

# Tom E. Hardwicke

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University of Melbourne

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## ACADEMIC APPOINTMENTS

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<b>Research Fellow.</b> School of Psychological Sciences, University of Melbourne, Australia. Advisor: Prof. Simine Vazire.	2022 – present
<b>Marie Skłodowska-Curie Research Fellow.</b> Department of Psychology, University of Amsterdam, The Netherlands. Advisor: Prof. Eric-Jan Wagenmakers.	2020 – 2022 [2 years]
<b>Visiting Fellow.</b> Berlin Institute of Health QUEST Center, Charité – Universitätsmedizin Berlin, Germany.	2020 – 2021 [1 year]
<b>Postdoctoral Scholar.</b> Meta-Research Innovation Center Berlin (METRIC-B), Berlin Institute of Health QUEST Center, Charité – Universitätsmedizin Berlin, Germany. Advisor: Prof. John Ioannidis.	2019 – 2020 [1 year]
<b>Postdoctoral Fellow.</b> Meta-Research Innovation Center at Stanford (METRICS), Stanford University, USA. Advisors: Prof. John Ioannidis, Prof. Steven Goodman, & Prof. Michael Frank.	2017 – 2018 [2 years]

## EDUCATION

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<b>PhD Experimental Psychology.</b> University College London, UK. Advisor: Prof. David Shanks.	2012 – 2016 [4 years]
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<b>MRes Brain Imaging and Cognitive Neuroscience.</b>	2011 – 2012
University of Birmingham, UK.	[1 year]
<b>BSc Psychology (First Class Honours).</b>	2007 – 2011
Cardiff University, UK.	[4 years]

## PUBLICATIONS

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- Frank, M. C., Braginsky, M., Cachia, J., Coles, N., Hardwicke, T. E., Hawkins, R., Mathur, M., & Williams, R. (preprint). Experimentology: An open science approach to experimental psychology methods. MIT Press. Open access: <https://experimentology.io>
- Thibault, R. T., Kovacs, M., Hardwicke, T. E., Sarafoglou, A., Ioannidis, J. P., & Munafo, M. R. (preprint). Reducing bias in secondary data analysis via an Explore and Confirm Analysis Workflow (ECAW): A proposal and survey of observational researchers. *MetaArXiv*. <https://doi.org/j8kb>
- Fernández, L. M., Hardwicke, T. E., & Vadillo, M. A. (preprint). Retracted papers clinging on to life: An observational study of post-retraction citations in psychology. *PsyArXiv*. <https://doi.org/hcht>
- Hardwicke, T. E., & Wagenmakers, E.-J. (2023). Reducing bias, increasing transparency, and calibrating confidence with preregistration. *Nature Human Behaviour*, 7, 15-26. <https://rdcu.be/c49sw>
- Hardwicke, T. E., Salholz-Hillel, M., Malički, M., Szűcs, D., Bendixen, T., Ioannidis, J. P. A. (2023). Statistical guidance to authors at top-ranked journals across scientific disciplines. *The American Statistician*, 77(3), 239-247. <https://doi.org/jksd>
- Hardwicke, T. E., Thibault, R. T., Kosie, J. E., Tzavella, L., Bendixen, T., Handcock, S. A. Köneke, V. E., Ioannidis, J. P. A. (2022). Post-publication critique at top-ranked journals across scientific disciplines: A cross-sectional assessment of policies and practice. *Royal Society Open Science*, 9, 220139. <https://doi.org/h828>
- TARG Meta-Research Group & Collaborators [Thibault, R. T., Hardwicke, T. E., Clark, R. W. A., Pennington, C. R., Nilsonne, G., O'Mahony, A., Drax, K., Thompson, J., Munafo, M. R.] (2022). Discrepancy review: A feasibility study of a novel peer review intervention to reduce undisclosed discrepancies between registrations and publications. *Royal Society Open Science*, 9, 220142. <https://doi.org/h78p>
- Nosek, B. A., Hardwicke, T. E., Moshontz, H., Allard, A., Corker, K. S., Dreber, A., Fidler, F., Hilgard, J., Kline Struhl, M., Nuijten, M., Rohrer, J., Romero, F., Scheel,

- A., Scherer, L., Schönbrodt, F., & Vazire, S. (2022). Replicability, robustness, and reproducibility in psychological science. *Annual Review of Psychology*, 73, 719-748. <https://doi.org/g3qf>
- Hardwicke, T. E., Thibault, R. T., Kosie, J. E., Wallach, J. D., Kidwell, M. C., & Ioannidis, J. P. A. (2022). Estimating the prevalence of transparency and reproducibility-related research practices in psychology (2014-2017). *Perspectives on Psychological Science*, 17(1), 239-251. <https://doi.org/fzwj>
- Hardwicke, T. E., Szűcs, D., Thibault, R. T., Crüwell, S., van den Akker, O. R., Nuijten, M. B., & Ioannidis, J. P. A. (2021). Citation patterns following a strongly contradictory replication result: Four case studies from psychology. *Advances in Methods and Practices in Psychological Science*, 4(3), 1-14. <https://doi.org/gwt8>
- Hardwicke, T. E., Bohn, M., MacDonald, K., Hembacher, E., Nuijten, M. B., Peloquin, B. N., deMayo, B., Long, B., Yoon, E. J., & Frank, M. C. (2021). Analytic reproducibility in articles receiving open data badges at Psychological Science: An observational study. *Royal Society Open Science*, 8, 201494. <https://doi.org/fp2m>
- Hardwicke, T. E., & Goodman, S. N. (2020). How often do leading biomedical journals use statistical experts to evaluate statistical methods? The results of a survey. *PLOS ONE*, 15(10), e0239598. <https://doi.org/fbz5>
- Hardwicke, T. E., Serghiou, S., Janiaud, P., Danchev, V., Crüwell, S., Goodman, S. N., & Ioannidis, J. P. A. (2020). Calibrating the scientific ecosystem through meta-research. *Annual Review of Statistics and its Application*, 7, 11-37. <http://doi.org/dv4n>
- Ferrero, M., Hardwicke, T. E., Konstantinidis, E., & Vadillo, M. A. (2020). The effectiveness of refutation texts to correct misconceptions among educators. *Journal of Experimental Psychology: Applied*, 26(3), 411-421. <http://doi.org/dv4m>
- Hardwicke, T. E., Wallach, J. D., Kidwell, M. C., Bendixen, T., Crüwell, S., & Ioannidis, J. P. A. (2020). An empirical assessment of transparency and reproducibility-related research practices in the social sciences (2014-2017). *Royal Society Open Science*, 7, 190806. <http://doi.org/ggm5vg>
- Hardwicke, T. E., & Ioannidis, J. P. A. (2019). Petitions in scientific argumentation: dissecting the request to retire statistical significance. *European Journal of Clinical Investigation*, 49(10), e13162. <http://doi.org/gf8j4t>
- Nosek, B. A., Beck, E. D., Campbell, L., Flake, J. K., Hardwicke, T. E., Mellor, D. T., van 't Veer, A. E., & Vazire, S. (2019). Preregistration is hard, and worthwhile. *Trends in Cognitive Sciences*, 23(10), 815-818. <http://doi.org/dv4k>

- Hardwicke, T. E., Frank, M. C., Vazire, S., & Goodman, S. N. (2019). Should psychology journals adopt specialized statistical review? *Advances in Methods and Practices in Psychological Science*, 2(3), 240-249. <http://doi.org/gf4mm5>
- Hardwicke, T. E. & Ioannidis, J. P. A. (2018). Mapping the universe of Registered Reports. *Nature Human Behaviour*, 2, 793–796. <http://doi.org/ggf5xf>
- Hardwicke, T. E., Mathur, M. B., MacDonald, K. E., Nilsonne, G., Banks, G. C., Kidwell, M. C., Hofelich Mohr, A., Clayton, E., Yoon, E. J., Henry Tessler, M., Lenne, R. L., Altman, S., Long, B., & Frank, M. C. (2018). Data availability, reusability, and analytic reproducibility: Evaluating the impact of a mandatory open data policy at the journal Cognition. *Royal Society Open Science*, 5, 180448. <http://doi.org/gdz63s>
- Hardwicke, T. E. & Ioannidis, J. P. A. (2018). Populating the Data Ark: An Attempt to retrieve, preserve, and liberate data from the most highly-cited psychology and psychiatry articles. *PLOS ONE*, 13(8): e0201856. <http://doi.org/cs4z>
- Hardwicke, T. E., Tessler, M. H., Peloquin, B. N., Frank, M. C. (2018). A Bayesian decision-making framework for replication. *Behavioral and Brain Sciences*, 41, e132. <http://doi.org/dv4j>
- Klein, O., Hardwicke, T. E., Aust, F., Breuer, J., Danielsson, H., Hofelich Mohr, A., IJzerman, H., Nilsonne, G., Vanpaemel, W., & Frank, M. C. (2018). A practical guide for transparency in psychological science. *Collabra: Psychology*, 4(1), 20. <http://doi.org/gdqd2p>
- Cristea, I. A., Naudet, F., Shanks, D. R., & Hardwicke, T. E. (2017). Post-retrieval Tetris should not be likened to a ‘cognitive vaccine’. *Molecular Psychiatry*, 23, 1972-1973. <https://perma.cc/X6CV-B644>
- Hardwicke, T. E. & Shanks, D. R. (2016). Reply to Walker and Stickgold: Proposed boundary conditions on memory reconsolidation will require empirical verification. *Proceedings of the National Academy of Sciences*, 113(28), E3993-E3994. <https://doi.org/gzdvd>
- Kidwell, M. C., Lazarević, L. B., Baranski, E., Hardwicke, T. E., Piechowski, S., Falkenberg, L-S., Kennett, C., Slowik, A., Sonnleitner, C., Hess-Holden, C., Errington, T. M., Fiedler, S., & Nosek, B. A. (2016). Badges to acknowledge open practices: A simple, low cost, effective method for increasing transparency. *PLOS Biology*, 14(5): e1002456. <http://doi.org/f8pkck>
- Hardwicke, T. E., Mahdi, T., & Shanks, D. R. (2016). Post-retrieval new learning does not reliably induce human memory updating via reconsolidation. *Proceedings of the National Academy of Sciences*, 113(19), 5206-5211. <https://doi.org/f8kq2d>

- Vadillo, M. A., Hardwicke, T. E., Shanks, D. R. (2016). Publication bias, vote counting, and money priming effects: A comment on Rohrer, Pashler, and Harris (2015) and Vohs (2015). *Journal of Experimental Psychology: General*, 145(5), 655-663. <http://doi.org/f8k7cs>
- Hardwicke, T. E. (2016). Persistence and plasticity in the human memory system: An empirical investigation of the overwriting hypothesis. *PhD Thesis*. <http://doi.org/dv4h>
- Baker, R., Dexter, M., Hardwicke, T. E., Goldstone, A., Kourtzi, Z. (2014). Learning to predict: Exposure to temporal sequences facilitates prediction of future events. *Vision Research*, 99, 124-133. <http://doi.org/f55xxd>
- Ludwig, C. J. H., Farrell, S., Ellis, L. A., Hardwicke, T. E., & Gilchrist, I. D. (2012). Context-gated statistical learning and its role in visual-saccadic decisions. *Journal of Experimental Psychology: General*, 141(1), 150-169. <http://doi.org/dgjbhd>

## PRESENTATIONS

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- Hardwicke, T. E. (2023). Improving science with meta-research. *School of Psychology, University of New South Wales, Australia*. [invited]
- Hardwicke, T. E. (2023). How should journals handle scientific criticism? *Metascience 2023, USA*. [invited]
- Hardwicke, T. E. (2023). Bad statistics: What can journals do? *Statistical Society of Australia, Queensland Branch, Australia*. [invited]
- Hardwicke, T. E., Salholz-Hillel, M., Malički, M., Szűcs, D., Bendixen, T., Ioannidis, J. P. A. (2022). Statistical guidance to authors at top-ranked journals across 22 scientific disciplines. *International Congress on Peer Review and Scientific Publication, USA*.
- Hardwicke, T. E., Thibault, R. T., Kosie, J. E., Tzavella, L., Bendixen, T., Handcock, S. A., Köneke, V. E., Ioannidis, J. P. A. (2022). Assessment of postpublication critique policies and practice at top-ranked journals in 22 scientific disciplines. *International Congress on Peer Review and Scientific Publication, USA*.
- Hardwicke, T. E. (2022). Defence against the Dark Arts: The potential, progress, and possible pitfalls of preregistration. *Joint Statistical Meetings, USA*. [invited]
- Hardwicke, T. E. (2022). Independent post-publication editors: A proposal to facilitate transparency, accountability, and critical discourse at academic journals. *Society for Improving Psychological Science Conference, Canada*.

- Hardwicke, T. E. (2022). Making transparency the default in scientific research: How are we doing and where are we going? *CIDER Workshop, Leibniz Institute for Research and Information in Education, Germany*. [invited keynote]
- Hardwicke, T. E. (2022). How should journals handle scientific criticism? *METRICS International Forum, Stanford University, USA*. [invited]
- Hardwicke, T. E. (2022). Citation patterns following a strongly contradictory replication result: Four case studies from psychology. *Berkeley Initiative for Transparency in the Social Sciences Annual Meeting. University of California, Berkeley, USA*.
- Hardwicke, T. E. (2021). Computational reproducibility in psychology: Essential, neglected, & achievable. *Association for Interdisciplinary Meta Research and Open Science Conference, Australia*. [invited]
- Hardwicke, T. E. (2021). Share if you can, declare if you can't: Making transparency the default in psychological science. *University of Lancaster, UK*. [invited]
- Hardwicke, T. E. (2021). Preregistration: A pragmatic tool to reduce bias and calibrate confidence in scientific research. *Ludwig Maximilian University of Munich, Germany*. [invited]
- Hardwicke, T. E. (2020). Calibrating the scientific ecosystem through meta-research. *University of Osnabrück, Germany*. [invited]
- Hardwicke, T. E. (2020). Calibrating the scientific ecosystem through meta-research. *University of Bristol, UK*. [invited]
- Hardwicke, T. E. (2020). What is this thing called open science? *Goethe University Frankfurt, Germany*. [invited]
- Hardwicke, T. E. (2020). What is this thing called open science? *Friedrich-Schiller University of Jena, Germany*. [invited]
- Hardwicke, T. E. (2019). Just another brick in the wall? On the diagnosticity of replications and their contribution to scientific progress. *University of Hamburg, Germany*. [invited]
- Hardwicke, T. E., Wallach, J. D., Crüwell, S., & Ioannidis, J. P. A. (2019). Transdisciplinary estimates for the prevalence of transparency and reproducibility related research practices. *Association for Interdisciplinary Meta Research and Open Science Conference, Australia*. [poster]
- Hardwicke, T. E. (2019). Calibrating the scientific ecosystem through meta-research. *University of Trier, Germany*. [invited keynote]

- Hardwicke, T. E. (2018). Rehabilitating the scientific ecosystem. *The Bank of England, UK*. [invited]
- Hardwicke, T. E. (2018). What is this thing we call 'open science'? *Stanford University, USA*. [invited]
- Hardwicke, T. E. (2018). Fostering the preservation, liberation, and re-use of data in psychological science. *University of California, Davis, USA*. [invited]
- Hardwicke, T. E., Mathur, M. B., Nilsonne, G., McCarthy, R., Hofelich Mohr, A., & Lindsay, D. S. (2018). Analysis Exchange: Developing an online platform to request verification of analytic reproducibility and statistical expertise. *Society for Improving Psychological Science Conference*.
- Hardwicke, T. E. (2018). SMART pre-registrations: Developing a citation system to facilitate comparison of protocols and papers. *Society for Improving Psychological Science Conference*.
- Hardwicke, T. E. (2017). Principles of reproducible research. *Stanford University, USA*. [invited]
- Hardwicke, T. E. (2017). Open data are not enough: An evaluation of data availability and computational reproducibility at the journal Cognition. *Department of Psychology, Stanford University, USA*.
- Hardwicke, T. E. (2017). Open data are not enough: An evaluation of data availability and computational reproducibility at the journal Cognition. *Society for Improving Psychological Science Conference*.
- Hardwicke, T. E., & Shanks, D. R. (2016). Revisiting the misinformation effect: Does reconsolidation overwrite existing memories? *6th International Conference on Memory, Hungary*. [poster]
- Hardwicke, T. E., Mahdi, T., & Shanks, D. R. (2016). Post-retrieval new learning does not reliably induce human memory updating via reconsolidation. *6th International Conference on Memory, Hungary*.
- Hardwicke, T. E., & Shanks, D. R. (2015). Does reconsolidation enable human memory updating? *Experimental Psychology Society London Meeting, UK*.
- Hardwicke, T. E., & Shanks, D. R. (2014). Does reconsolidation enable human memory updating? *UCL Faculty of Brain Sciences Symposium, UK*. [poster]
- Hardwicke, T. E. (2013). The stability and plasticity of human knowledge. *ESRC UCL DTC Annual Meeting, UK*. [poster]

Hardwicke, T. E., Ludwig, C. J. H., Farrell, S., Ellis, L. A., & Gilchrist, I. D. (2010). Learning the environmental statistics facilitates effective gaze allocation. *BPS Welsh Branch Annual Student Conference, UK*.

Hardwicke, T. E., Ludwig, C. J. H., Farrell, S., Ellis, L. A., & Gilchrist, I. D. (2010). Statistical learning facilitates effective gaze allocation. *BVI Young Researchers' Colloquium, UK*. [poster]

## AWARDS

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<b>Einstein Early Career Award (top four finalist).</b> Einstein Foundation, Germany.	2022
<b>Best Poster Prize.</b> Economic and Social Research Council Annual Meeting, UK.	2013
<b>The George Westby Prize (highest degree grade).</b> Cardiff University, UK.	2011
<b>The Stuart Diamond Memorial Prize (best final year project).</b> Cardiff University, UK.	2011
<b>The British Psychological Society Undergraduate Award.</b> Cardiff University, UK.	2011
<b>Best Presentation Award.</b> British Psychological Society Student Conference, UK.	2010

## GRANTS & FUNDING

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<b>Marie Skłodowska-Curie Individual Fellowship.</b> European Commission, Europe.	2020
<b>Grindley Grant (travel), International Conference on Memory.</b> Experimental Psychology Society, UK.	2016
<b>Travel Grant, International Conference on Memory.</b> University College London, UK.	2016
<b>ESRC Collaborative Placement Funding.</b> Economic and Social Research Council, UK.	2015
<b>Travel Grant, Human Factors in Science Symposium.</b> University College London, UK.	2014



<b>ESRC PhD Studentship.</b> Economic and Social Research Council, UK.	2012
<b>Undergraduate Research Opportunities Program.</b> Cardiff University, UK.	2009

## TEACHING EXPERIENCE

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<b>Ad-Hoc Lecturer</b> ("Calibrating the scientific ecosystem through meta-research"). <i>Good Research Practices (graduate-level)</i> , Department of Psychology, University of Amsterdam.	2021
<b>Ad-Hoc Lecturer</b> ("Calibrating the scientific ecosystem through meta-research"). <i>Good Research Practices (graduate-level)</i> , Department of Psychology, University of Amsterdam.	2020
<b>Ad-Hoc Lecturer</b> ("Reproducible reports with R Markdown"). <i>Western Psychological Association Convention</i> . [with Michael Frank]	2020
<b>Ad-Hoc Lecturer</b> ("Principles of research reproducibility and transparency"). <i>Essentials of Clinical Research (graduate level)</i> , Stanford Medicine, Stanford University.	2018
<b>Ad-Hoc Lecturer</b> ("Creating reproducible research reports using R Markdown"). <i>SPSP Webinar</i> . [with Michael Frank]	2018
<b>Ad-Hoc Lecturer</b> ("How to write a reproducible scientific paper"). <i>Experimental Methods (graduate-level)</i> , Department of Psychology, Stanford University.	2018
<b>Ad-Hoc Lecturer</b> ("Data visualization in R"). <i>Introduction to R (undergraduate-level)</i> , Department of Psychology, Stanford University.	2018
<b>Ad-Hoc Lecturer</b> ("Repeatability, reproducibility, and validation"). <i>Scientific Method and Bias (undergraduate-level)</i> , Stanford University.	2018
<b>Ad-Hoc Lecturer</b> ("Principles of reproducible research"). <i>Essentials of Clinical Research (graduate level)</i> , Stanford Medicine, Stanford University.	2018
<b>Ad-Hoc Lecturer</b> ("On the nature of replication"). <i>CSLI Summer School (undergraduate-level)</i> , Center for the Study of Language and Information, Stanford University.	2017

- Ad-Hoc Lecturer** (“Building a reproducible research workflow”). 2017  
*Essentials of Clinical Research (graduate-level)*, Stanford Medicine,  
Stanford University.
- Postgraduate Teaching Assistant.** *Research and Quantitative Methods* 2014 -2016  
*in Psychology (undergraduate-level)*, Department of Experimental  
Psychology, University College London.
- Ad-hoc lecturer** (“Introduction to open science”). *Social Cognition* 2016  
*(graduate-level)*, Department of Experimental Psychology, University  
College London.
- Ad-hoc lecturer** (“Introduction to memory & learning”). *Cognitive* 2015  
*and Decision Sciences (graduate-level)*, Department of Experimental  
Psychology, University College London.

## STUDENT SUPERVISION, MENTORSHIP, & ASSESSMENT

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### PHD STUDENTS

Maia Salholz-Hillel (Current, co-supervisor), Sophia Crüwell (2023, co-supervisor).

### UNDERGRADUATE (U) & MASTERS (M) STUDENTS

Mahdi Taqi (2014, M); Gudmundur Haraldsson (2015, M); Bethany Manning (2016, UG); Emily Huxtable (2017, UG); Athena Braun (2018, UG); Judith Herbers (2020, M).

### PHD EXAMINER

Natalie Schroyens (2021, KU Leuven). Michael Gordon (2022, Massey University), Alexandra Sarafoglou (2023, University of Amsterdam).

## PROFESSIONAL SERVICE

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- Associate Editor.** Royal Society Open Science. 2023 – present
- Editorial Board Member.** Institute for Replication. 2023 – present
- Secretary.** Association for Interdisciplinary Meta-Research and Open Science (AIMOS). 2022 – present
- Co-organiser.** ReproducibiliTea journal club. University of Melbourne. 2022 – present
- Affiliate.** Meta-Research Innovation Center at Stanford (METRICS). 2019 – present

- Open Science Catalyst.** Berkeley Initiative for Transparency in the Social Sciences (BITSS). 2017 – present
- Open Science Ambassador.** Center for Open Science. 2015 – present
- Conference Program Committee Member.** Society for Improving Psychological Science 2020 Annual Conference [online]. 2020
- Executive Committee Member.** Society for Improving Psychological Science. 2018 – 2019
- Conference Program Committee Chair.** Society for Improving Psychological Science 2019 Annual Conference, The Netherlands. 2019
- Scholar in Residence.** Center for Open Science. 2015
- Convener.** Is Science Broken? [Public debate]. University College London. 2015
- Co-founder.** Postgraduate discussion group CRITUCL. University College London. 2012 – 2015
- Opticon1826 Faculty Editor (Brain Sciences).** University College London. 2012 – 2015
- ESRC Student Representative.** University College London. 2012 – 2014
- Peer-review (journals/conferences).** Advances in Methods and Practices in Psychological Science [7]. Royal Society Open Science [6]. Nature Human Behaviour [5]. Perspectives on Psychological Science [2]. Psychological Bulletin [2]. American Psychologist [2]. Collabra: Psychology [2]. PLOS ONE [2]. International Congress on Peer Review and Scientific Publication [2]. Behavior Research Methods [2]. PNAS [2]. PLOS Computational Biology [1]. Research Integrity and Peer Review [1]. Research Synthesis Methods [1]. Journal of Experimental Psychology: Learning Memory & Cognition [1]. Neuroinformatics [1]. Research Synthesis [1]. BMC Research Notes [1]. General Psychiatry [1]. Prevention Science [1]. Social Psychological Bulletin [1]. Behavioural Brain Research [1]. Nature Communications [1]. PeerJ [1]. Sports Medicine [1]. JMIR Dermatology [1]. Communications of the ACM [1]. Psychological Methods [1]. Cognition [1]. Psychological Science [1]. Science [1].
- Peer-review (funders).** National Science Foundation (USA) [1]. National Science Center (Poland) [1]. FWF Austrian Science Fund (Austria) [1].

## REFERENCES

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Available on request.