



Excercise

Design your own neurofeedback study and use the three resources: a) Prerequisite for a good neurofeedback study, b) CRED-nf Best Practice Checklist, the c) decision Tree. Try to specify the aspects mentioned in them as precisely as possible. To do this, read the descriptions briefly (see the links). Use the small group for questions and discussion. It will not be possible to work on all aspects, so go into the parts you are less familiar with.

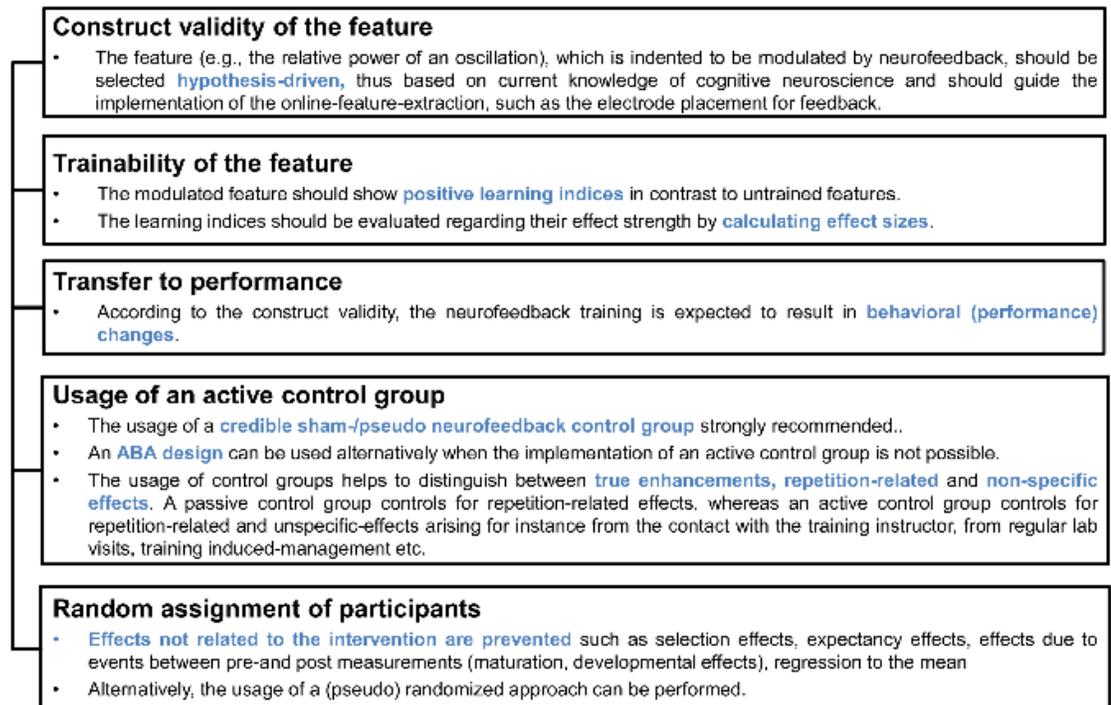


Design your own NF study

Examples:

- Frontal alpha asymmetry NF for the treatment of depressive symptoms, with an active control group
- Attention deficit hyperactivity (ADHD) disorder using a new connectivity NF protocol compared to a standard NF protocol (e.g. theta/beta ratio NF training)
- Upper alpha training for the improvement of cognition in schizophrenia, more than nonspecific effects?
- Frontal-midline theta to improve of executive functions in mild cognitive impairment
 - Reduction of arousal-related alpha activity in patients with post-traumatic stress disorder (PTSD)

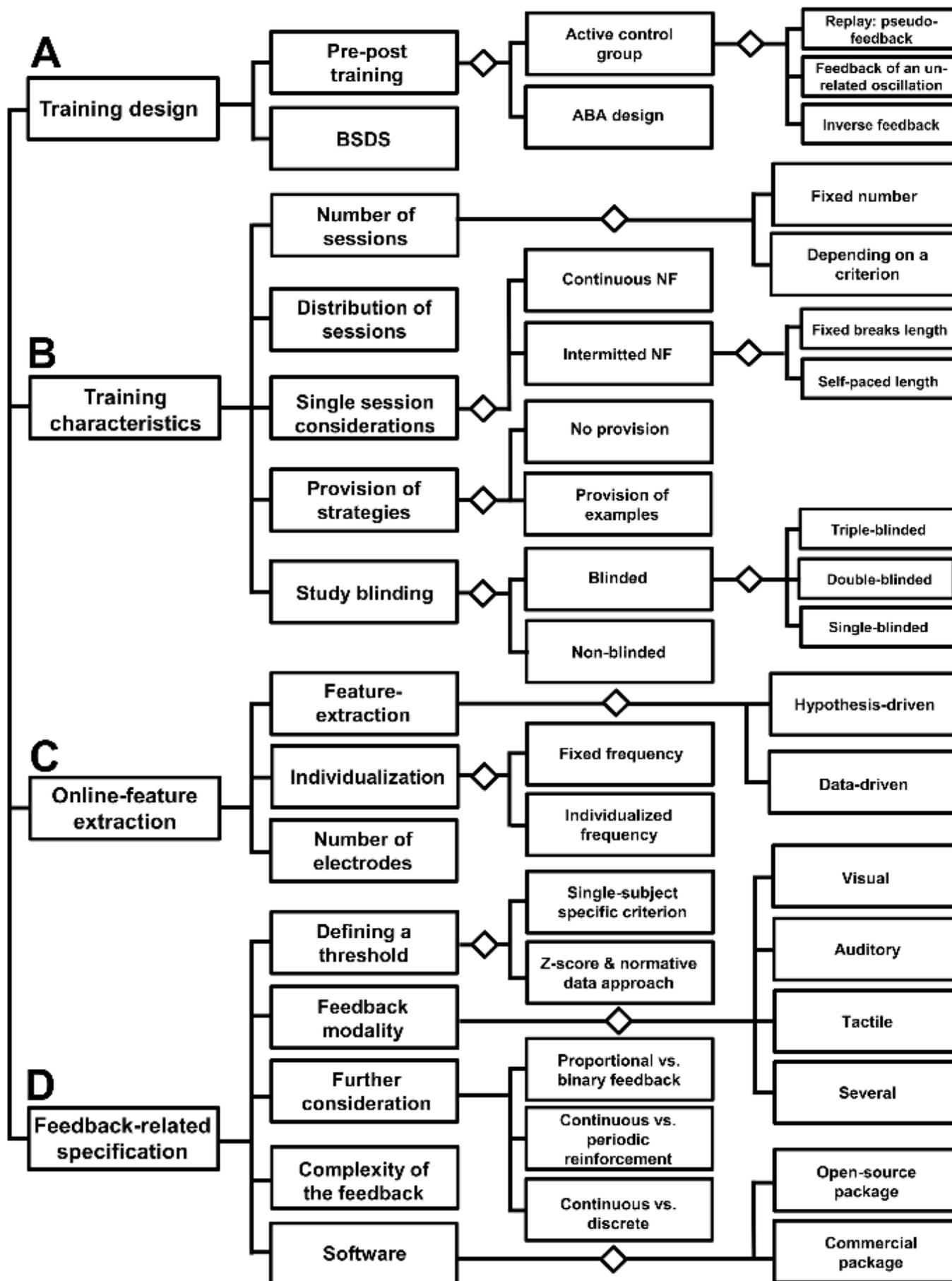
Prerequisites of a good neurofeedback study



CRED-nf best practices checklist 2020

Domain	Item #	Checklist item	Reported on page #
Pre-experiment			
	1a	Pre-register experimental protocol and planned analyses	
	1b	Justify sample size	
Control groups			
	2a	Employ control group(s) or control condition(s)	
	2b	When leveraging experimental designs where a double-blind is possible, use a double-blind	
	2c	Blind those who rate the outcomes, and when possible, the statisticians involved	
	2d	Examine to what extent participants and experimenters remain blinded	
	2e	In clinical efficacy studies, employ a standard-of-care intervention group as a benchmark for improvement	
Control measures			
	3a	Collect data on psychosocial factors	
	3b	Report whether participants were provided with a strategy	
	3c	Report the strategies participants used	
	3d	Report methods used for online-data processing and artefact correction	
	3e	Report condition and group effects for artefacts	
Feedback specifications			
	4a	Report how the online-feature extraction was defined	
	4b	Report and justify the reinforcement schedule	
	4c	Report the feedback modality and content	
	4d	Collect and report all brain activity variable(s) and/or contrasts used for feedback, as displayed to experimental participants	
	4e	Report the hardware and software used	
Outcome measures			
Brain	5a	Report neurofeedback regulation success based on the feedback signal	
	5b	Plot within-session and between-session regulation blocks of feedback variable(s), as well as pre-to-post resting baselines or contrasts	
	5c	Statistically compare the experimental condition/group to the control condition(s)/group(s) (not only each group to baseline measures)	
Behaviour	6a	Include measures of clinical or behavioural significance, defined <i>a priori</i> , and describe whether they were reached	
	6b	Run correlational analyses between regulation success and behavioural outcomes	
Data storage			
	7a	Upload all materials, analysis scripts, code, and raw data used for analyses, as well as final values, to an open access data repository, when feasible	

<https://academic.oup.com/brain/article/143/6/1674/5807912?login=false&enri>



<https://www.frontiersin.org/articles/10.3389/fnhum.2017.00051/full>