

Live Fast, Die Young: A Cricket's Tale



By Chuck Dinerstein — January 21, 2019



Jiminy Cricket As Playa Courtesy of Walt Disney Productions for RKO Radio Pictures [Public domain], via Wikimedia Commons [1]

There are several theories to explain why, as we grow old, our physical and mental abilities decline. One belief holds that the small errors made in copying our cells accrue over time and result in our declining abilities and death. In software parlance these copying errors are a bug, not a feature. (Personally, I think it may be a feature, but that's a topic for another day.)

The “disposable soma theory” is a variation on the copy problem, suggesting we use most of our energy to reproduce and have little left over to correct the errors and maintain ourselves. Is there a tradeoff between reproduction and survival? Is it true that we live fast and die young?

While our peak breeding season is [December](#) [2], *Sapiens* have many breeding seasons/years, so from the perspective of energetics we might be saving our energy for a different season, or someone. Multiple breeding seasons confounds the tradeoff of reproduction and survival. That is not the case with crickets, who have a more “one and done” lifestyle, with just one breeding season before dying. A recent report in *Evolution* looked at 10 years of cricket breeding to try and determine whether the theory of the disposable soma, or live fast, die young, had any validity.

The researchers studied the same meadow for 12 years using hard work and video to capture the activities in the entire lifespan of wild crickets – which is about six months. As each adult male cricket emerges from its birth burrow its impulses turn from growth to reproduction. As they appeared, they were captured, tagged and returned to their burrows. Researchers considered four measures of “reproductive effort.”

- Calling activity – Singing by the males to attract mates, a simpler version of Tinder

- Searching activity – How often the crickets visited different burrows in the meadow; (giving bar hopping a whole new meaning)
- Dominance in fights – When males encounter one another, either one sulks away or they fight for the privilege of what may lie inside the burrow
- Male “promptness” – the time from when the male and female meet until they “do the deed.” Interestingly, the physiologic time (refractory period would be the correct term) necessary for a cricket to provide a repeat performance is 50 minutes, and most of them kept pretty close to that time frame, although there were some fans of Barry White who waited longer

The researchers found mixed results; only calling and fighting declined with age. Those male crickets were still looking at the menu in their dotage and had no need for a cricket version of Viagra. There was no trade-off between reproduction and survival. [1] The idea that our sole purpose is reproduction and then we grow old and die may still contain some truth. But if it is not true for the “one and done” cricket, something else may well be at play for those creatures, like ourselves, that have multiple breeding seasons. It is tempting and comforting to believe we are different, that we have some higher purpose and role, and that we are immune to the “great circle of life.” Oddly, that belief serves to fuel both faith and science.

[1] When they considered when in their lifecycle the crickets became adults, they found a positive correlation with all the measures. It seemed that early maturity was perhaps a measure of overall fitness a trait that carried over to their sexual performances.

Source: Testing the effect of early-life reproductive effort on age-related decline in a wild insect Evolution DOI: 10.1111/evo.13679

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Links

[1] https://upload.wikimedia.org/wikipedia/commons/b/b5/Jiminy_Cricket.png

[2]

http://journals.lww.com/greenjournal/fulltext/2001/06000/seasonality_in_conception_of_births_and_influence.20.aspx