

Hypnosis and Cognition: Neural basis of hypnotic suggestion on executive functions and perceptual awareness

ABSTRACT:

Background

Compelling literature has suggested the possibility of adopting hypnotic suggestions to override the Stroop interference effect. However, most of these studies mainly reported behavioral data and were conducted on highly hypnotizable individuals. Thus, the question of the neural locus of the effects and their generalizability remains open.

Aims

To recruit subjects regardless of their hypnotic responsiveness and test the behavioral and neurophysiological effects of different hypnotic suggestions during the Stroop task.

Method

In the present study, we used the Stroop task in a within-subject design to test the neurocognitive effects of two hypnotic suggestions: the perceptual request to focus only on the central letter of the words, and the semantic request to observe meaningless symbols.

Results

Behavioral results indicated that the two types of suggestions did not alter response time, but both favored more accurate performance compared to the control condition. Both types of suggestions increased sensory awareness and reduced discriminative visual attention, but the perceptual request selectively engaged more executive control of the prefrontal cortex, and the semantic request selectively suppressed the temporal cortex activity devoted to graphemic analysis of the words.

Conclusions

The present findings demonstrated that the perceptual and the semantic hypnotic suggestions reduced Stroop errors through common and specific top-down modulations of decision-making processes but left the semantic activation unaltered. Finally, as we also recruited participants with a medium level of hypnotizability, the present data might be considered potentially representative of the majority of the population.

Keywords

Hypnosis, Hypnotizability, Stroop, EEG, ERP

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Published Work:

Perri, R. L., Bianco, V., Facco, E., & Di Russo, F. (2021) Now you see one letter, now you see meaningless symbols: Perceptual and semantic hypnotic suggestions reduce stroop errors through different neurocognitive mechanisms. *Frontiers in Neuroscience, 14*: 600083. doi: 10.3389/fnins.2020.600083

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