



Effects of online repetitive transcranial magnetic stimulation on insight problem solving

Dmitry Lagoda¹, Ilya Bakulin¹, Alexandra Poydasheva¹, Dmitry Sinitsyn¹, Petr Kopnin¹, Liudmila Legostaeva¹, Elena Kremneva¹, Natalia Suponeva¹, Alexei Medyntsev², Michael Piradov¹

¹Research Center of Neurology, Moscow, Russia

²Institute of Psychology RAS, Moscow, Russia

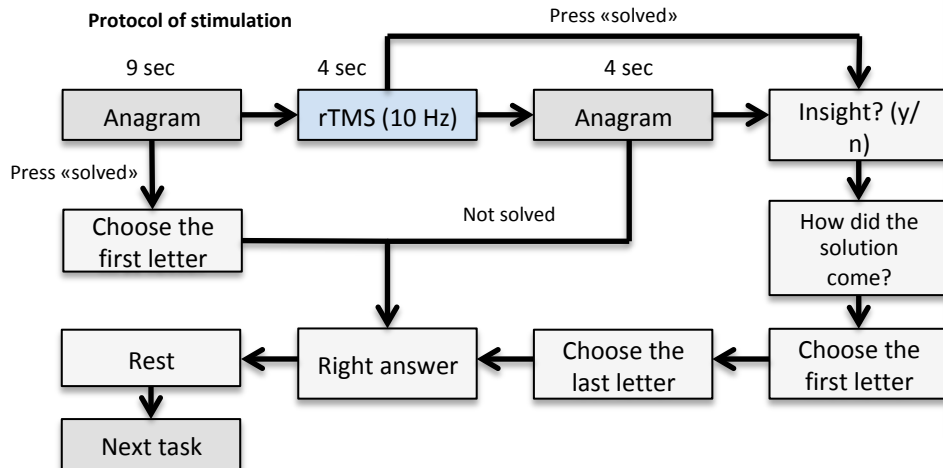
Introduction

Insight is the sudden and unpredictable appearance of a problem's solution and probably associated with creative thinking and creativity. Several studies showed the effects of anodal tDCS over left prefrontal cortex on the insight solution frequency (Cerutti et al., 2009, Metuki N et al., 2012). Our aim was to assess the effects of online rTMS over right and left DLPFC on insight problem solving.

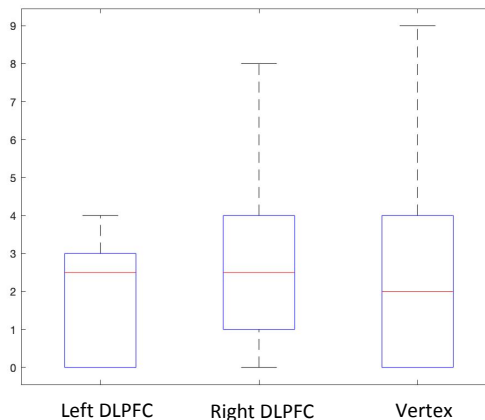
Methods

10 healthy right-handed adults (7 women, mean age - 18.0 [18.0; 21.5] years) were included. All participants underwent 1 session of online-rTMS of left and right DLPFC and Vertex in randomized order with inter-session's interval not less than 48 hours.

Protocol of stimulation



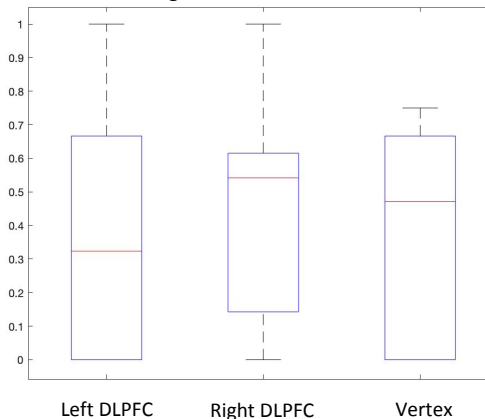
Number of insight problem solving for different stimulation targets



Results

No significant difference was found in total number (Friedman test, $p = 0.34$) and frequency of insight solving (Friedman test, $p = 0.56$) depending on stimulating area.

Frequency of insight problem solving for different stimulation targets



Conclusions

The absence of a stimulation effect can be explained by both the absence of the causal role of the right and left DLPFCs in insight problem solving, and the insufficient statistical power of the study, associated with the small sample size and the small number of insights.

Acknowledgements

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