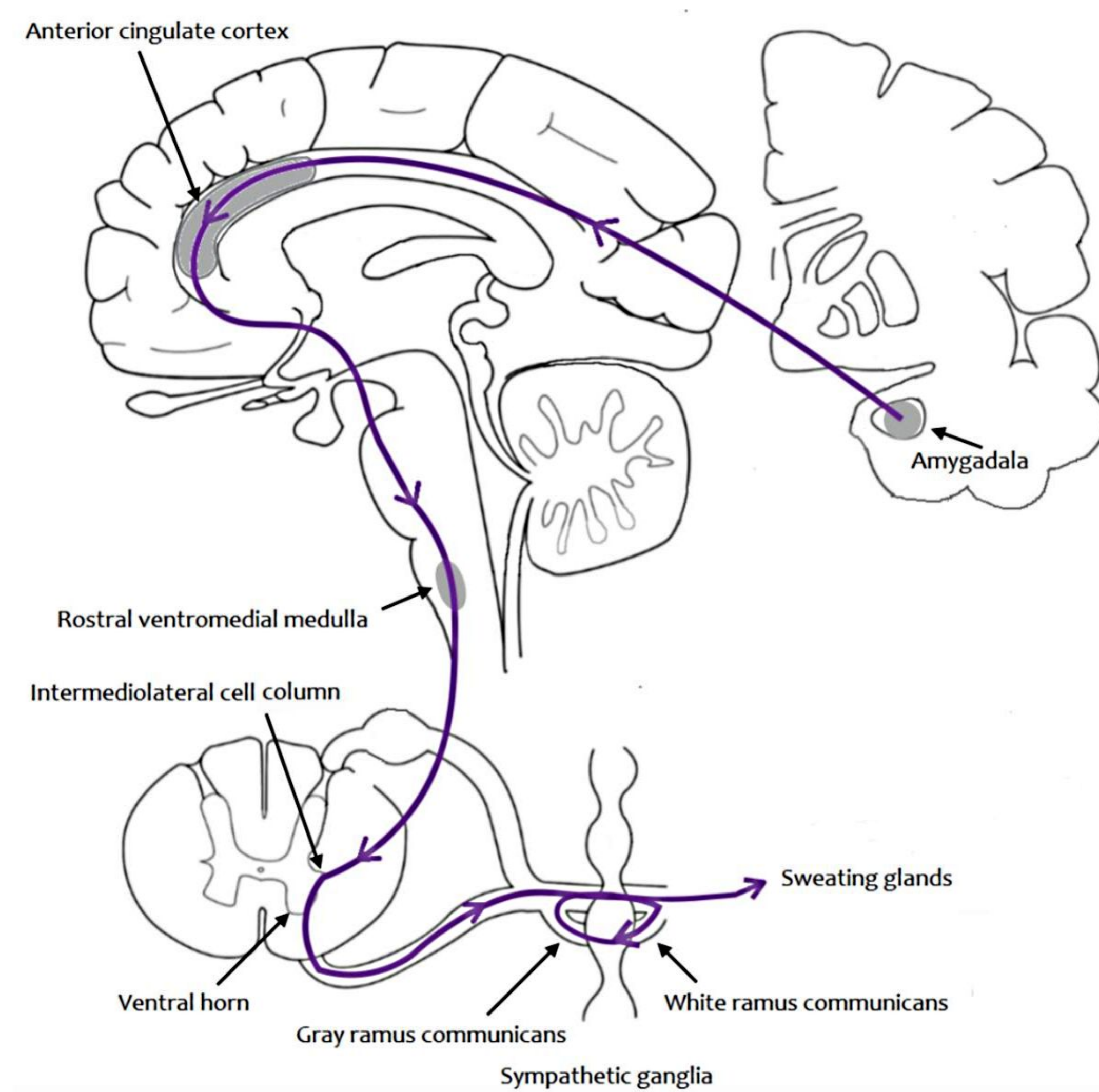




Background

- Palm sweating is a sympathetic nervous system response controlled by a network of cortical & subcortical brain regions known as the Central Autonomic Network (CAN).



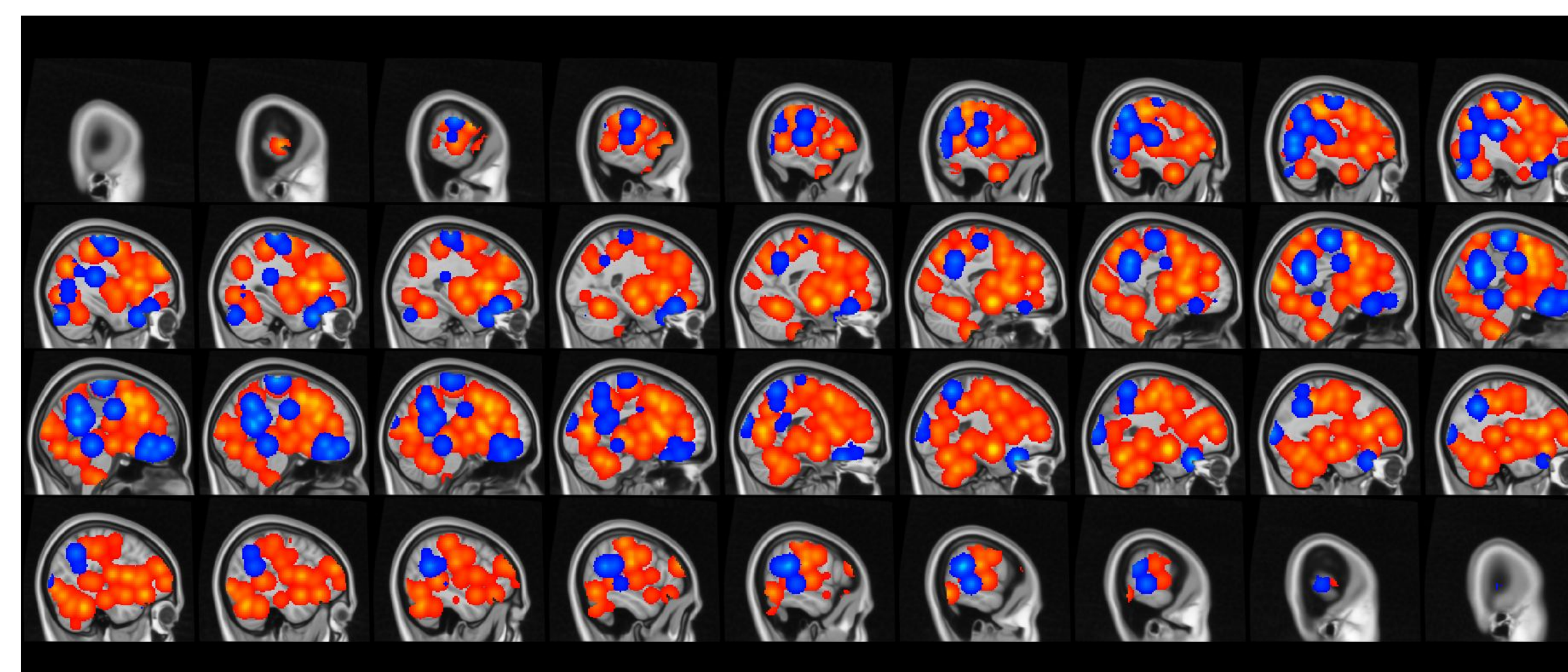
Hu, Y., Converse, C., Lyons, M. C., & Hsu, W. H. (2019). Neural control of sweat secretion: a review. *British Journal of Dermatology*, 178(5), 1246-1256.

Knowledge Gap

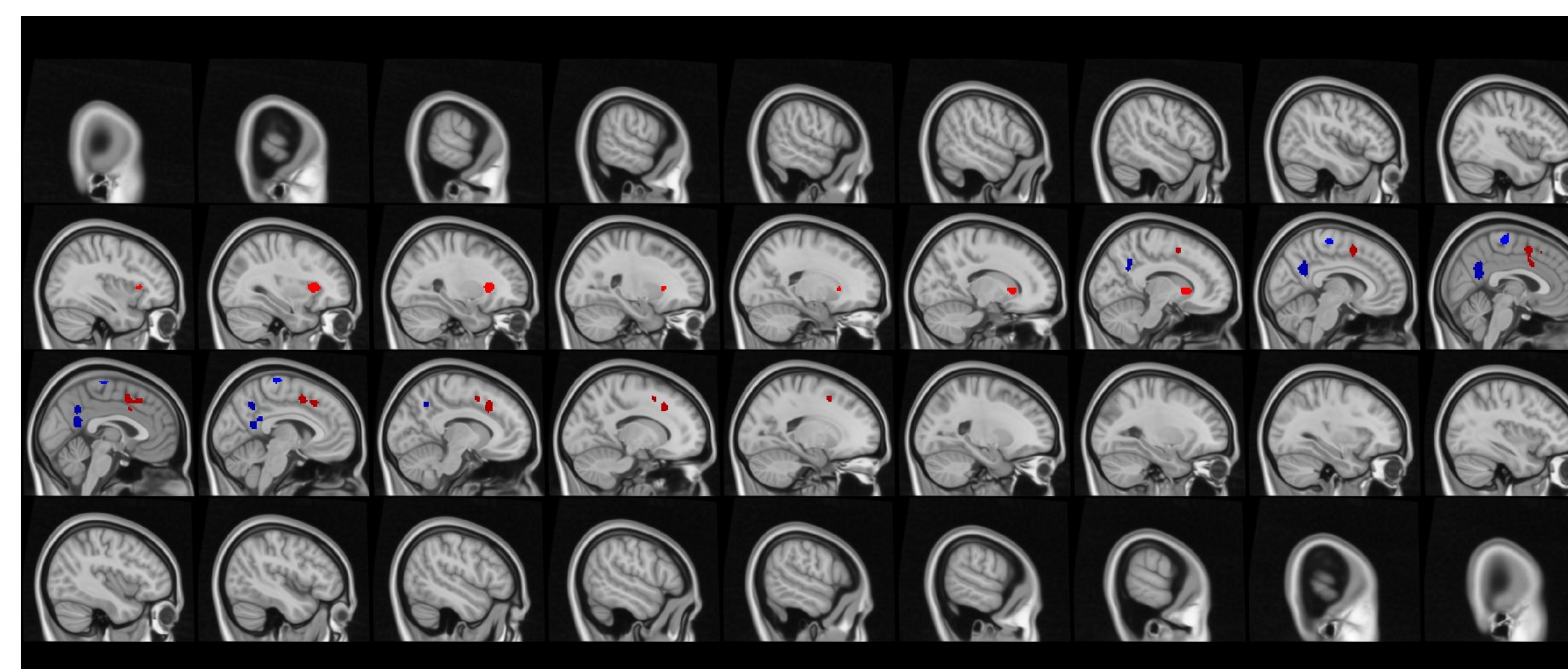
- Previous meta-analyses have identified individual brain regions involved in the coordination of autonomic responses.
- No studies have examined how these regions are functionally connected to the rest of the brain.

Methods

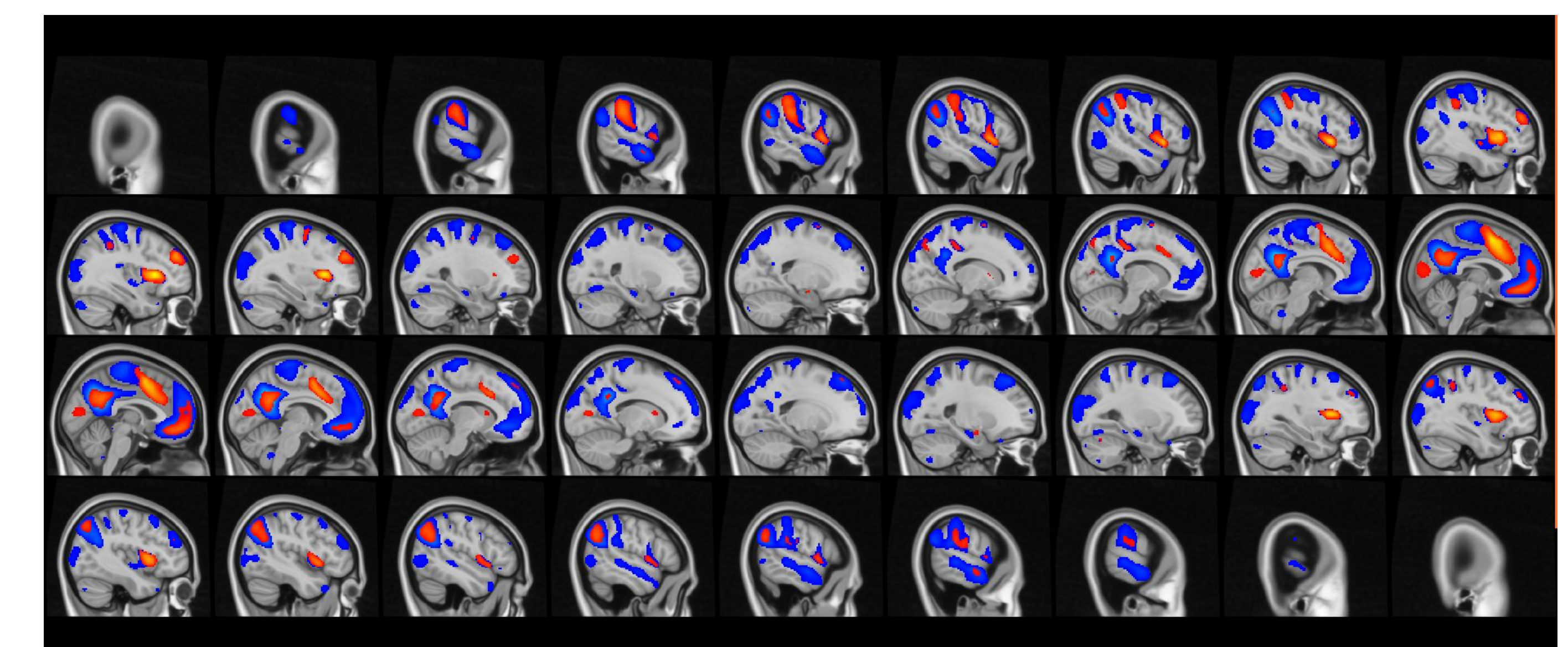
- Compiled a list of neuroimaging studies that report brain activity associated with sweaty palms (16 studies, comprised of 251 participants).
- All of the reported brain regions were projected onto a standardized brain template, shown below as **activations** & **deactivations**:



- Used activation likelihood estimation to determine nonrandom clustering of **activated** & **deactivated** regions associated with sweaty palms:



- Computed functional connectivity maps for **activated** & **deactivated** regions associated with sweaty palms using a database of 1,000 subjects with resting state neuroimaging data:



Results

- Sweaty palms are associated with activation of the insula & dorsal cingulate cortex, both of which are hubs of the salience network.
- Sweaty palms are also associated with deactivation of the precuneus, a major hub of the default mode network.

Conclusion

- This meta-analysis showed that sweaty palms, and thus, autonomic nervous system activity is associated with activation of a brain network involved in attentional control (i.e., salience network) and deactivation of a brain network involved in day-dreaming / introspection (i.e., default mode network).