

# Study suggests squirrels benefit late in life from a food boom that negates early-life adversity

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An American red squirrel (*Tamiasciurus hudsonicus*) in Calgary, Alberta. Most of today's tree-dwelling mammals, such as red squirrels, originated after the asteroid impact 66 million years ago, which devastated forests worldwide. A new study suggests that ground-dwelling and semi-arboreal mammals were better able to survive the event. Credit: Daniel J. Field

If a person has a high-quality, late-life environment, it can mitigate the negative impact caused by early-life stressors, a new study suggests. Researchers determined this human outcome after analyzing data from more than 1,000 wild red squirrels in Canada.

The [research](#), which [appears](#) in *Proceedings of the Royal Society B*, suggests that the costs of early-life adversities for the rodents' [lifespan](#) are abolished by later-life food availability.

Ben Dantzer, associate professor of psychology and of ecology and [evolutionary biology](#) at the University of Michigan, said in humans, early life adversity—such as victim abuse and divorce—seems to correlate with adult physical/[mental health](#) and longevity.

"There are similar findings in animals, and therefore a suggestion that there is a generalized response to exposure to early life stressors," he said.

Researchers identified six adversities among the squirrels that reduce juvenile survival in the first year of life, though only one—birth date—had continued independent effects on adult lifespan. The experts, who tracked the squirrels using tags from birth to death from 1989 to 2022, created an index that integrates the sum of adversities and their effect size.

Some squirrels received extra food for eight months during the analysis. According to the study, a greater index predicts shorter adult lifespans in both male and female squirrels, but a naturally occurring food boom in the second year of life offset this effect.

So how do the findings connect to humans? Dantzer said one could extend the thinking about how the negative effects of early life adversity in humans may be reduced by providing access to resources.

**More information:** Lauren Petruzzo et al, A future food boom rescues the negative effects of early-life adversity on adult lifespan in a small mammal, *Proceedings of the Royal Society B: Biological Sciences* (2024). [DOI: 10.1098/rspb.2023.2681](https://doi.org/10.1098/rspb.2023.2681)

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