

## **An empirical test of the effect of brain damage in mind-over-matter experiments**

### **ABSTRACT:**

#### **Background**

MicroPK is the phenomenon that people can remotely influence the electronic circuits in random number generators, and thus bias the outcome of random processes. Freedman et al. report that patients with lesions to the prefrontal cortex show an increased capability for microPK, leading them to propose the ‘filter hypothesis’: the idea that the prefrontal lobes somehow inhibit the latent ability for psi in humans.

#### **Aims**

In this project, we aimed to find further evidence for the filter hypothesis, by replicating Freedman’s results in a sample of healthy volunteers, in which the supposed prefrontal filter was inhibited using transcranial magnetic stimulation (TMS).

#### **Method**

Using TMS, we induced a temporary virtual lesion in the prefrontal lobe’s healthy participants (n=20) prior to performing a microPK task, in which they were instructed to influence the direction of an upcoming arrow pointing left or right. The target direction was indicated by a word cue (‘LEFT’ or ‘RIGHT’). Performance in this condition was compared to a control condition in which the occipital brain area was stimulated.

#### **Results**

We found no evidence on an increase in microPK performance after TMS of the prefrontal cortex – to the contrary, in the experiment participants showed a significant microPK effect in the control condition, which disappeared upon prefrontal TMS. The lack of result cannot be attributed to a lack of rTMS effects: in the control condition, the detection of arrows was impaired by an incongruent word cue, but this effect disappeared in the prefrontal TMS condition.

#### **Conclusions**

The results do not support the filter hypothesis of psi: rather than increasing psi ability, prefrontal stimulation abolished psi. The results fit into a well-known and notorious pattern of non-replications and effect reversals in parapsychology and may hint towards an experimenter effect or a ‘trickster’ effect at play. At present, it seems that prior to further neuropsychological investigations into psi, it is essential to better understand this broader contextual effect.

#### **Keywords**

MicroPK, Transcranial magnetic stimulation, Prefrontal cortex, Filter hypothesis