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PII: S0531-5565(16)30458-2
DOI: doi: 10.1016/j.exger.2017.01.016
Reference: EXG 9983

To appear in: *Experimental Gerontology*

Received date: 26 October 2016
Revised date: 17 January 2017
Accepted date: 19 January 2017

Please cite this article as: Joost van den Heuvel, Jelle Zandveld, Paul M. Brakefield, Thomas B.L. Kirkwood, Daryl P. Shanley, Bas J. Zwaan , Growing more positive with age: The relationship between reproduction and survival in aging flies. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Exg(2016), doi: 10.1016/j.exger.2017.01.016

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## Highlights

- The role of feeding senescence was added to a physiological model of fecundity and life span
- Relationship between lifespan and fecundity varied from negative to positive
- Early life trade-off changes into a positive relationship late in life
- Model predictions were verified in cohorts of individually monitored fruit-flies

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