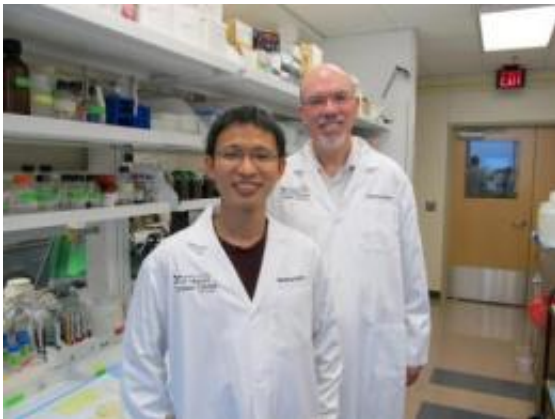


# Mouse study turns fat-loss/longevity link on its head

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Chen-Yu Liao and James Nelson, Ph.D., are pictured in the lab at the Barshop Institute for Longevity and Aging Studies, part of The University of Texas Health Science Center San Antonio. Their studies of 41 different strains of mice showed that not all strains responded to fat loss with longer life span. The project included colleagues at the University of Colorado. Liao will receive his Ph.D. in May and move to California's Buck Institute for Research on Aging. Credit: UT Health Science Center San Antonio

Since the 1930s scientists have proposed food restriction as a way to extend life in mice. Though feeding a reduced-calorie diet has indeed lengthened the life spans of mice, rats and many other species, new studies with dozens of different mouse strains indicate that food restriction does not work in all cases.

## Diet and fat loss

Researchers at the UT Health Science Center San Antonio's Barshop Institute for Longevity and Aging Studies, with colleagues at the University of Colorado, studied the effect of food restriction on fat and weight loss in 41 genetically different strains of [mice](#). The scientists then correlated the amount of fat reduction to [life span](#).

The answer: Mice that maintained their fat actually lived longer. Those that lost fat died earlier.

## Contrary to view

"Indeed, the greater the fat loss, the greater the likelihood the mice would have a negative response to dietary restriction, i.e., shortened life," said James Nelson, Ph.D., professor of physiology at the Barshop Institute. "This is contrary to the widely held view that loss of fat is important for the life-extending effect of dietary restriction. It turns the tables a bit."

The results are expected to be published in the June issue of *Aging Cell*.

## More study needed

Dr. Nelson's graduate student, Chen-Yu Liao, who will soon receive his Ph.D. and advance to a postdoctoral fellowship at California's Buck Institute for Research on Aging, cautioned that the new findings cannot be directly applied to people until similar studies are done in humans.

People are best advised to adopt a moderate approach, not losing all fat but definitely not keeping unhealthy amounts of [fat](#), either.

"None of the mice in this study were what we would consider to be obese," Liao said.

## Genes impact effect

The findings bear out what geneticists long have said: there is nothing that works for every [genotype](#), which is an organism's specific and unique set of genes.

"We know that humans respond to diet very differently as individuals based on their genetics," Dr. Nelson said. "Some have great difficulty losing weight while others have difficulty maintaining weight. If these results translate to humans, they would suggest that individuals who have difficulty losing weight may benefit from the positive effects of [dietary restriction](#) more than those who lose weight easily."

**More information:** Fat Maintenance Is a Predictor of the Murine Lifespan Response to Dietary Restriction. Chen-Yu Liao, Brad A. Rikke, Thomas E. Johnson, Jonathan A.L. Gelfond, Vivian Diaz, James F. Nelson [DOI:10.1111/j.1474-9726.2011.00702.x](https://doi.org/10.1111/j.1474-9726.2011.00702.x)

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