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**Sample-size estimation**

* You should state whether an appropriate sample size was computed when the study was being designed
* You should state the statistical method of sample size computation and any required assumptions
* 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:

Our study is a post-hoc analysis of datasets previously published in Driscoll et al. 2017. Our statistical tests contrast different algorithms applied to longitudinal data from single individuals. We restrict our claims to those individuals with sufficient data for meaningful hypothesis testing. This approach, of presenting results from only a few subjects, is common in systems neuroscience, where datasets are both challenging and expensive to collect, and where there is a strong ethical interest in minimizing the number of animals used in the experiments.

**Replicates**

* You should report how often each experiment was performed
* You should include a definition of biological versus technical replication
* The data obtained should be provided and sufficient information should be provided to indicate the number of independent biological and/or technical replicates
* If you encountered any outliers, you should describe how these were handled
* Criteria for exclusion/inclusion of data should be clearly stated
* 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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The methods section summarizes relevant information about replication over subjects, replication across time within subjects, handling of outliers, and criteria for inclusion of data.

**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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Statistical methods are described in the methods and justified in the main text. When possible, we have plotted raw data. All statistical tests are identified. In Figure 4b, we do not report individual p-values or multiple-comparison correction because p-values are indistinguishable from zero up to numerical precision, as might be expected for the scenario in which the distributions for the two populations do not overlap.

(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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This does not apply to our study, as we do not contrast or test any effects between groups of subjects.

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

Please see the ‘Data and Code Availability’ section at the end of the paper for instructions on how to access the datasets and algorithms used in this manuscript.