

Fruit flies become disabled prior to death

Disability among the elderly costs the U. S. healthcare systems billions of dollars each year. Much of this cost is experienced in the months and years before death. While it is clear we cannot avoid death, perhaps these costs could be reduced if the magnitude and duration of disability before death were reduced.

Scientific progress on this goal would be aided by a model experimental system for studying disability. It is now evident that the widely used model organism, *Drosophila melanogaster* – the lab fruit fly- undergoes a process of disablement just prior to death.

We have shown this using data on lifetime female egg-production from four independent laboratories, including our own. We found that the number of eggs that females lay in the last two weeks of their life, regardless of age-at-death, declines more rapidly compared to similarly aged females that are not about to die. We call this decline in egg laying right before death “the death spiral.” The death spiral produces a decline in many physiological functions. And it does so in both males and females. The ability of males to fertilize females also declines rapidly two weeks before death. Physiological functions like the ability to resist desiccation and level of activity are both lower in death-spiral flies.

The ubiquity of the death spiral among various reproductive and physiological functions suggests that it might be affected by genetic and environmental factors, at least in fruit flies. Discovering how to manipulate death spirals may ultimately impact disability among the elderly.

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[The death spiral: predicting death in *Drosophila* cohorts.](#)

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