***eLife’s* transparent reporting form**

We encourage authors to provide detailed information *within their submission* to facilitate the interpretation and replication of experiments. Authors can upload supporting documentation to indicate the use of appropriate reporting guidelines for health-related research (see [EQUATOR Network](http://www.equator-network.org/%20)), life science research (see the [BioSharing Information Resource](https://biosharing.org/%22%20%5Ct%20%22_blank)), or the [ARRIVE guidelines](http://www.plosbiology.org/article/info%3Adoi/10.1371/journal.pbio.1000412) for reporting work involving animal research. Where applicable, authors should refer to any relevant reporting standards documents in this form.

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**Sample-size estimation**

* You should state whether an appropriate sample size was computed when the study was being designed
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* If no explicit power analysis was used, you should describe how you decided what sample (replicate) size (number) to use

Please outline where this information can be found within the submission (e.g., sections or figure legends), or explain why this information doesn’t apply to your submission:

We analyzed existing data from multiple prospective longitudinal studies. Sample sizes are detailed in the results section when each sample is first introduced.

**Replicates**

* You should report how often each experiment was performed
* You should include a definition of biological versus technical replication
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* If you encountered any outliers, you should describe how these were handled
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* High-throughput sequence data should be uploaded before submission, with a private link for reviewers provided (these are available from both GEO and ArrayExpress)

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We analyzed existing data from multiple prospective longitudinal studies. Details on the measurements of key variables are provided in the methods section of the main text and supplemental methods.

**Statistical reporting**

* Statistical analysis methods should be described and justified
* Raw data should be presented in figures whenever informative to do so (typically when N per group is less than 10)
* For each experiment, you should identify the statistical tests used, exact values of N, definitions of center, methods of multiple test correction, and dispersion and precision measures (e.g., mean, median, SD, SEM, confidence intervals; and, for the major substantive results, a measure of effect size (e.g., Pearson's r, Cohen's d)
* Report exact p-values wherever possible alongside the summary statistics and 95% confidence intervals. These should be reported for all key questions and not only when the p-value is less than 0.05.

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Details on statistical analysis are reported in the “statistical analysis” section of the Methods section. We report effect-sizes in terms of Pearson r and Cohen’s d in the results section, along with 95% Confidence intervals. We specifically note instances in which associations are not statistically different from zero at the alpha=0.05 threshold. P-values for all analyses are reported in the supplemental tables.

(For large datasets, or papers with a very large number of statistical tests, you may upload a single table file with tests, Ns, etc., with reference to sections in the manuscript.)

**Group allocation**

* Indicate how samples were allocated into experimental groups (in the case of clinical studies, please specify allocation to treatment method); if randomization was used, please also state if restricted randomization was applied
* Indicate if masking was used during group allocation, data collection and/or data analysis

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There were no experimental assignments to treatment condition in this analysis. We include analysis of data from the CALERIE randomized trial. We were not involved in the conduct of that trial and did not execute group assignment.

**Additional data files (“source data”)**

* We encourage you to upload relevant additional data files, such as numerical data that are represented as a graph in a figure, or as a summary table
* Where provided, these should be in the most useful format, and they can be uploaded as “Source data” files linked to a main figure or table
* Include model definition files including the full list of parameters used
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* Avoid stating that data files are “available upon request”

Please indicate the figures or tables for which source data files have been provided:

The data analyzed in this study concern human participants in ongoing longitudinal studies or, in the case of the CALERIE Trial, a concluded randomized trial. Data for these studies are not available without specific agreements to ensure protection of participant data privacy. Details about data access are reported in the methods section of the article. We have included our analysis code (Stata software) as a supplementary file.