

This zip-folder contains the text, code, data, figures and tables for the reproducible manuscript entitled

“Robust group- but limited individual-level (longitudinal) reliability and insights into cross-phases response prediction of conditioned fear”

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Abstract:

Here we follow the call to target measurement reliability as a key prerequisite for individual-level predictions in translational neuroscience by investigating i) longitudinal reliability at the individual and ii) group level, iii) internal consistency and iv) response predictability across experimental phases. 120 individuals performed a fear conditioning paradigm twice six months apart. Analyses of skin conductance responses, fear ratings and blood oxygen level dependent functional magnetic resonance imaging (BOLD fMRI) with different data transformations and included numbers of trials were conducted. While longitudinal reliability was rather limited at the individual level, it was comparatively higher for acquisition but not extinction at the group-level. Internal consistency was satisfactory. Higher responding in preceding phases predicted higher responding in subsequent experimental phases at a weak to moderate level depending on data specifications. In sum, the results suggest that while individual-level predictions are meaningful for (very) short time frames, they also call for more attention to measurement properties in the field.

Folders:

- data: contains the data sets all calculation are based on and that support the presented findings
- figures: contains figures that had to be customized manually. These figures are included automatically when running the scripts
- renv: contains the activate.R file that is needed to create the R environment in which the code was written
- tables: contains tables that were created manually due to large text parts. These are not included automatically when running the R Markdown scripts, but have to be included manually after rendering the manuscript

How to render the manuscript:

- Unpack the zip-folder in a folder on your machine
- Open R and create a new R project: File -> New Project... -> Existing Directory -> Browse... -> Navigate to the folder where you unzipped the zip-folder -> Create Project
- The R package “renv” should be installed automatically (see R console)
- Stay in the R console and run `renv::restore()`
 - o This will install packages recorded in the `renv-lockfile`
- A list of packages appears which will be updated if you agree
 - o You will be asked: Do you want to proceed? [y/N]: Type “y”
- This should create the R environment in which the code was written (including installation/update of packages)
- Open the Rmd-file “00_rankStab_main.Rmd” within the R project and knit it: this is the parent-file and will run the child- and the appendix-files automatically
- The whole manuscript should be rendered (which might take a while...)

- If not: Do not hesitate to contact m.klingelhoef-jens@uke.de

This needs to be done manually after rendering:

- Add Table 1, Supplementary Table 1 and Supplementary Table 2 (the compilation of these highly complex figures and tables required user interaction.)
- Put Table 2 and Supplementary File 3 in landscape format
- Adjust captions of figures and tables as follows according to the author guidelines of eLife and due to rendering issues (the numbers of tables in the appendix should start again at 1 with the beginning of the appendix according to personal correspondence with the creator of the papaja package, but unfortunately they do not):

Figures:

Figure 8 -> Figure 1–figure supplement 1
 Figure 9 -> Figure 1–figure supplement 2
 Figure 10 -> Figure 1–figure supplement 3
 Figure 11 -> Figure 1–figure supplement 4
 Figure 12 -> Figure 1–figure supplement 5
 Figure 13 -> Figure 1–figure supplement 6
 Figure 14 -> Figure 1–figure supplement 7
 Figure 15 -> Figure 1–figure supplement 8
 Figure 16 -> Figure 4–figure supplement 1
 Figure 17 -> Figure 5–figure supplement 1

Tables:

Supplementary File 3 -> Supplementary File 1
 Supplementary File 4 -> Supplementary File 2
 Supplementary File 5 -> Supplementary File 3
 Supplementary File 6 -> Supplementary File 4
 Supplementary File 7 -> Supplementary File 5
 Supplementary File 8 -> Supplementary File 6
 Supplementary File 9 -> Supplementary File 7
 Supplementary File 10 -> Supplementary File 8

- Adjust caption of Figure 4: apparently it is not possible to cite a figure in its own caption, so "??" must be replaced by "4"
- Put "Note." in captions in italics.
- Add the following references (as they are not included in the manuscript automatically as they belong to subsequently added tables as outlined above / are an R package which is not included automatically -> add to the R citations in the Methods section: *renv* (Version 0.13.2; Kevin Ushey, 2021):

Aldridge, V. K., Dovey, T. M., & Wade, A. (2017). Assessing Test-Retest Reliability of Psychological Measures: Persistent Methodological Problems. *European Psychologist*, 22(4), 207–218. <https://doi.org/10.1027/1016-9040/a000298>

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- Lykken, D. T. (1972). Range Correction Applied to Heart Rate and to GSR Data. *Psychophysiology*, 9(3), 373–379. <https://doi.org/10.1111/j.1469-8986.1972.tb03222.x>
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<https://doi.org/10.1111/j.1469-8986.1971.tb00501.x>
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Ushey, K. (2020). *Renv: Project Environments*. Retrieved from <https://CRAN.R-project.org/package=renv>