

Electrophysiologic markers of altered interoceptive processing in Chronic Back Pain Patients undergoing Radiofrequency Ablation (RFA)

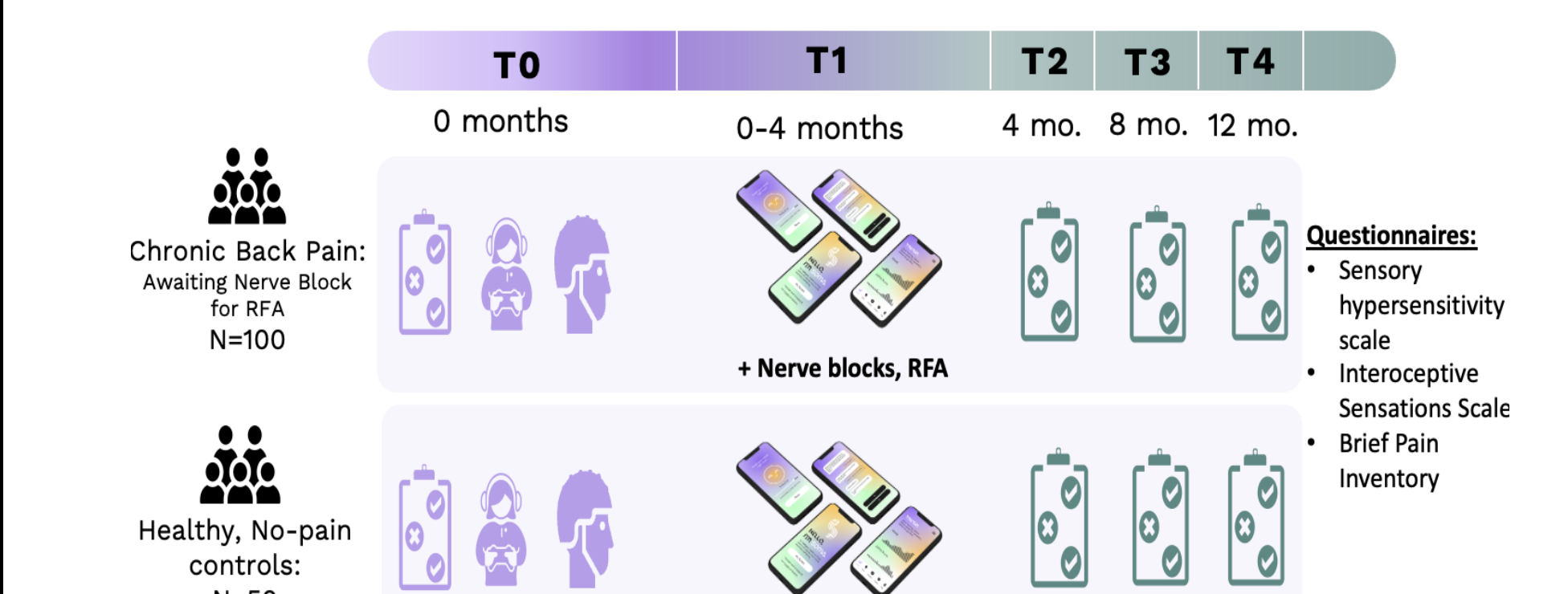
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Introduction:

- Up to 50% of RFA patients do not get significant long term pain relief
- Variability in pain reports complicates estimation of treatment response
- Central brain changes in how patients monitor internal bodily signals (interoception) may underlie non-response to peripheral treatments (eg RFA)

Hypothesis: Suppressed neural monitoring of heartbeats in RFA patients at baseline will predict non-response to RFA

Methods: Prospective Observational Cohort Study

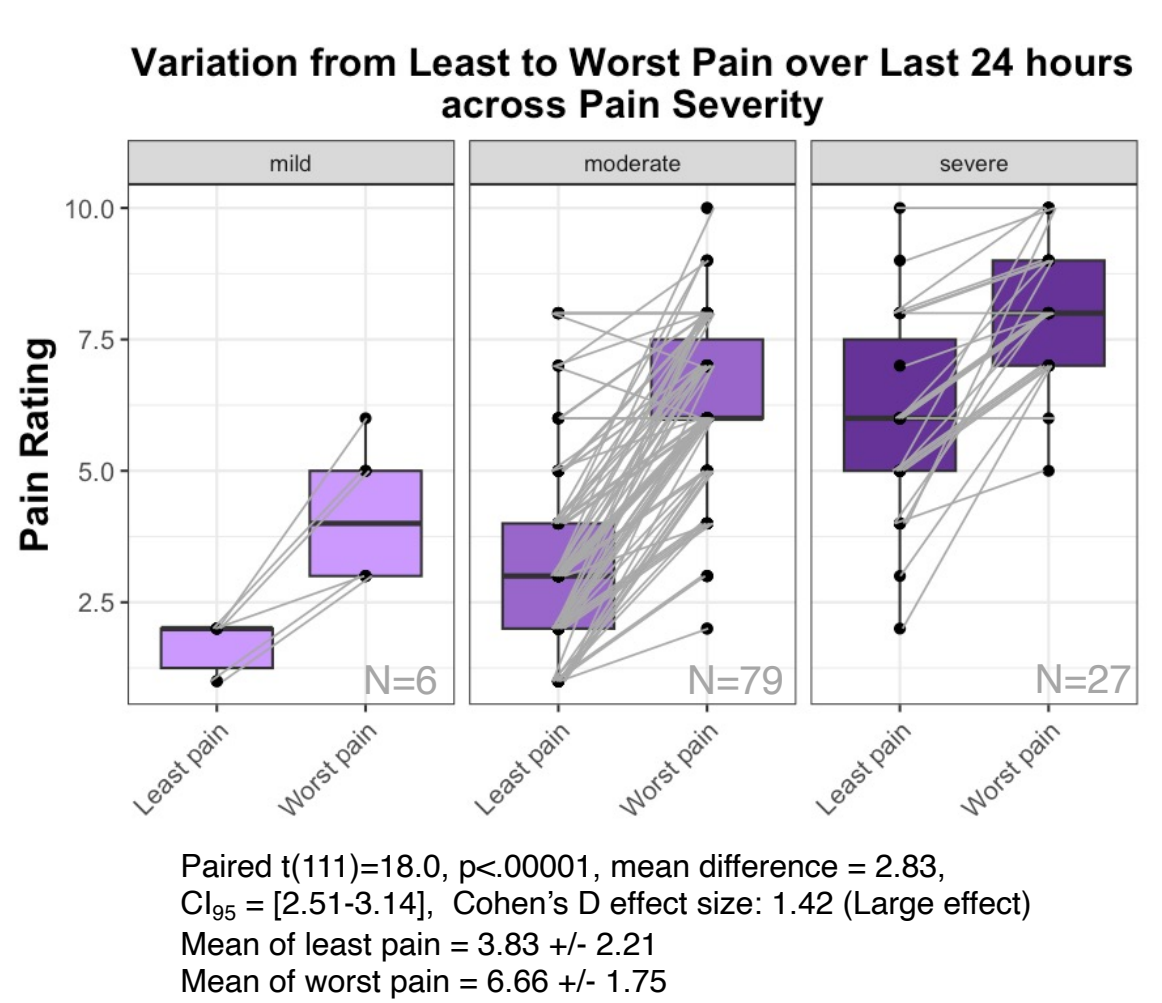


= EEG-recorded Heartbeat Attention Task (HBATT Task) to quantify the interoceptive Heartbeat Evoked Potential (HEP)

= SOMA Pain Manager App, developed in Petzschner lab at Brown, uses Experience Sampling Methodology (ESM) for daily assessment of pain

Results:

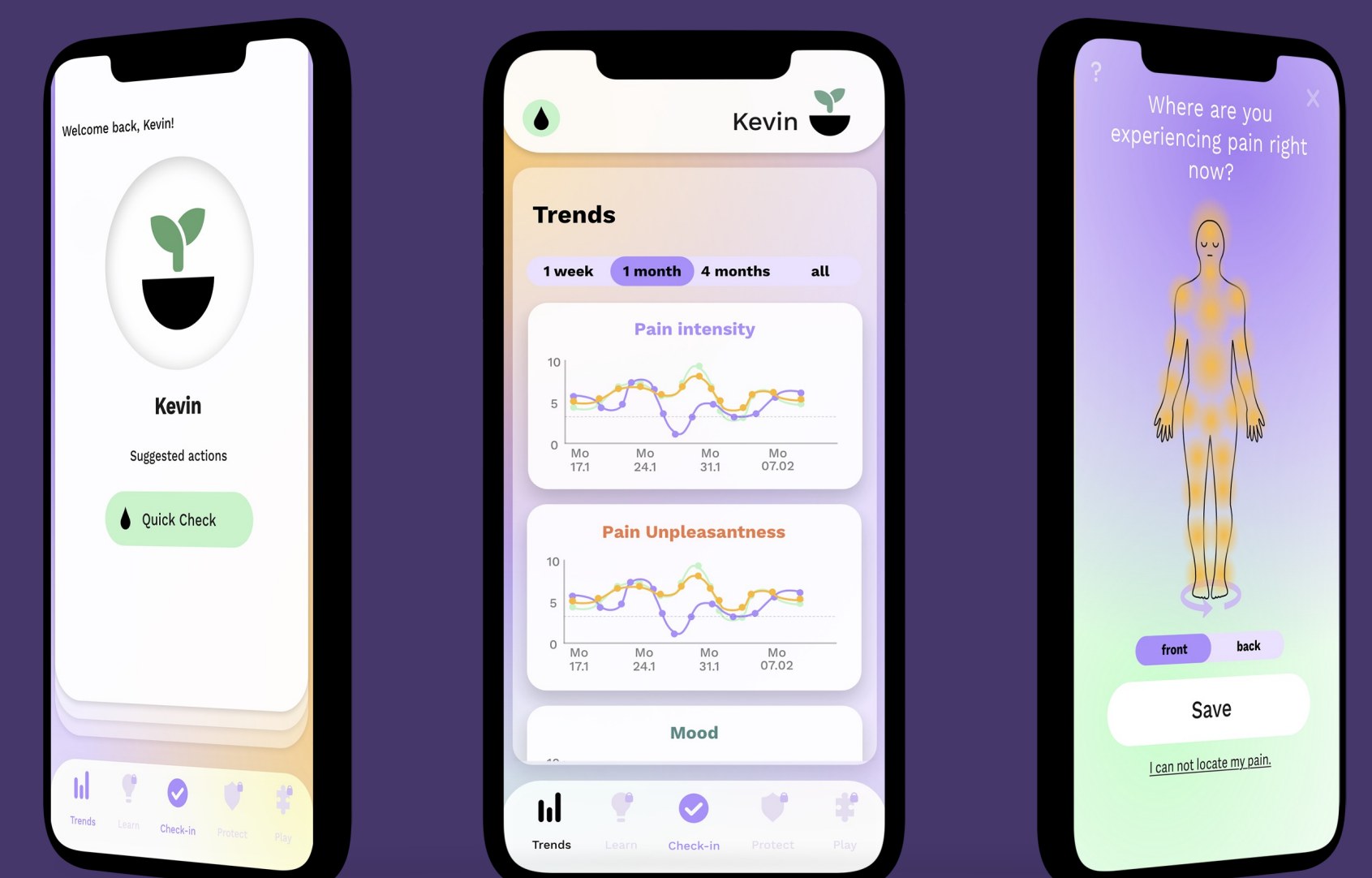
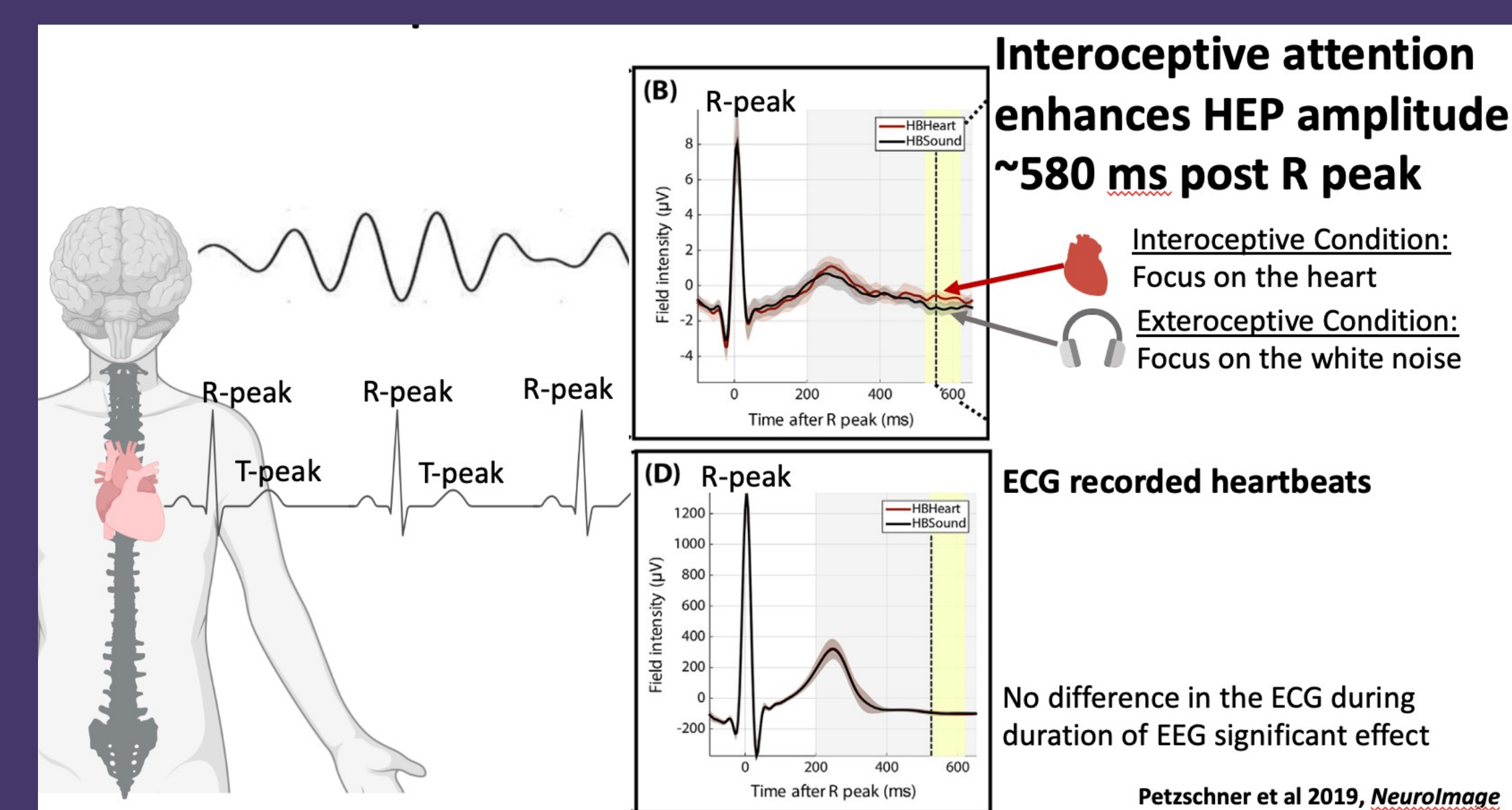
- Ongoing study, currently enrolling RFA patients for EEG
- Self reported pain is highly variable
- SOMA app tracking captures variability in self-reported pain, could improve estimation of RFA treatment response



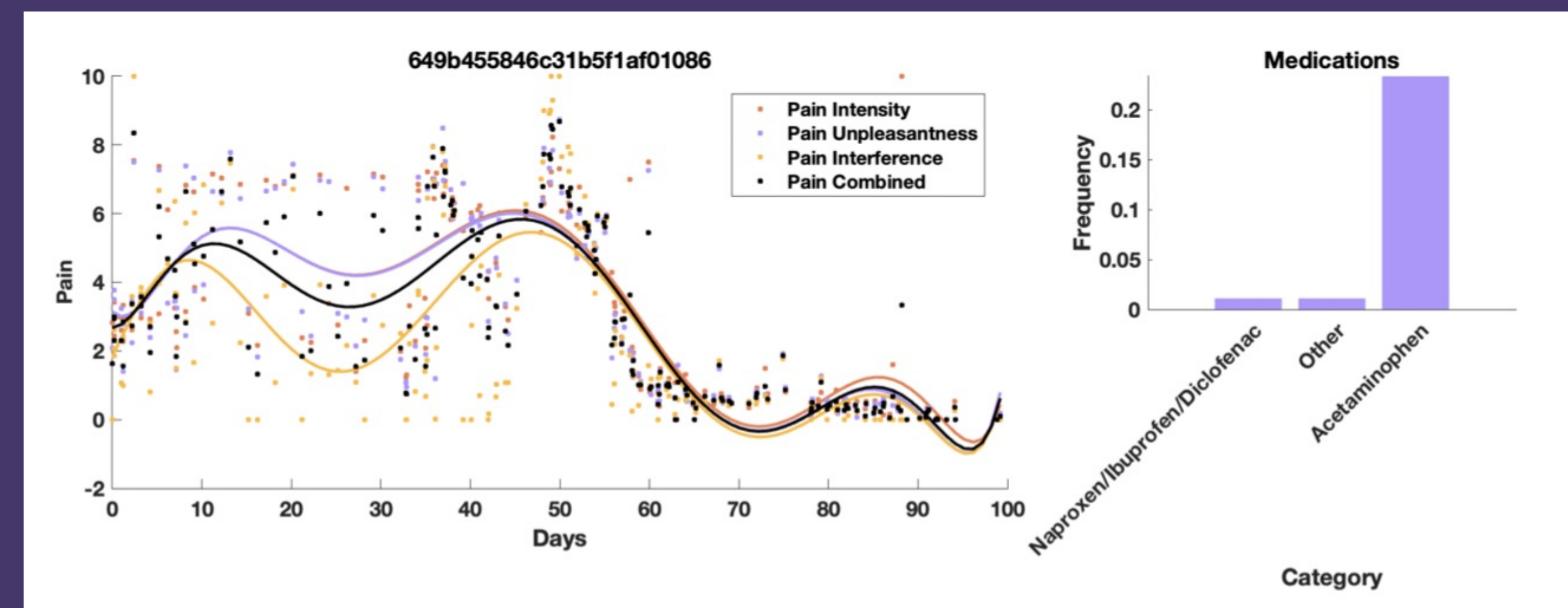
Discussion and Future Directions:

In our ongoing study we will analyze whether RFA patients show diminished interoception on both EEG HEP assessments and self report questionnaires. This would indicate diminished central monitoring of bodily signals that could be associated with non-response to RFA. Use of the SOMA app to track pain dynamics pre- and post- RFA allows novel approaches to treatment outcome prediction by enabling assessment of intra-individual and intra-day variability in pain dynamics.

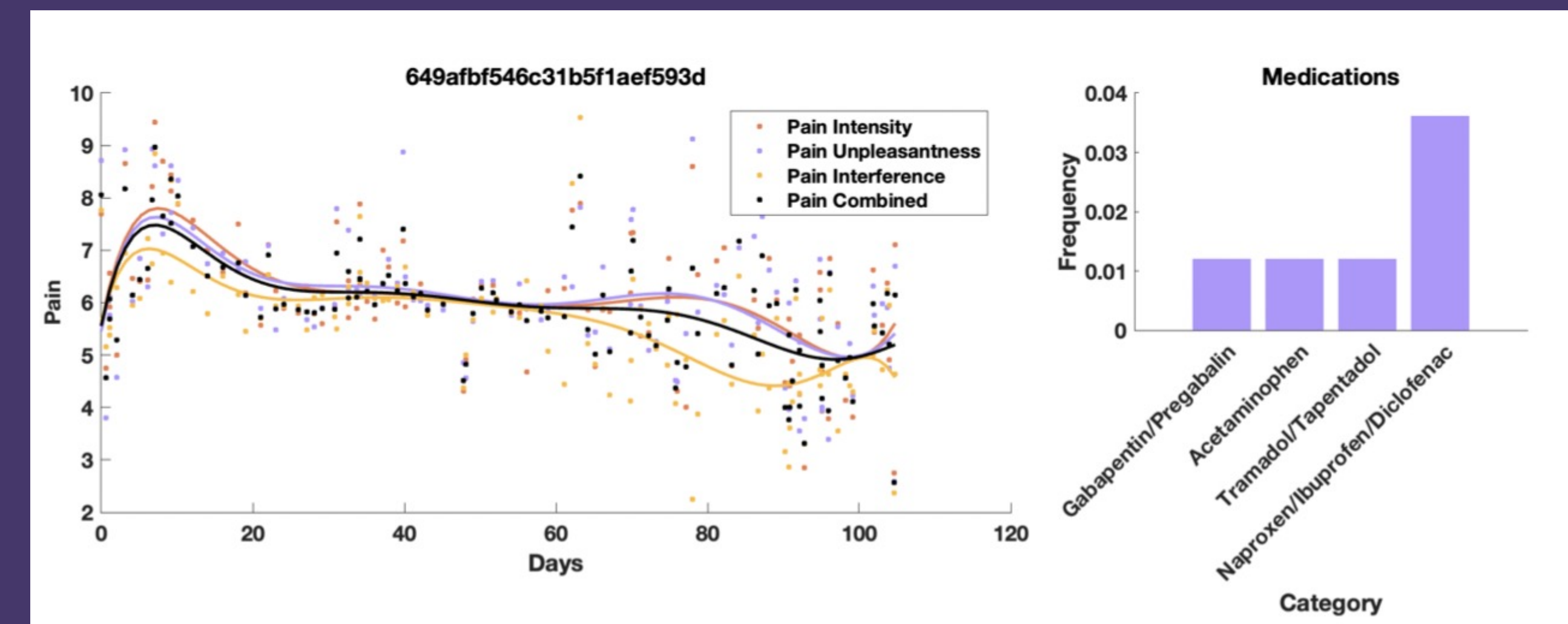
EEG measures of heart-brain interactions and digital assessments of pain dynamics could improve prediction of RFA treatment response



Example app data from "Responder"

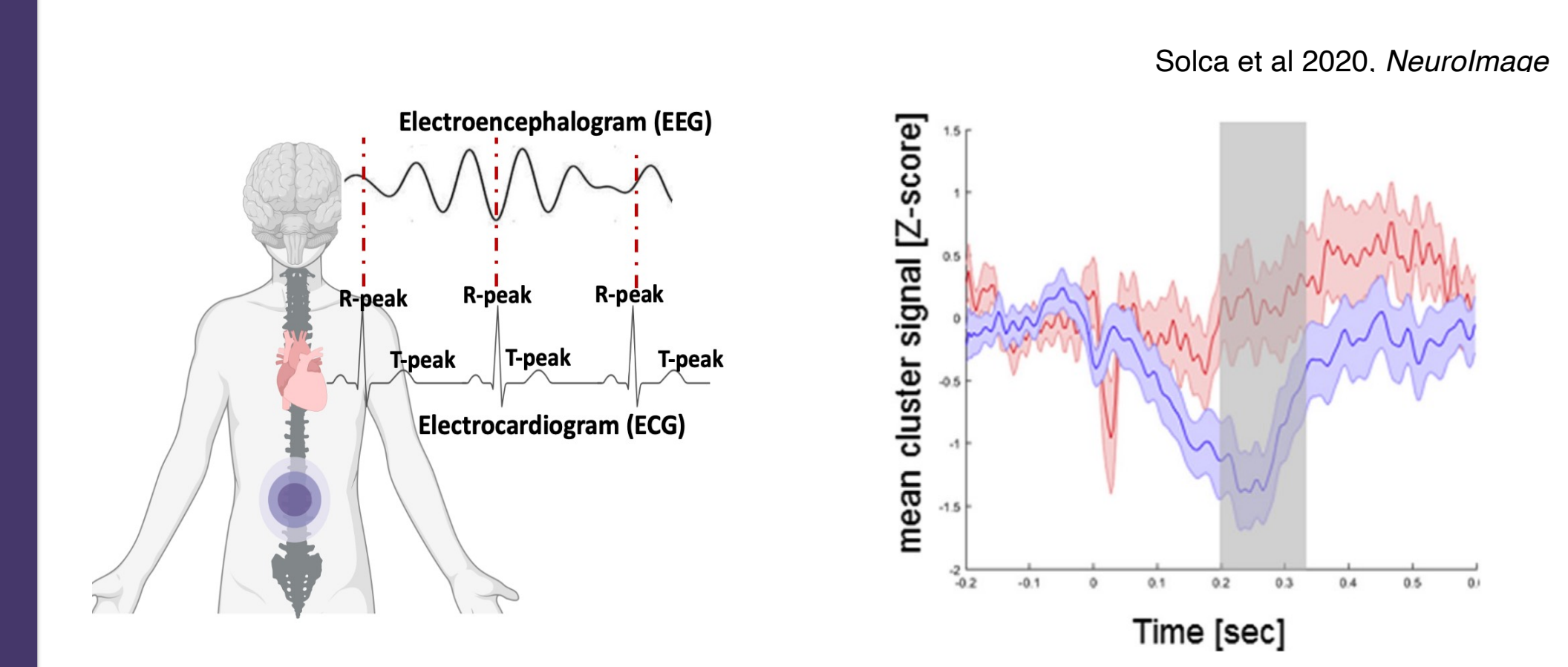


Example app data from "Non-Responder"

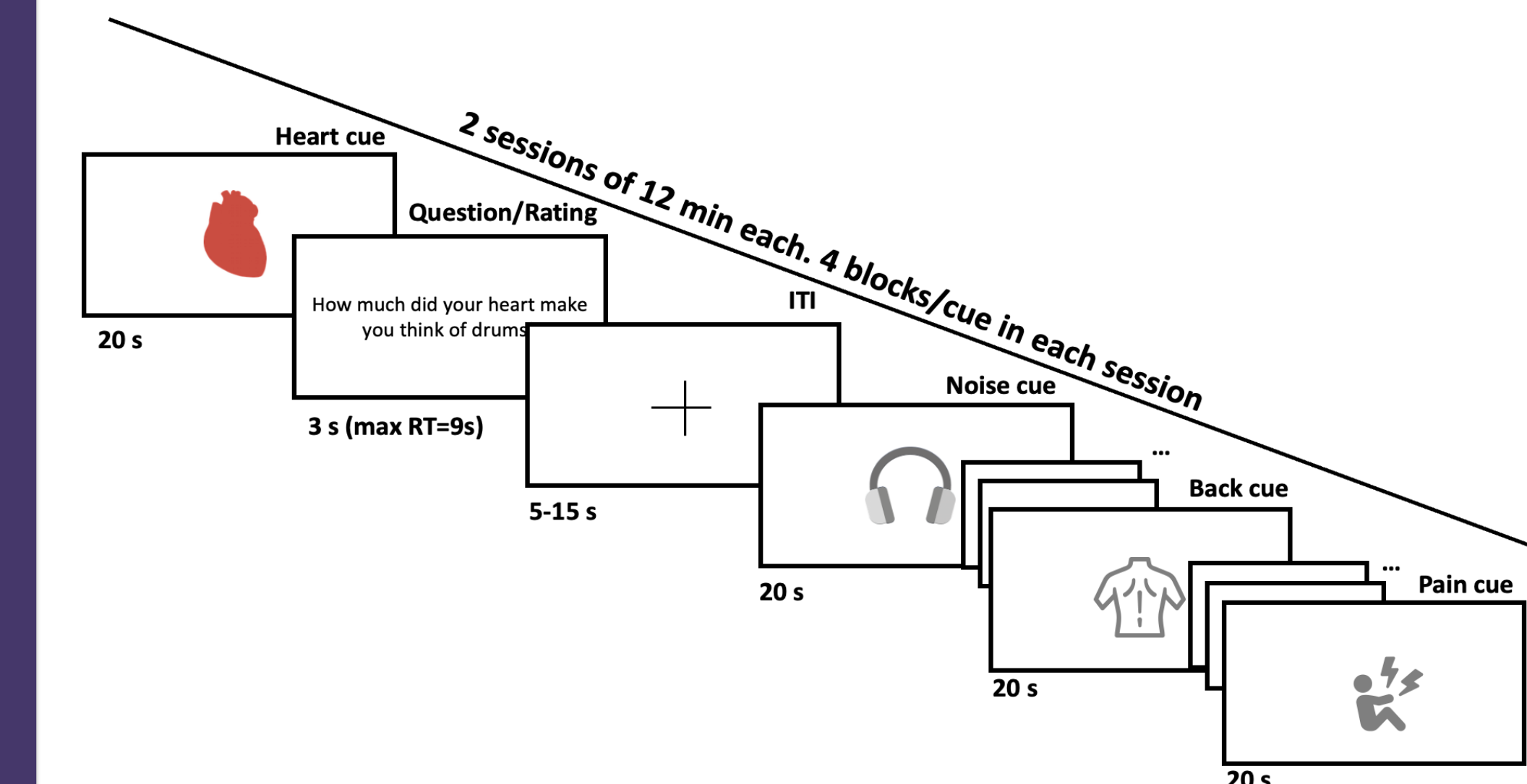


Extended Background:

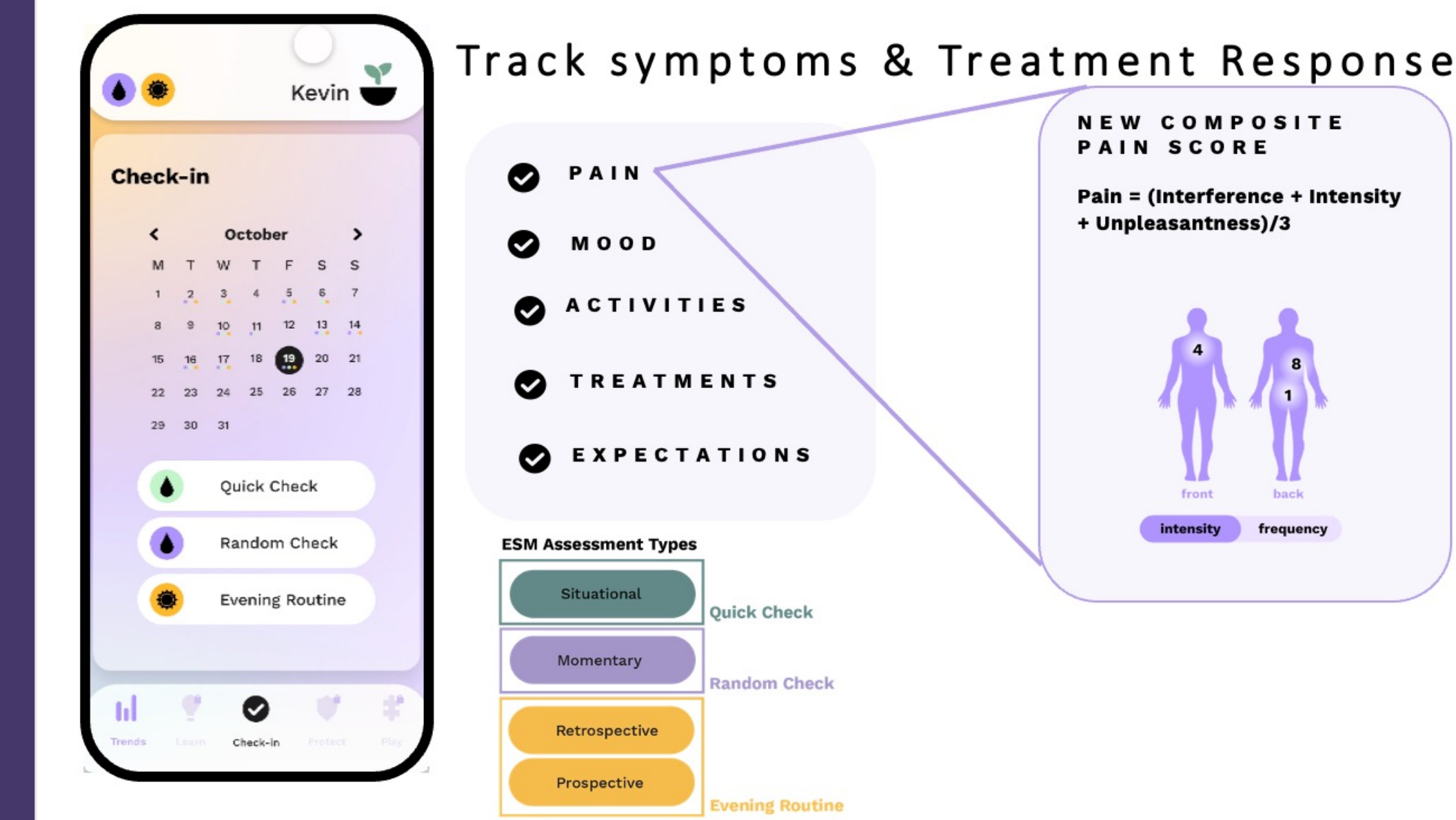
Resting HEP suppressed in chronic pain:



Heartbeat Attention (HBATT) Task Setup:



SOMA Pain Manager App:



Interested?

Study pre-registered @ Clinicaltrials.gov: NCT # 05754190

