

In Anticipation of Pain:

Expectancy modulates corticospinal excitability, pain perception, and autonomic response

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Pain is a complex phenomenon comprising perceptual, autonomic, and motor responses. Expectancy amplifies perceived and autonomic components, but its effect on motor responses are poorly understood.

Motor activity and perceived pain have been found to mediate autonomic responses to painful stimuli, but there have been no attempts to examine pain components for expectancy-induced pain.

It is unclear, therefore, whether expectancy-induced pain follows the same underlying pathways as nociception.

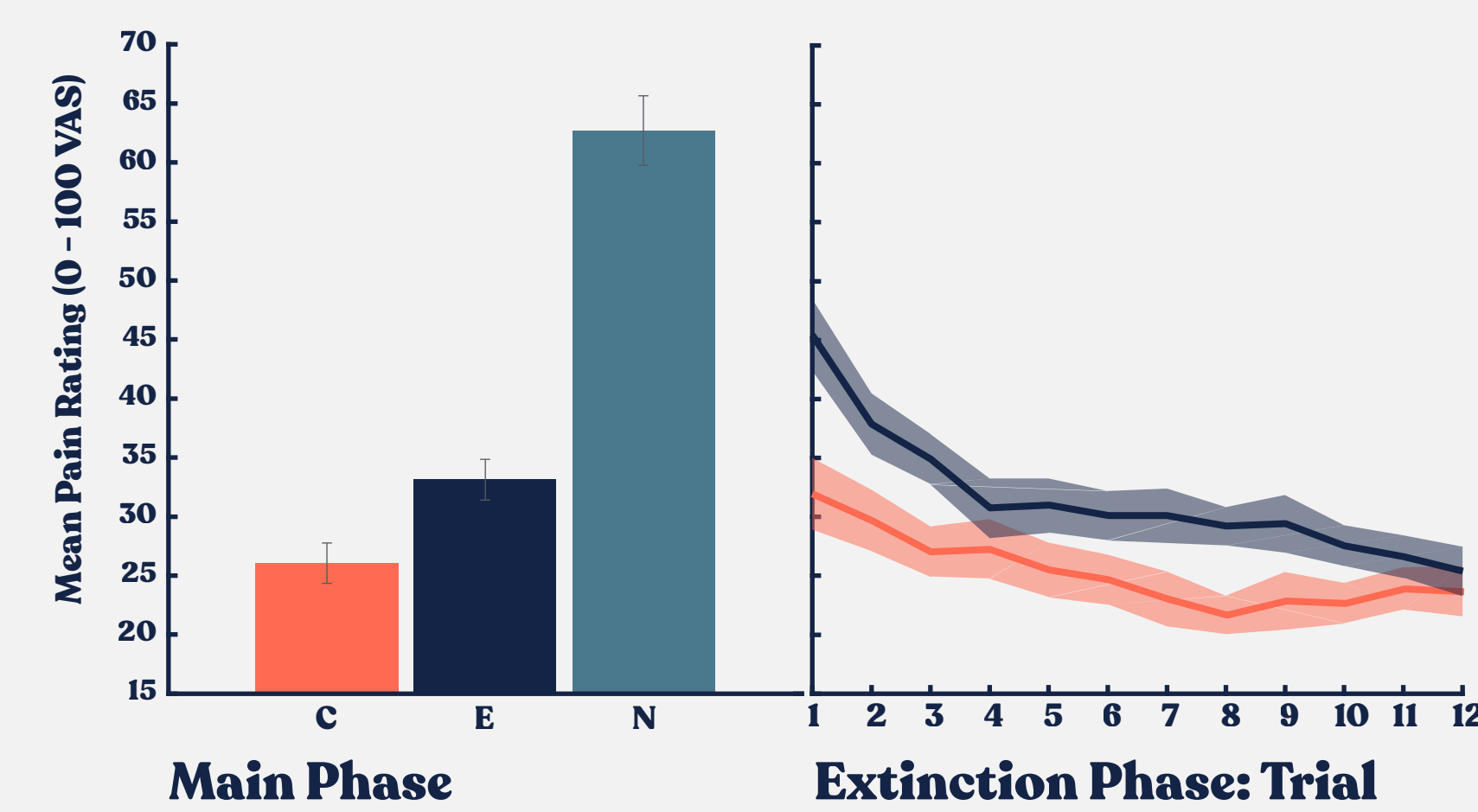
Expecting pain suppressed corticospinal excitability and heightened perceptual and autonomic responses, as with genuine noxious stimulation.

Multilevel modelling revealed that perceived pain mediated the effect of both noxious stimulation and expectancy-modulated pain on autonomic responses, but corticospinal excitability did not.

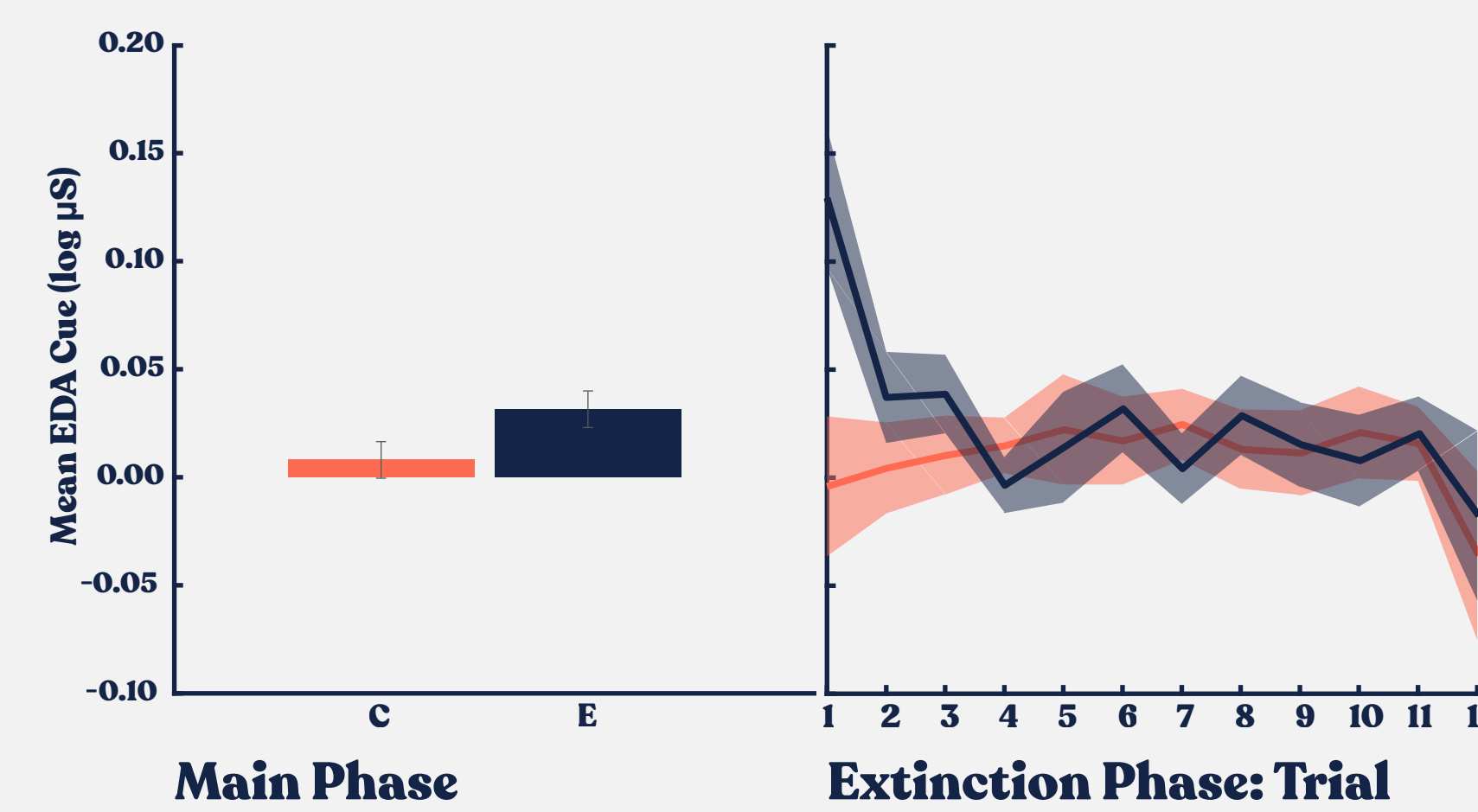
Findings shed light on the aetiology of expectancy-modulated pain, whereby expecting pain mobilises the motor system to protect the body from harm. This has practical implications for how we manage pain-related expectations, particularly in scenarios where expectancy-modulated changes in the motor system may be impeding interventions requiring motor activity.

Primary Results:

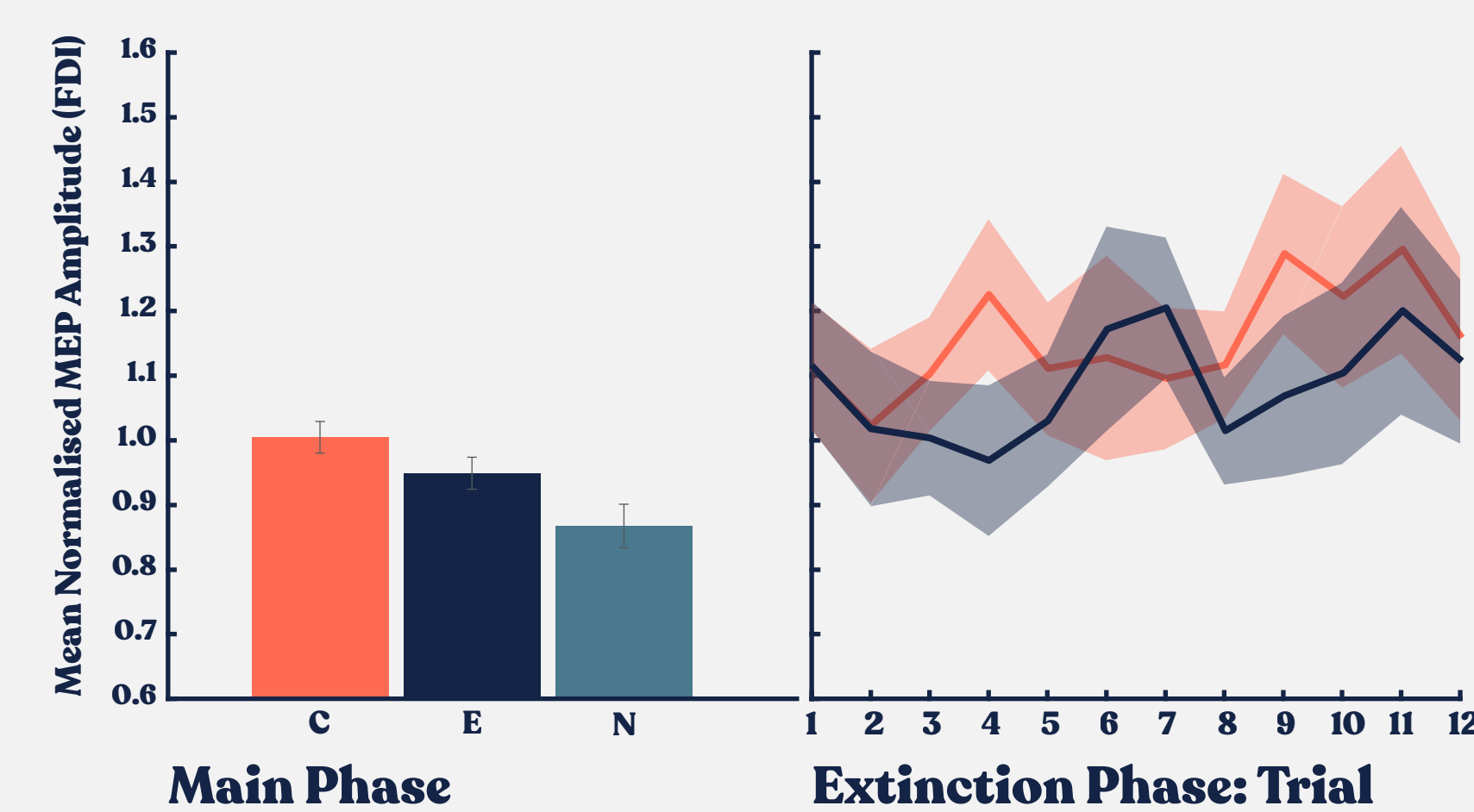
Pain Rating



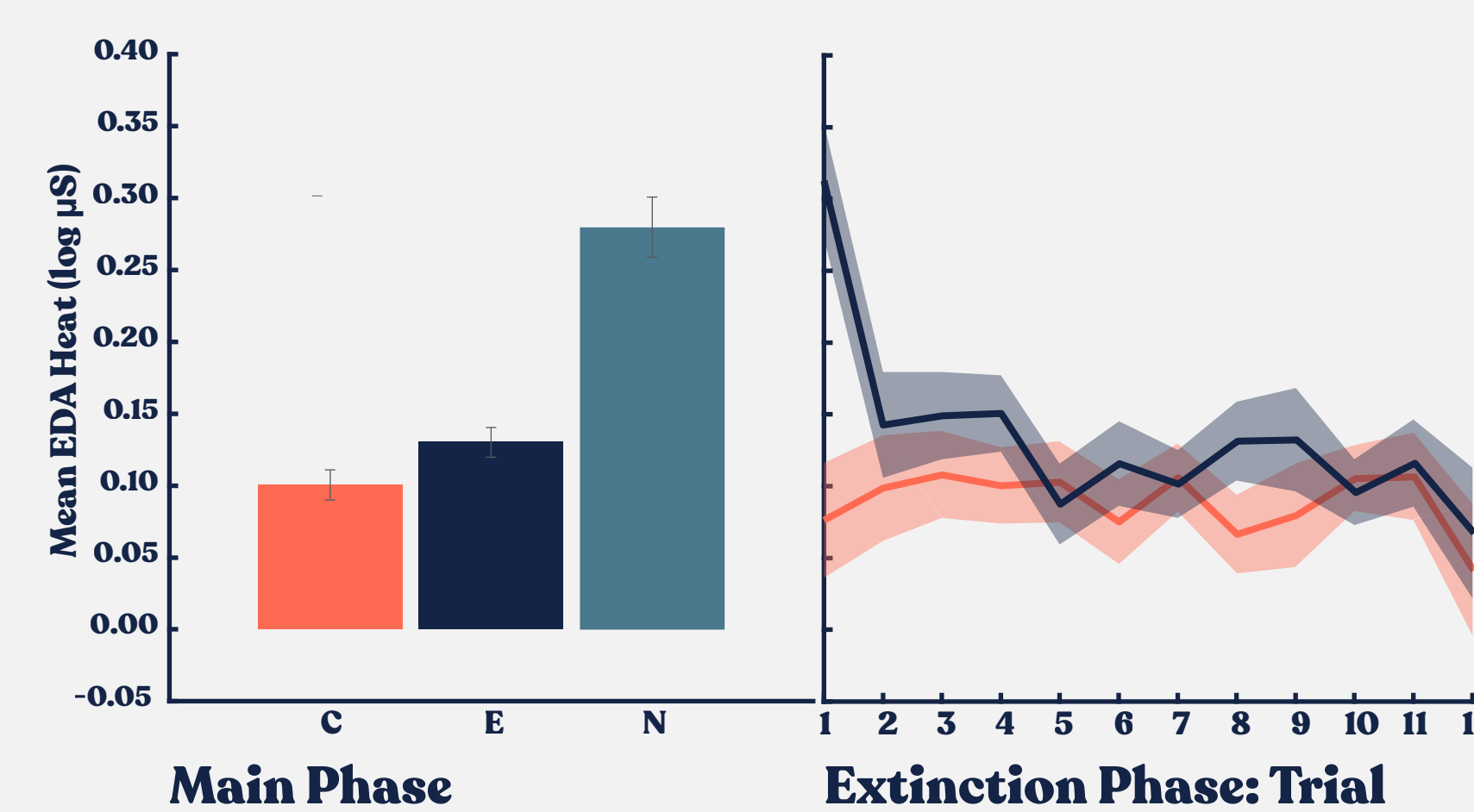
EDA Cue



MEP Amplitude

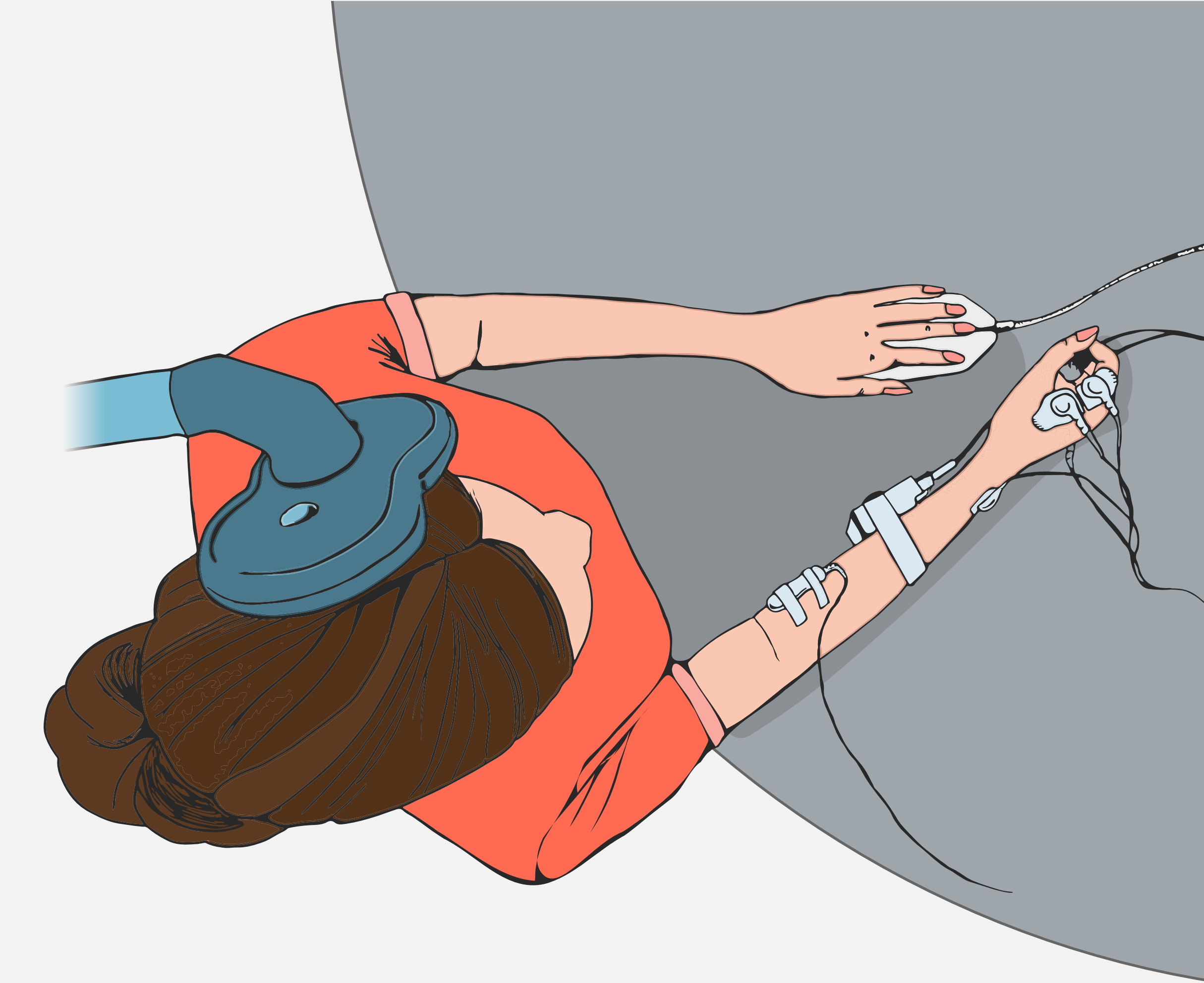
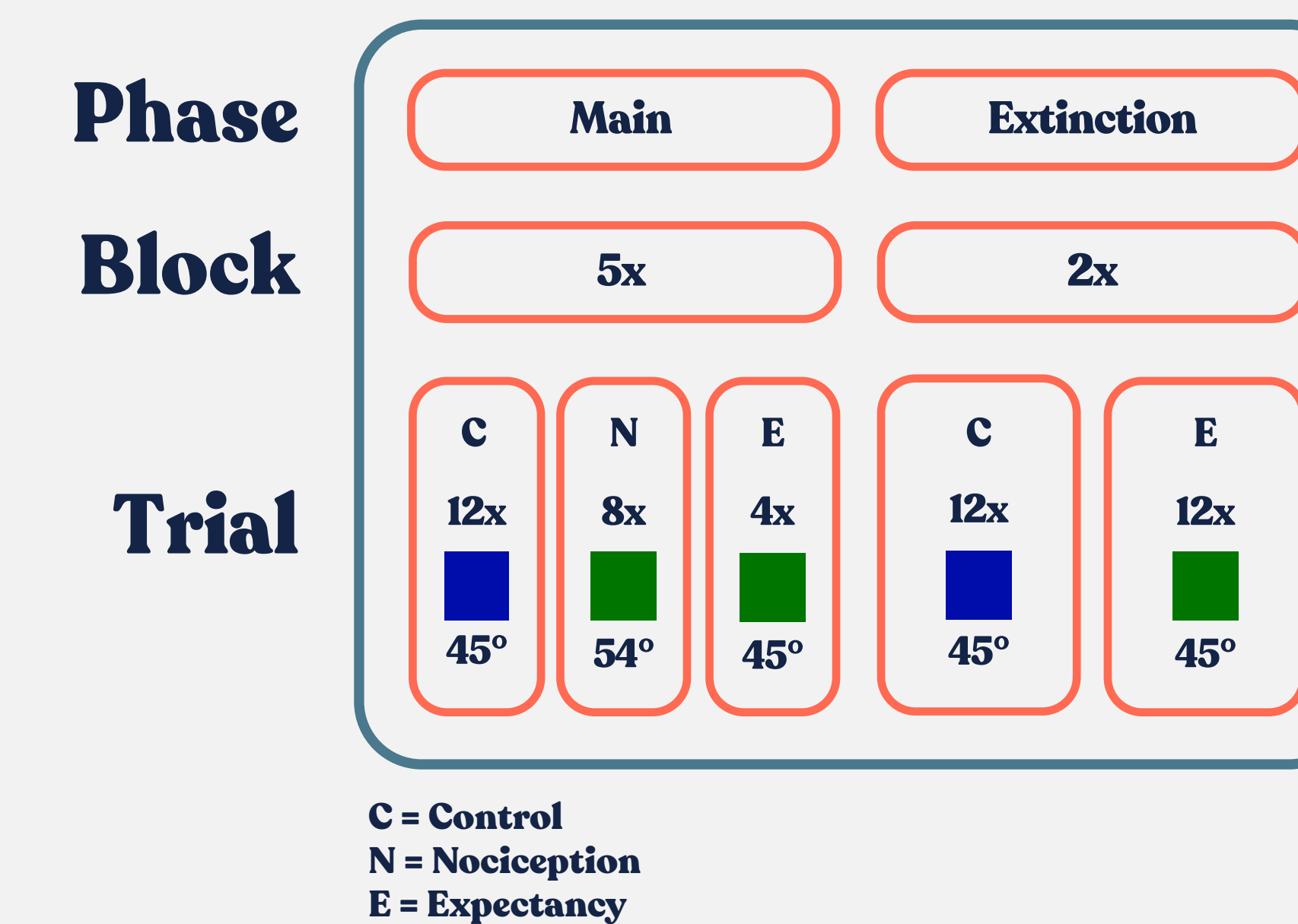


EDA Heat

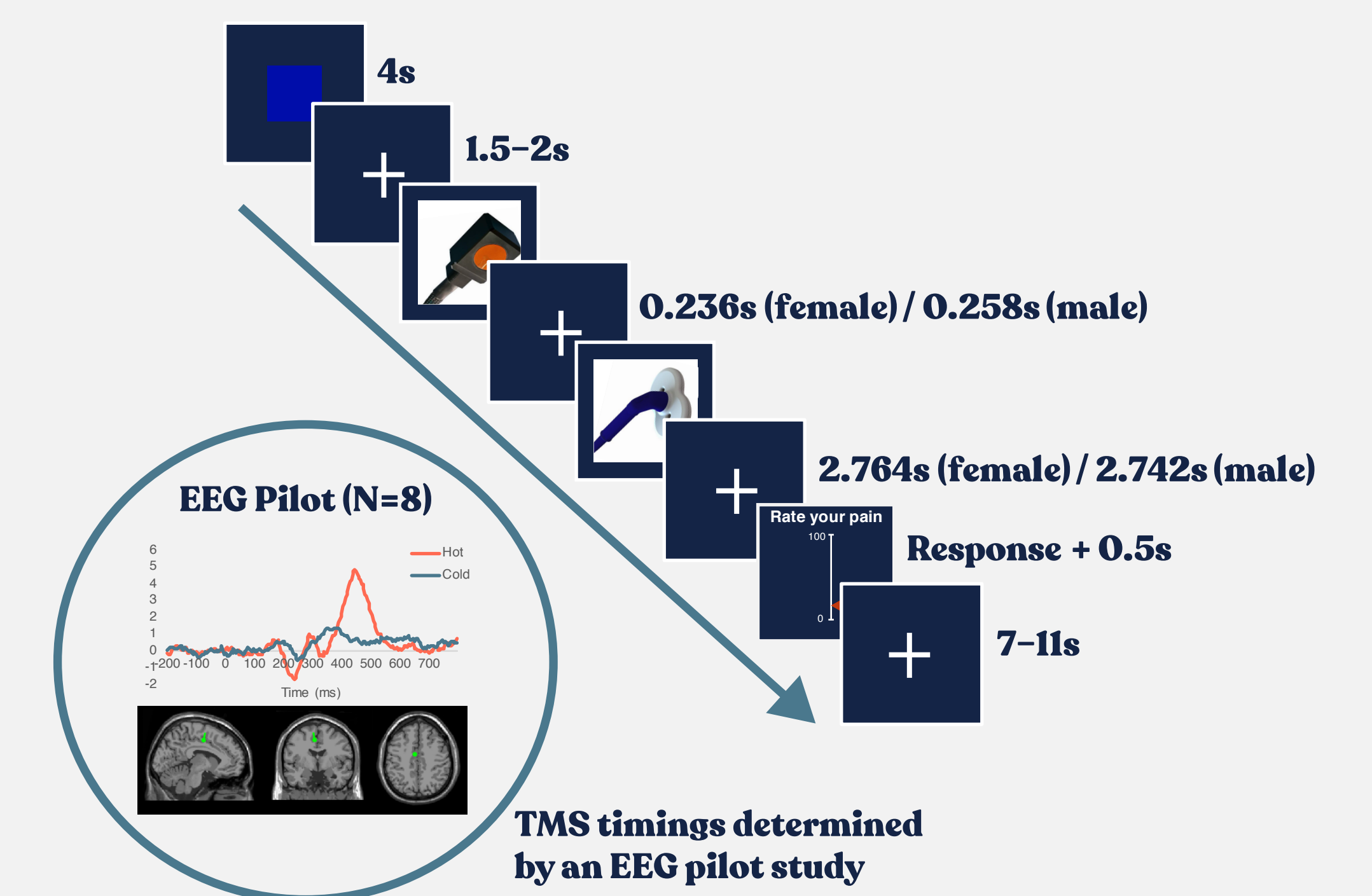


Design:

Experiment (N=32)



Single Trial



Multilevel Mediation:

