

# Could Eating Less Be Good For Your Telomeres?

January 30, 2013



Mice fed fewer calories have healthier telomeres, study finds.

Having less on your plate might help preserve your telomeres and keep you feeling younger, hints a mouse study from Spain.

The study found that young mice fed fewer calories across most of their lifespan were healthier and had longer telomeres. In addition, the calorie restriction combined with greater levels of telomerase—the enzyme that maintains the length of telomeres—led to increased mouse “health span” and longevity.

The team of scientists, led by Maria Blasco, director of the Spanish National Cancer Research Centre (CNIO) and head of the Telomeres and Telomerase Group, [previously found](#) that stimulating the expression of the telomerase enzyme in normal aged mice extended their health and lifespan. In the new study, the researchers evaluated the effects of calorie restriction on a variety of mice that were genetically altered to express greater levels of telomerase. The researchers separated young mice into four groups: normal or the genetically altered mice on either a control or calorie-restricted diet. When the mice intended to consume fewer calories reached three months of age, the researchers reduced their food by 40 percent (roughly equivalent to reducing a typical person’s diet from 2000 calories to 1200) for the remainder of their lifespan.

Interestingly, as the genetically altered mice (to produce greater levels of telomerase) were placed on the control diet aged, they mimicked the findings of the prior research showing that overexpression of telomerase led to improved health and slowed aging.

At the end of the study, the researchers found that all the mice on long-term calorie restriction had delayed onset of age-related illnesses while showing improvements in blood sugar control and motor coordination. On average, however, the genetically altered mice were healthier and lived longer.

The findings suggest that calorie restriction may act in synergy with increased telomerase expression in the genetically altered mice to slow the shortening of telomeres and improve mouse longevity.

“We see that mice that undergo caloric restriction show a lower telomere shortening rate than those fed with a normal diet,” said Blasco. “These mice therefore have longer telomeres as adults, as well as lower rates of chromosome anomalies.”

What does this mean for humans? Because this is a mouse study, it’s difficult to make assumptions regarding whether or not fewer calories will have any of the same effects of preserving telomeres in humans. However, it’s an intriguing possibility as calorie restriction has long been associated with improving the health and extending the lifespan of several organisms including nematode worms, rodents, and even primates.

## Reference

Vera E, De Jesus BB, Foronda M, Flores JM, Blasco M. Telomerase Reverse Transcriptase Synergizes with Calorie Restriction to Increase Health Span and Extend Mouse Longevity. *PLoS ONE*, 2013;8(1) e53760. doi: [10.1371/journal.pone.0053760](https://doi.org/10.1371/journal.pone.0053760)

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