documented in mice — particular strains readily become obese

ANIMAL MODELS OF OBESITY HAVE ACCELERATED THE PACE OF DISCOVERY IN OBESITY RESEARCH. PICTURED ARE OBESITY-PRONE AND OBESITY-RESISTANT MICE.



