

Evolution drives greater risks of mitochondrial disease in males, fruit fly study suggests

July 1 2020



Drosophila melanogaster. Credit: Wikipedia/CC BY-SA 2.5

New research in fruit flies suggests that males may be at greater risk than females of diseases caused by mutations in mitochondrial DNA.

The joint University of Melbourne and Monash University study looked at natural selection on the mitochondrial genome in fruit flies to come up with its findings.

"Sibling rivalry vs mother's curse: can kin competition facilitate a response to selection on male mitochondria?" is published in *Proceedings of the Royal Society B*. The study also found that the effects of mitochondrial DNA on fitness are larger than was traditionally thought.

Lead author, Mr Thomas Keaney, said the findings are significant because it furthers our understanding of the health risks that face men and women.

"Mitochondrial genes are only passed from the mother to her children, which makes males evolutionary dead-ends for these genes. This means that the mitochondrial genome is invisible to [natural selection](#) acting on males, allowing the accumulation of harmful mutations that only affect males."

More information: Thomas A. Keaney et al. Sibling rivalry versus mother's curse: can kin competition facilitate a response to selection on male mitochondria?, *Proceedings of the Royal Society B: Biological Sciences* (2020). [DOI: 10.1098/rspb.2020.0575](https://doi.org/10.1098/rspb.2020.0575)

Provided by University of Melbourne

Citation: Evolution drives greater risks of mitochondrial disease in males, fruit fly study suggests (2020, July 1) retrieved 11 May 2024 from <https://phys.org/news/2020-07-evolution-greater-mitochondrial-disease-males.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.