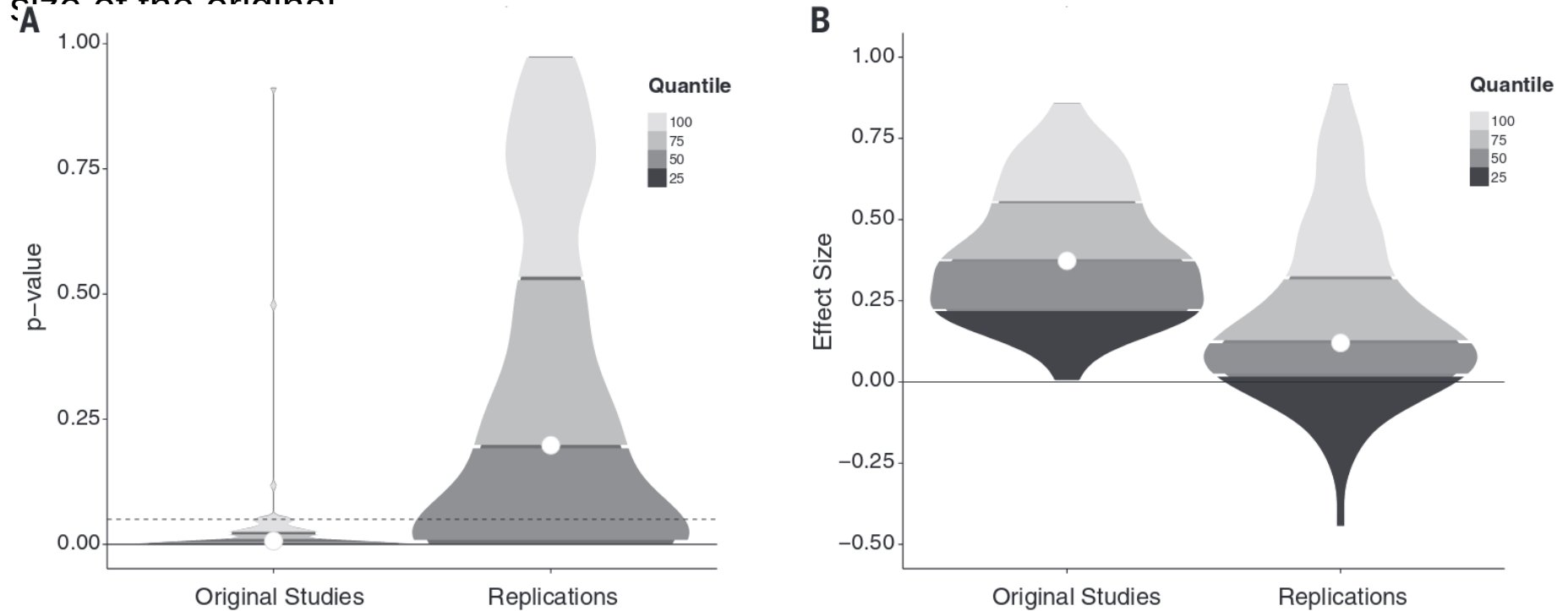


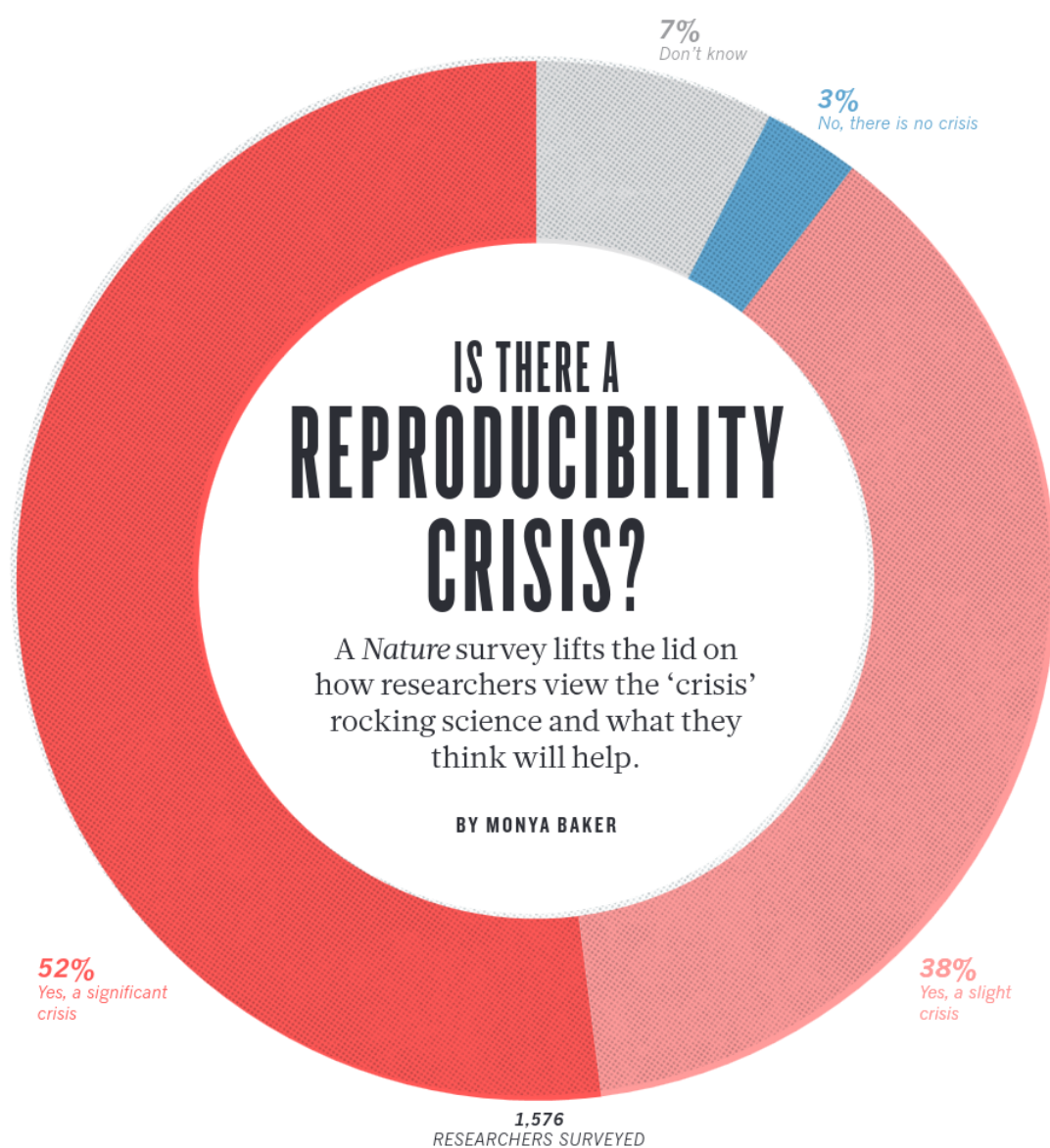
Challenging the status quo

Results from replication experiments in vestibular cognition

Prof. Matthias Ertl
University of Lucerne & Luzerner Kantonsspital (LUKS)

- 97% of original studies had significant results but only 36% of replications had significant results
- mean effect size of the replication effects was half the magnitude of the mean effect size of the original





HARD SCIENCE — JUNE 6, 2022

There is no replication crisis in science. It's the base rate fallacy.

If a hypothesis is highly unlikely to be true, even a positive result means that it is still unlikely that it is indeed true. Results overturned by later experiments highlight the self-correcting nature of science.

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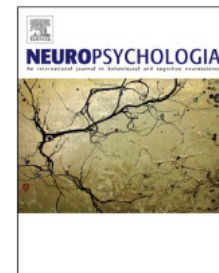


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Galvanic Vestibular Stimulation influences risk-taking behaviour

Gabriele De Maio ^{a,b}, Gabriella Bottini ^{b,c}, Elisa Raffaella Ferré ^{a,*}

^a *Department of Psychology, Royal Holloway University of London, Egham, UK*

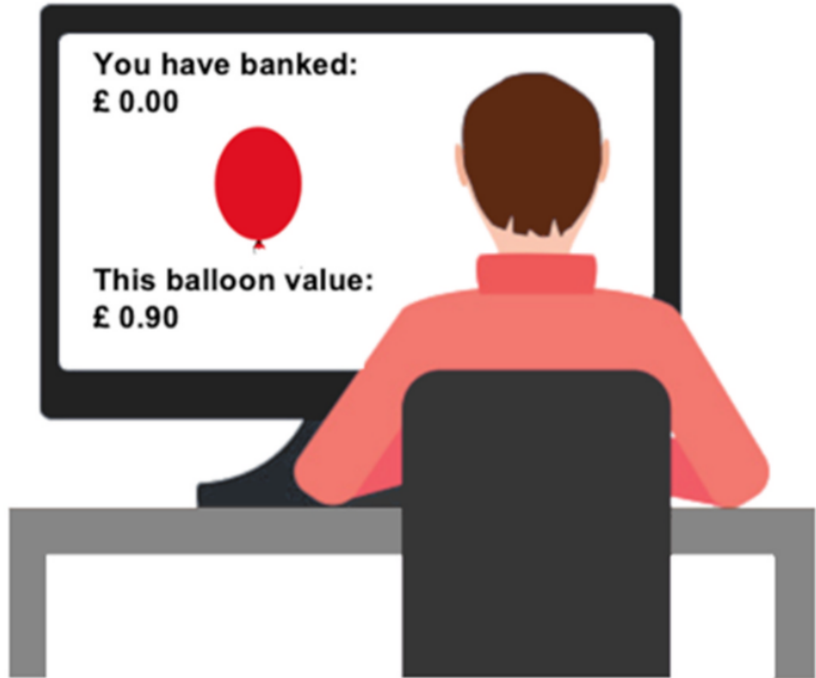
^b *Brain and Behavioural Sciences Department, University of Pavia, Pavia, Italy*

^c *Centre of Cognitive Neuropsychology, ASST Grande Ospedale Metropolitano, Niguarda Hospital, Milan, Italy*



Galvanic Vestibular Stimulation influences risk-taking behaviour

A



L-GVS



R-GVS

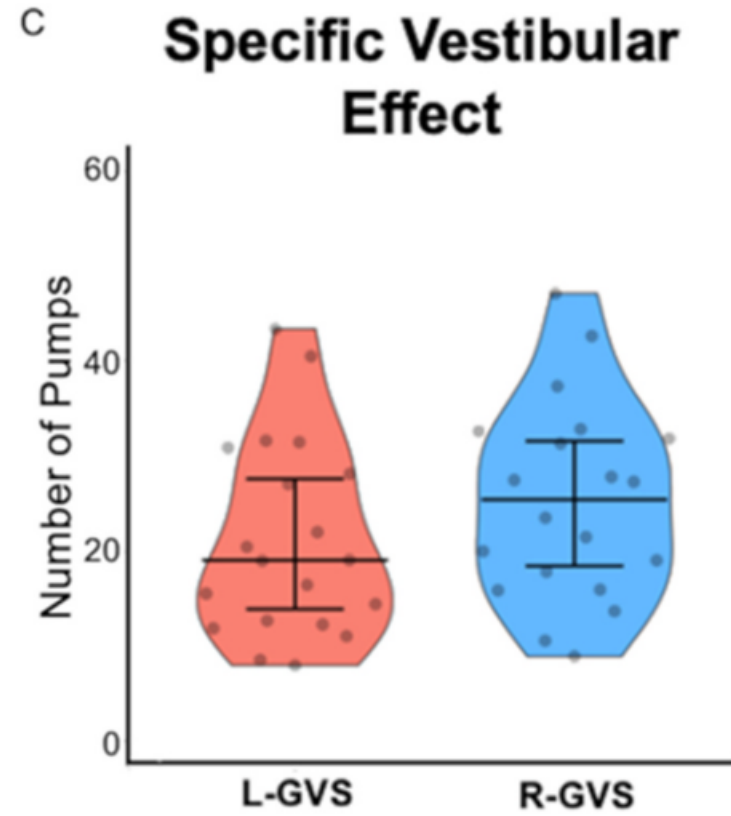
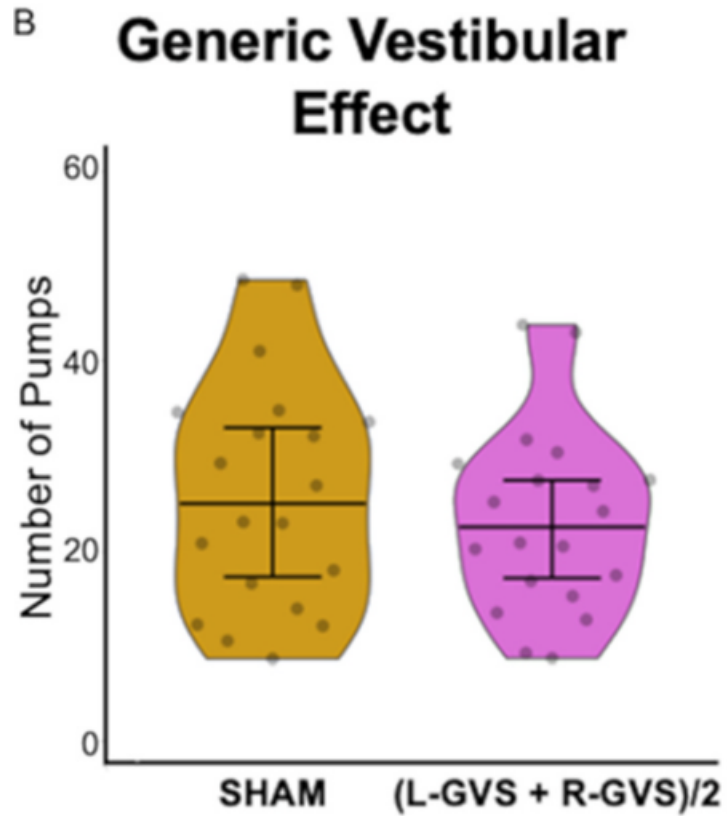


SHAM



- Balloon Analogue Risk Task (BART)
- GVS vs. Sham (1mA squared wave form)
- N = 20

Galvanic Vestibular Stimulation influences risk-taking behaviour



Replication: Galvanic Vestibular Stimulation influences risk-taking behaviour

- Cohen's $d = -0.548$, power = 0.9 $\rightarrow N = 37$
- Balloon Analogue Risk Task (BART)
- Game of Dice Task (GDT)



<https://osf.io/ufy7j>

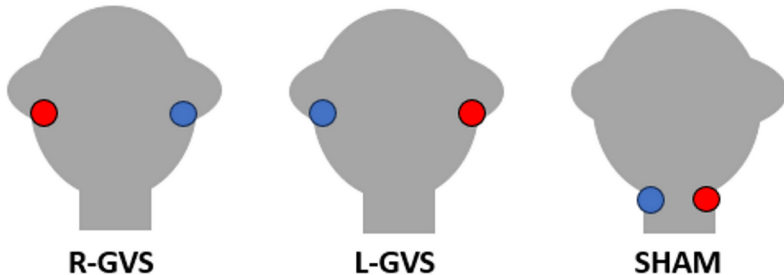
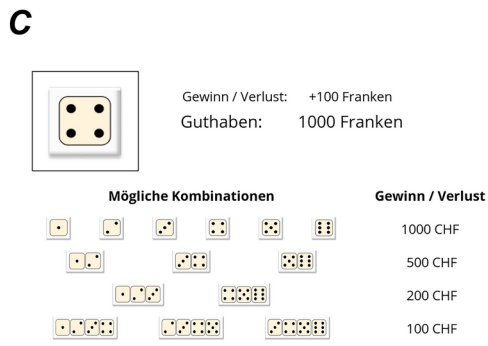
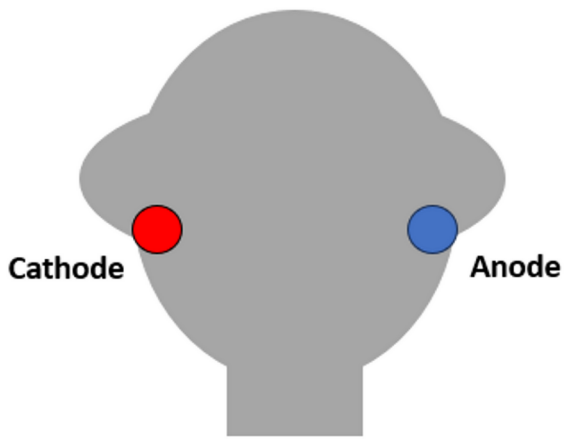
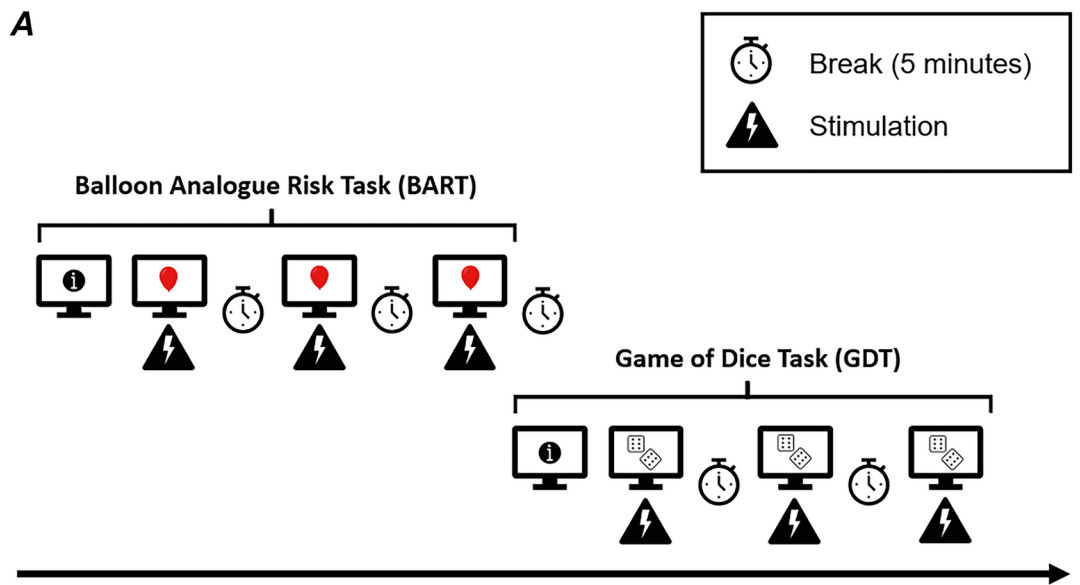


<https://github.com/andre-minder/GVS-and-risk-taking>

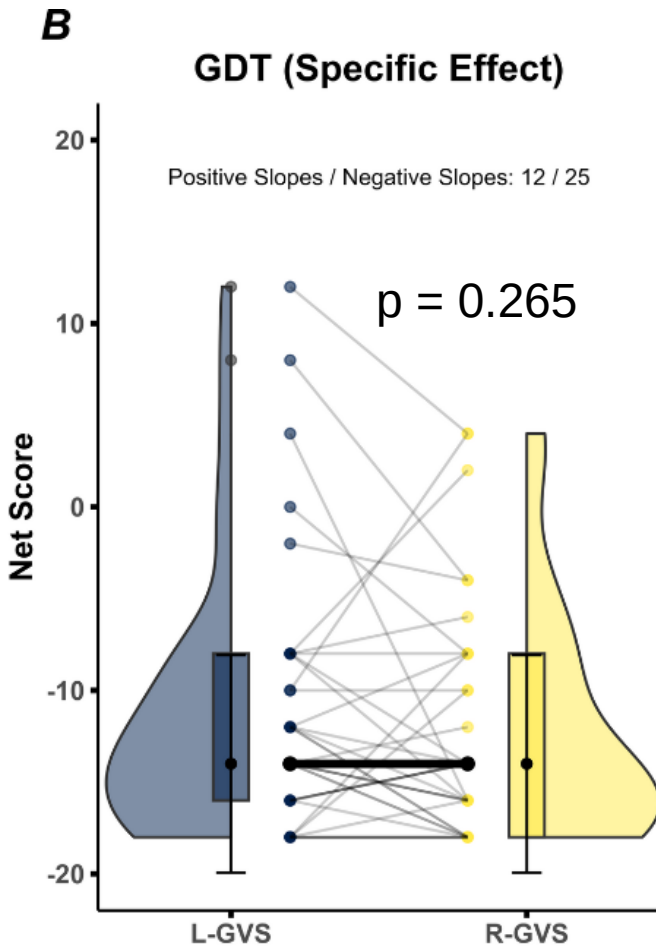
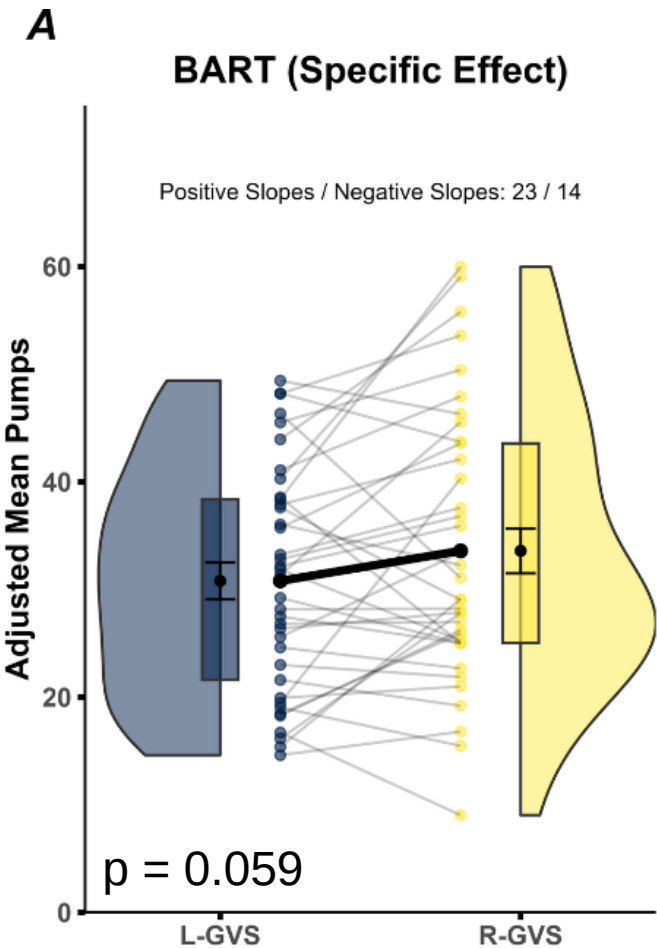


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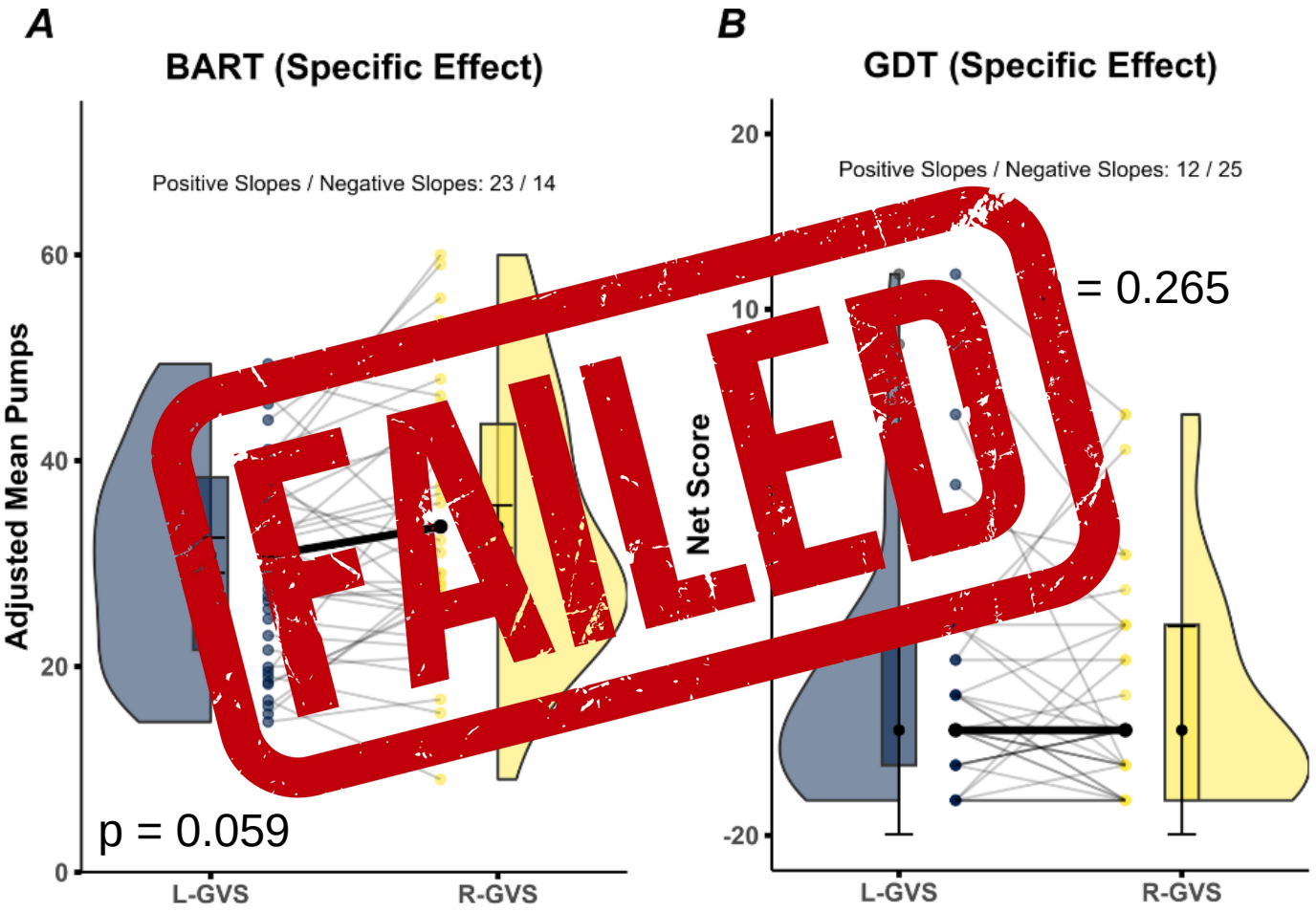


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N = 37

Replication: Galvanic Vestibular Stimulation influences risk-taking behaviour



N = 37

Psychological Research (2014) 78:18–27

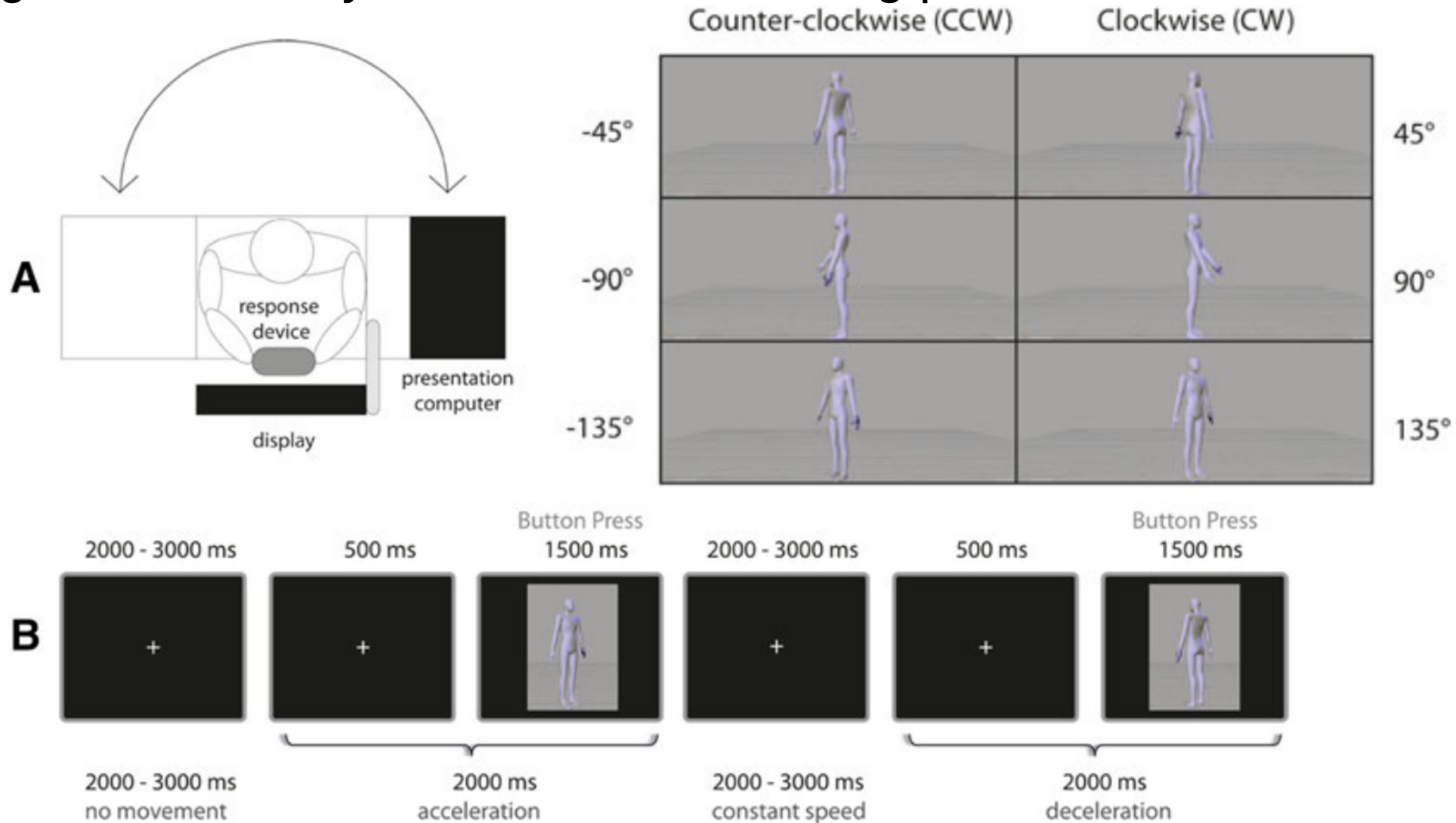
DOI 10.1007/s00426-013-0486-8

ORIGINAL ARTICLE

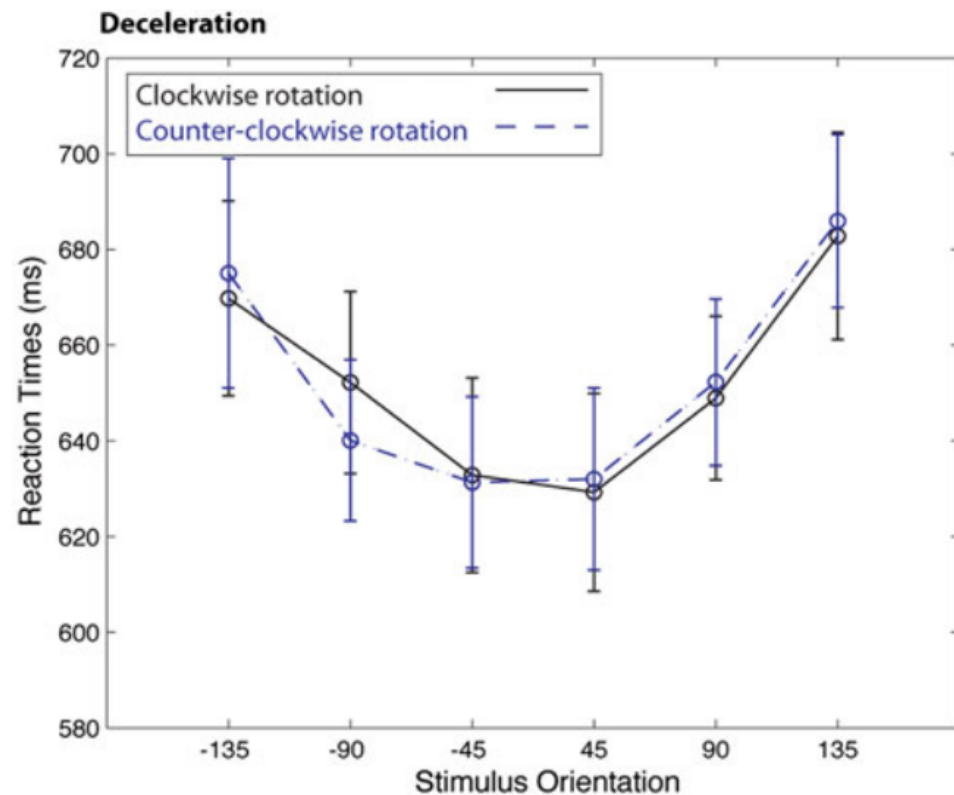
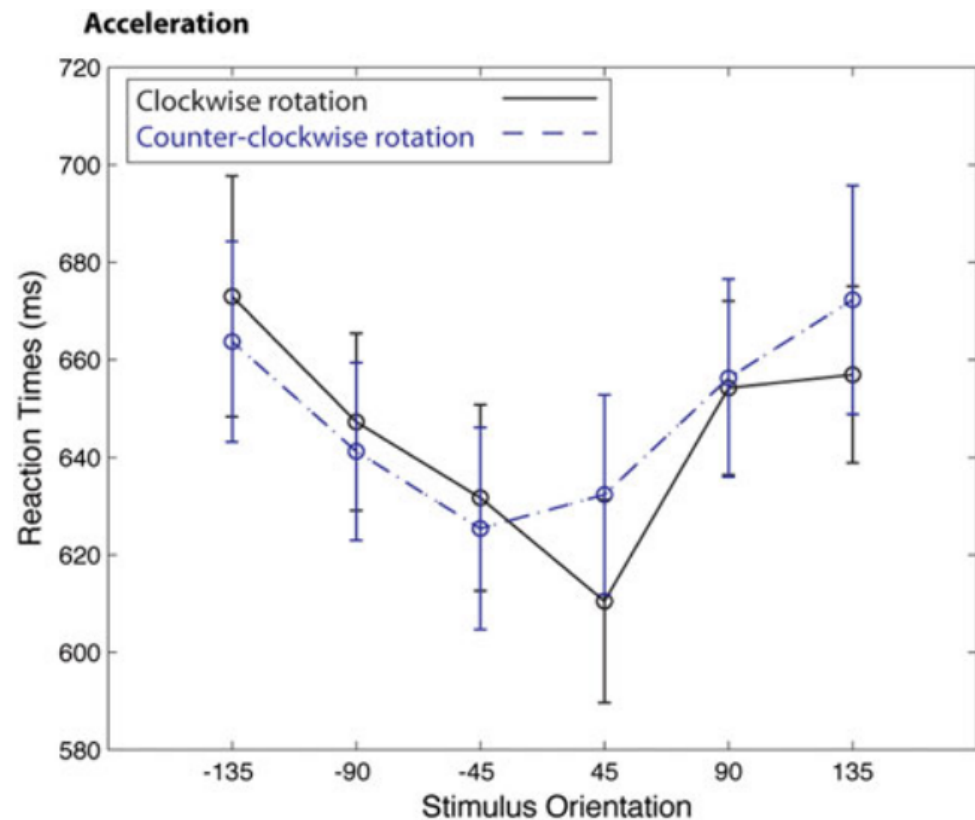
Imagined own-body transformations during passive self-motion

Michiel van Elk · Olaf Blanke

Imagined own-body transformations during passive self-motion



Imagined own-body transformations during passive self-motion



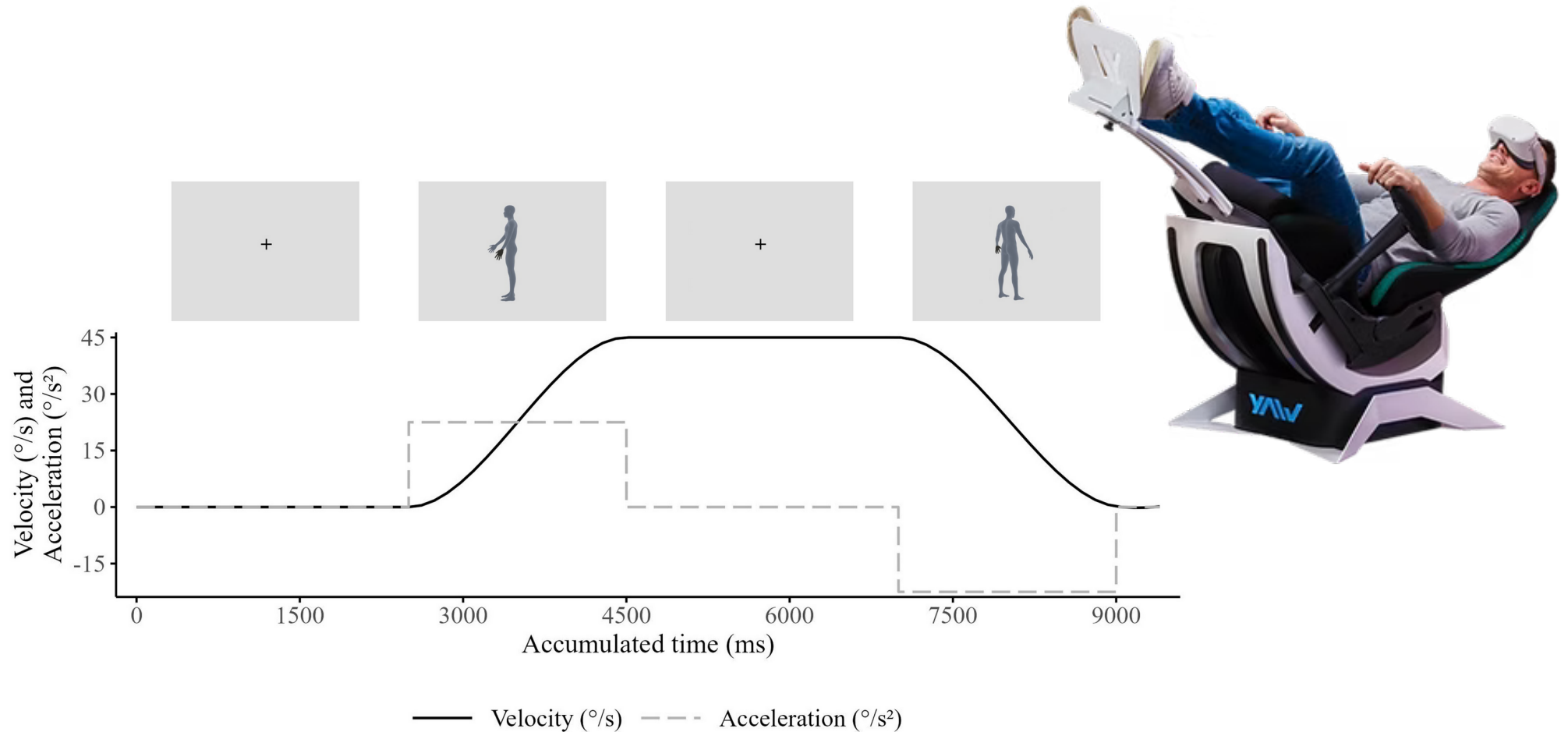
Replication: Galvanic Vestibular Stimulation influences risk-taking behaviour

- $\eta^2 = 0.31$, power = 0.8 \rightarrow N = 20
- Yaw2 (VR-Chair) controlled by PlatformCommander (Ertl et al., 2022)
- Pimax Vision 8K (VR-goggle)

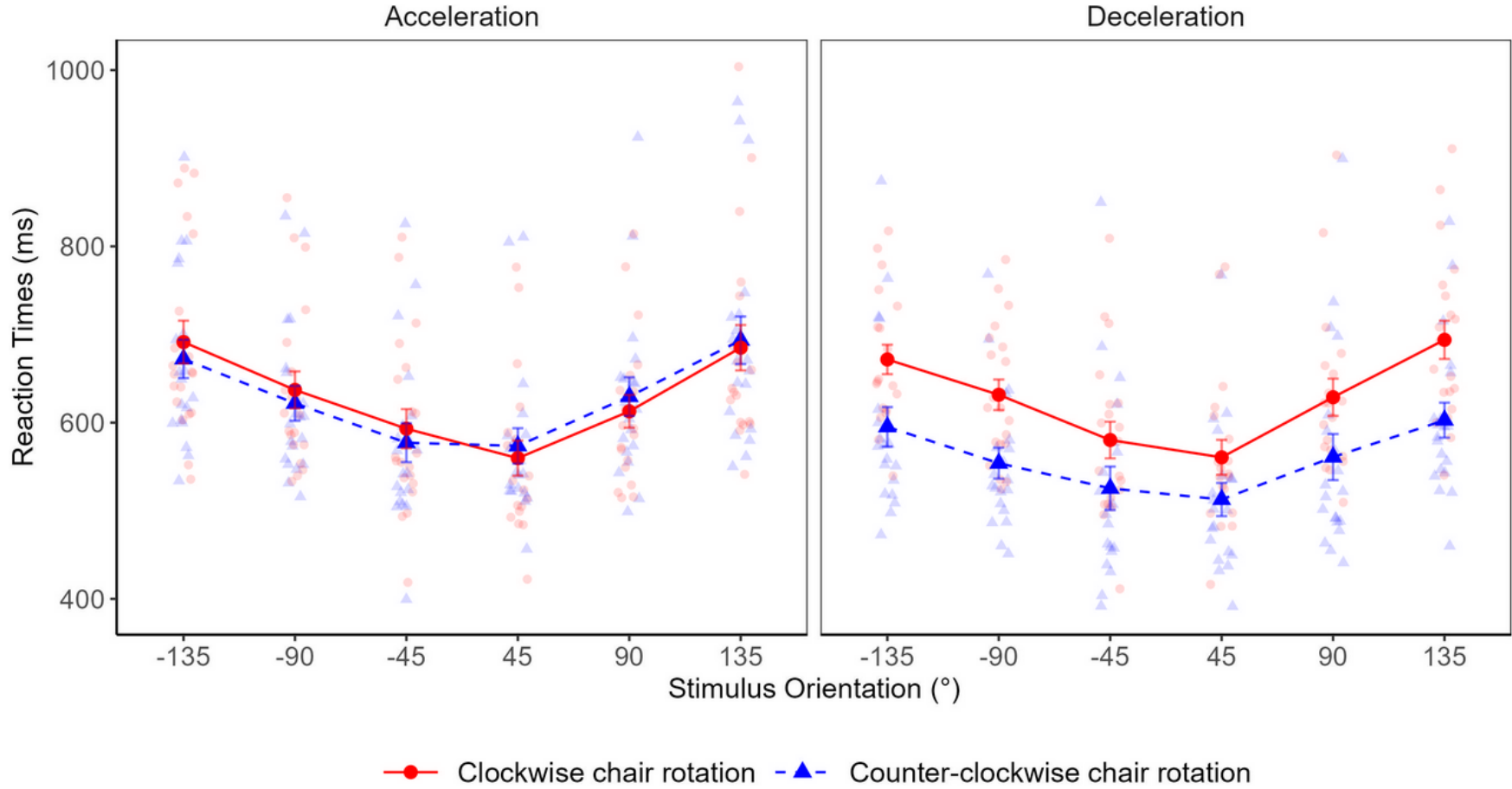


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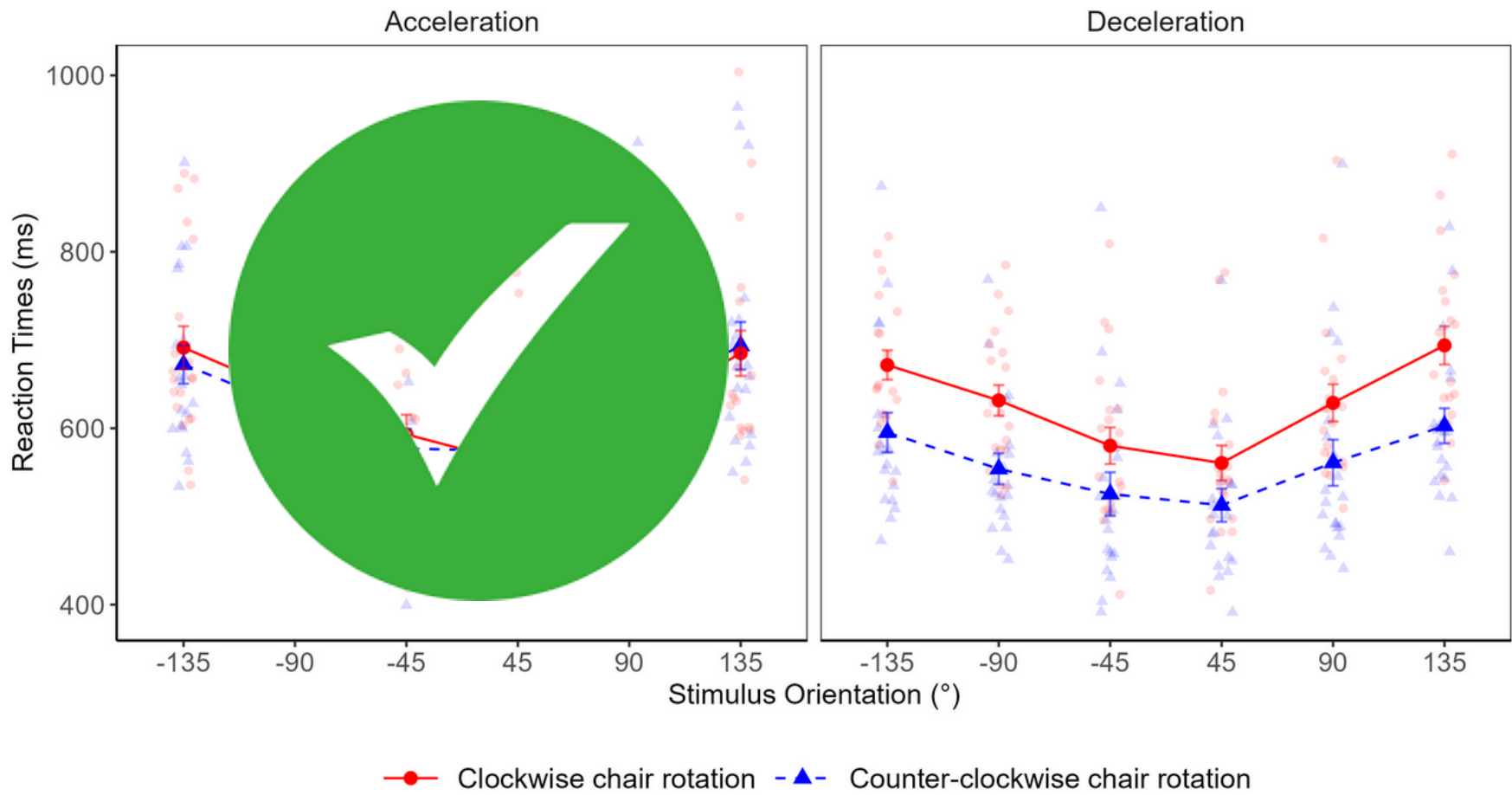


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UNIVERSITÄT
LUZERN



Sandra Schnyder

Isabel Mayer

Florian Stucki

Cédric Berther

Thank you!

André Minder

Daniel Fitze

Dr. Michaela McAssey

Dr. Michael Rihs

Prof. Fred Mast

Dr. Gerda Wyssen

Theresa Halbritter

Carlo Prelz