

## **An integrative approach to the neural basis of hypnotic suggestibility**

### **ABSTRACT:**

Despite recent advances in neuroimaging research on hypnosis, the neurophysiological bases of individual differences in hypnotic suggestibility remain poorly understood. In particular, relatively little is known about how variability of neurochemicals in sensory-motor regions and areas in dopaminergic pathways contribute to variability in hypnotic responding. Similarly, relatively little research has sought to dissociate behavioural response to suggestions from the distortions in agency that comprise the primary phenomenological feature of response to suggestion. To address these gaps, we undertook three studies aiming to advance current understanding in this domain by investigating the neurochemical and brain structural correlates of hypnotic suggestibility and distortions in the sense of agency during hypnotic responding. Study 1 showed that hypnotic suggestibility is negatively associated with motor cortex GABA concentrations even after controlling for multiple potential confounding variables. Study 2, by contrast, did not identify any robust correlates of hypnotic suggestibility in multiple regions of interest including pre-SMA, putamen, and cerebellum. Finally, Study 3 found that involuntariness during response to suggestion, but not hypnotic suggestibility, was associated with grey matter volume in a broad network involving the thalamus, brain stem, and cerebellum. Together, these studies implicate motor processing in hypnotic responding and brain regions involved in the transmission of motor and sensory information to cortex and the sense of agency in the phenomenology of hypnotic responding. This research expands current knowledge regarding the neural basis of hypnotic suggestibility and suggests new avenues for research.

### **Keywords**

Hypnosis, Hypnotic suggestibility, Magnetic resonance imaging, Sense of agency

### **Published Work:**

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