

Researchers find magnetic brain stimulation appears to make lying more difficult

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(PhysOrg.com) -- People have been lying to one another likely for as long as they have been able to communicate, and for likely just as long, people have been trying to figure out a way to get the truth out of someone suspected of lying. Now, new research by Inga Karton and Talis Bachmann, both of Estonia, have found that there might be a way to nudge people into being a little more honest when asked questions. Using powerful magnets, as they describe in their paper published in *Behavioural Brain Research*, applied to the forehead so as to impact the functioning of the dorsolateral prefrontal cortex, appears to impact the ease with which a person can lie.

The [Dorsolateral Prefrontal Cortex](#) (DPC), sitting right behind the forehead, has long been believed to be responsible for complex thought and perhaps decision making. It's this area that people seem to most often rub when faced with a tough decision. It's also here in this region that researchers have focused a lot of their attention when looking to understand how it is people come to make the decisions they do.

To find out if the DPC might be involved in lying versus telling the truth, Karton and Bachmann rounded up sixteen volunteers willing to undergo Transcranial [Magnetic](#) Stimulation (TMS), a device that can magnetically stimulate certain parts of the brain while leaving other's untouched. The stimulation is thought to slow or numb the affected area temporarily, making it work less effectively. They used the device to stimulate the DPC, which like most brain parts has both a left and right half, of the volunteers then showed them colored discs on a computer

screen (red or blue). The volunteers were asked to tell the truth about what they saw when looking at some of the discs and to lie about others. Half of the group had the left side of their DPC stimulated, the other the right half. After tabulating the results, it became clear that stimulating the left side of the DPC caused volunteers to lie less often, while stimulating the right side, caused them to lie more often.

While the authors note that testing just sixteen people doesn't offer enough data to draw any real conclusions from their experiment, especially in light of the fact that there wasn't anything at stake for the volunteers when asked to lie, it does offer some intriguing evidence to suggest that something interesting is going on; something that may or may not portend new ways to coerce perhaps less willing "volunteers" in the future, into telling the [truth](#) to interrogators. Doubtless more research in this area will be done, regardless of whether the consequences of positive results wind up creating very tricky societal complications regarding its use.

More information: Effect of prefrontal transcranial magnetic stimulation on spontaneous truth-telling, *Behavioural Brain Research*, Volume 225, Issue 1, 20 November 2011, Pages 209-214.
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Abstract

Brain-process foundations of deceptive behaviour have become a subject of intensive study both in fundamental and applied neuroscience. Recently, utilization of transcranial magnetic stimulation has enhanced methodological rigour in this research because in addition to correlational studies causal effects of the distinct cortical systems involved can be studied. In these studies, dorsolateral prefrontal cortex has been implied as the brain area involved in deceptive behaviour. However, combined brain imaging and stimulation research has been concerned mostly with deceptive behaviour in the contexts of mock

thefts and/or denial of recognition of critical objects. Spontaneous, “criminally decontextuated” propensity to lying and its dependence on the activity of selected brain structures has remained unexplored. The purpose of this work is to test whether spontaneous propensity to lying can be changed by brain stimulation. Here, we show that when subjects can name the colour of presented objects correctly or incorrectly at their free will, the tendency to stick to truthful answers can be manipulated by stimulation targeted at dorsolateral prefrontal cortex. Right hemisphere stimulation decreases lying, left hemisphere stimulation increases lying. Spontaneous choice to lie more or less can be influenced by brain stimulation.

via [Bigthink](#)

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