

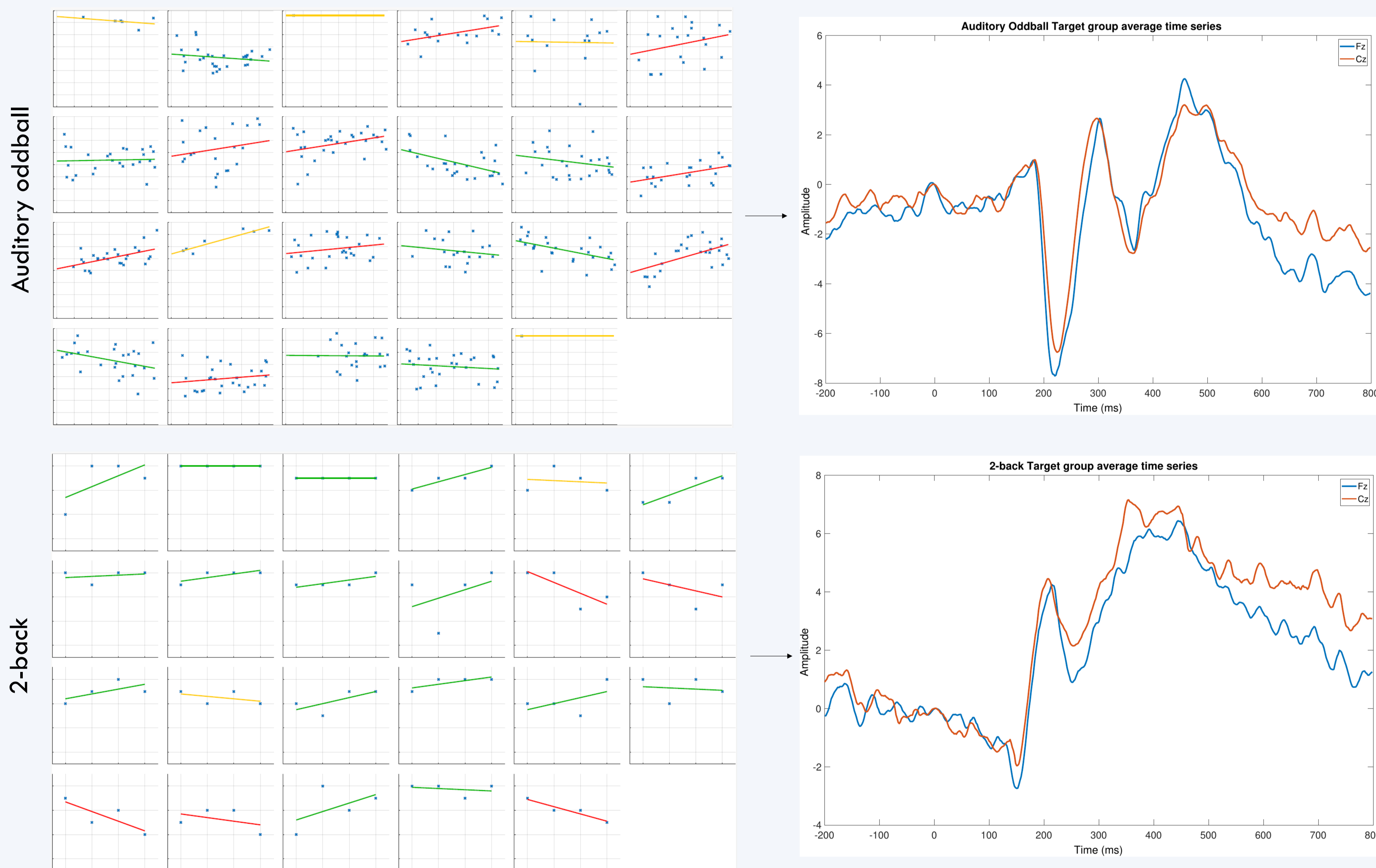
Event-related potentials as a potential marker of cognitive fatigability in MS

Delphine Van Laethem, Jorne Laton, Chiara Rossi, Jeroen Van Schependom, Guy Nagels

- Cognitive fatigability (CF) = performance decline during or after prolonged cognitive task
 - MS: decreased accuracy and increased reaction times
- Neural correlates of CF?:
 - Some studies on fMRI and spectral EEG
 - Association with event-related potentials (ERP)?
 - = objective, non-invasive and low-cost

- 64-channel EEG in 23 MS subjects
 - Auditory oddball paradigm (10')
 - N-back paradigm (10')
 - N200 and P300 latency/amplitude of largest peak in frontocentral midline region
- Fatigability measures:
 - regression slope of reaction times (react_slope) of oddball task
 - standard deviation (SD) and SD/mean of reaction times (react_SD, react_SD/mean) of oddball task
 - regression slope of accuracy (accur_slope) of 2-back task

- ▶ Some MS subjects show decline in reaction speed and/or accuracy during a prolonged cognitive effort.
- ▶ There is an association between reaction time variability and N200 latency.



- CF in oddball > 2-back: reaction speed more sensitive?
 - Discrepancy in performance decline: reaction speed vs accuracy vs both
 - subject-specific CF expression?
 - Link with ERPs?:
 - more data needed
 - evolution throughout task?
- Future directions:**
- Data collection ongoing
 - Effect of rehabilitation?
- CoMoTeMS study
-

	Pearson correlations		N200		P300		FSMC
			amplitude	latency	amplitude	latency	Total score
Auditory oddball	react_slope	r = -0.202; p = 0.381	r = -0.105; p = 0.650	r = 0.113; p = 0.626	r = -0.042; p = 0.858	r = -0.326; p = 0.160	
	react_SD	r = 0.083; p = 0.721	r = -0.426; p = 0.054	r = -0.160; p = 0.488	r = 0.154; p = 0.506	r = 0.132; p = 0.578	
	react_SD/mean	r = 0.072; p = 0.757	r = -0.441; p = 0.045	r = -0.272; p = 0.233	r = 0.173; p = 0.453	r = 0.135; p = 0.570	
2-back	accur_slope	r = 0.221; p = 0.311	r = 0.240; p = 0.271	r = 0.189; p = 0.388	r = -0.115; p = 0.602	r = 0.108; p = 0.651	