

Reporting Summary

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Statistical parameters

When statistical analyses are reported, confirm that the following items are present in the relevant location (e.g. figure legend, table legend, main text, or Methods section).

n/a Confirmed

- ☐ ☒ The exact sample size (n) for each experimental group/condition, given as a discrete number and unit of measurement
- ☐ ☒ An indication of whether measurements were taken from distinct samples or whether the same sample was measured repeatedly
- ☐ ☒ The statistical test(s) used AND whether they are one- or two-sided
Only common tests should be described solely by name; describe more complex techniques in the Methods section.
- ☐ ☒ A description of all covariates tested
- ☐ ☒ A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons
- ☐ ☒ A full description of the statistics including central tendency (e.g. means) or other basic estimates (e.g. regression coefficient) AND variation (e.g. standard deviation) or associated estimates of uncertainty (e.g. confidence intervals)
- ☐ ☒ For null hypothesis testing, the test statistic (e.g. F , t , r) with confidence intervals, effect sizes, degrees of freedom and P value noted
Give P values as exact values whenever suitable.
- ☒ ☐ For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings
- ☒ ☐ For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes
- ☐ ☒ Estimates of effect sizes (e.g. Cohen's d , Pearson's r), indicating how they were calculated
- ☐ ☒ Clearly defined error bars
State explicitly what error bars represent (e.g. SD, SE, CI)

Our web collection on [statistics for biologists](#) may be useful.

Software and code

Policy information about [availability of computer code](#)

Data collection

Psycscope X B57, Biosemi Actiview 7, LabChart 7.25

Data analysis

MATLAB (multiple versions), Brainvision Analyzer 2.1, RAGU 2017, sLORETA v20170220

For manuscripts utilizing custom algorithms or software that are central to the research but not yet described in published literature, software must be made available to editors/reviewers upon request. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Research [guidelines for submitting code & software](#) for further information.

Data

Policy information about [availability of data](#)

All manuscripts must include a [data availability statement](#). This statement should provide the following information, where applicable:

- Accession codes, unique identifiers, or web links for publicly available datasets
- A list of figures that have associated raw data
- A description of any restrictions on data availability

All raw data will be available on our lab website upon manuscript publication. This is clearly stated in the manuscript.

Field-specific reporting

Please select the best fit for your research. If you are not sure, read the appropriate sections before making your selection.

☐ Life sciences ☒ Behavioural & social sciences ☐ Ecological, evolutionary & environmental sciences

For a reference copy of the document with all sections, see [nature.com/authors/policies/ReportingSummary-flat.pdf](https://www.nature.com/authors/policies/ReportingSummary-flat.pdf)

Behavioural & social sciences study design

All studies must disclose on these points even when the disclosure is negative.

Study description	All data in this manuscript are quantitative, based on discrete behavioral responses or acquired continuous signals
Research sample	Research sample in this study comprised of students of the Weizmann Institute of Science and the Hebrew University of Jerusalem (Rehovot campus), ranging in age between 20-36 years (Mean age across all cohorts 25.6 Y.O, 47% Female).
Sampling strategy	We recruited 30 participants per condition, i.e., a cohort similar in size to previous studies of this type (e.g., reference 26). For the internal replication experiment, we conducted Power Analysis using G*Power software (reference 42) which indicated that for power = 0.8 we need to recruit n = 18.
Data collection	Participants' data were collected using signal acquisition software (for physiology and EEG) and input via computer keyboard. Participants were alone in the experimental room during the session. This was a within-subject design, both experimental conditions (e.g., Inhale and Exhale) were present within each session, therefore the experimenters could not affect the results.
Timing	Data were collected over the course of the leading author's PhD studies, between 2013-2018.
Data exclusions	In experiments involving phase-locking of stimulus to respiratory phase, trials that were presented erroneously not locked to inhalation or exhalation onset (confirmed by instantaneous phase value) were discarded prior to analysis (on average, ~10% of trials). The first trial of session was discarded to account for lack of attention or surprise brought about by session start (one out of 160). In ERP-EEG analysis, epochs containing artifacts were discarded using semiautomatic exclusion criteria set to default by the software (3-5% of the epochs). In topographical ANOVA, data underwent multi-dimensional scaling to remove outlier ERP data using Mahalanobis distance, thresholded at $p < 0.05$ (default setting of RAGU). This led to the exclusion of 3 participants' data. In the EEG at rest sessions, the dataset of about 600 epochs was randomly down-sampled (random selection of trials) to 200 to reduce computational load.
Non-participation	The experimental procedure was described in detail before participants arrived at the lab. On experiment day no participants refused to participate or dropped out mid-experiment.
Randomization	The experimental designs used were within-participant, therefore no randomization into groups was needed.

Reporting for specific materials, systems and methods

Materials & experimental systems

n/a	Involved in the study
☒	☐ Unique biological materials
☒	☐ Antibodies
☒	☐ Eukaryotic cell lines
☒	☐ Palaeontology
☒	☐ Animals and other organisms
☐	☒ Human research participants

Methods

n/a	Involved in the study
☒	☐ ChIP-seq
☒	☐ Flow cytometry
☒	☐ MRI-based neuroimaging

Human research participants

Policy information about [studies involving human research participants](#)

Population characteristics	See above
Recruitment	Participants were recruited via online ads regularly published by our group in specialized "human experimentation" groups in the social media.