

Eating less may not extend life

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If you are a mouse on the chubby side, then eating less may help you live longer.

For lean mice - and possibly for lean humans, the authors of a new study predict - the anti-aging strategy known as caloric restriction may be a pointless, frustrating and even dangerous exercise.

"Today there are a lot of very healthy people who look like skeletons because they bought into this," said Raj Sohal, professor at the University of Southern California's School of Pharmacy.

He and Michael Forster, of the University of North Texas Health Science Center, compared the life span and caloric intake of two genetically engineered strains of mice.

The "fat" strain, known as C57BL/6, roughly doubles in weight over its adult life. That strain benefited from caloric restriction, Sohal said.

The "lean" strain, DBA/2, does not become obese. Caloric restriction did not extend the life of these mice, confirming previous work by Forster and Sohal.

The results appeared online Jan. 13 in advance of print publication in the *Journal of Nutrition*.

"Our study questions the paradigm that caloric restriction is universally beneficial," Sohal said. "Contrary to what is widely believed, caloric

restriction does not extend (the) life span of all strains of mice."

By measuring the animals' metabolic rate, Sohal and his colleagues came to a deceptively simple conclusion: Caloric restriction is only useful when, as in the case of the obese mice, an animal eats more than it can burn off.

"Your energy expenditure and your energy intake should be in balance," Sohal said. "It's as simple as that. And how do you know that? By gain or loss of weight.

"The whole thing is very commonsensical."

For humans of normal weight, Sohal strongly cautions against caloric restriction. In a 2003 study, he and Forster found that caloric restriction begun in older mice - both in DBA and leaner C57 individuals - actually shortened life span.

However, Sohal said that obese individuals are probably better off cutting calories than increasing their exercise to make up for overeating. Overly vigorous exercise can lead to injuries and long-term wear and tear.

In other words, it is better to skip the double cheeseburger than to turn up the treadmill after binging at Carl's Jr.

Sohal's study is not the first to question the allegedly universal benefits of caloric restriction. A study by Ross et al. published in Nature in 1976 ("Dietary practices and growth responses as predictors of longevity") found that caloric restriction works best in mice that gain weight rapidly in early adulthood, Sohal said.

Studies of caloric restriction in wild types of mouse strains have shown

minimal life span extension, he added.

Next, the researchers want to understand why the obese mice have a lower metabolic rate that promotes weight gain.

Source: University of Southern California

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