Magnetic fields prevent editor from talking (w/ video)

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In this image from the video below, New Scientist editor Roger Highfield demonstrates the impact of TMS. Image credit: New Scientist.

(PhysOrg.com) -- By holding an electromagnet close to a person's skull, researchers can alter the neuron activity in the person's brain. This technique, called transcranial magnetic stimulation (TMS), can be used for a variety of reasons, such as improving visual memory, impairing the brain's activity to make moral judgments, and treating ADHD and severe depression. To demonstrate the kind of immediate and powerful impact that TMS can have, New Scientist editor Roger Highfield tried to recite the nursery rhyme "Humpty Dumpty," but found that his speech was interrupted by a magnetic field.

In the video below, Vincent Walsh from the Institute of Cognitive Neuroscience at University College London uses magnets to turn off the speech center in Highfield's brain for a fraction of a second. Walsh also demonstrates the method on himself.

TMS inhibits the speech center in New Scientist editor Roger Highfield's brain. The loud clicking sounds are caused by rapid deformation of the TMS coil. Video credit: New Scientist.

As this demonstration implies, TMS is generally considered to be safe. Although there have been a few cases of fainting and seizures, the risk is considered very low.

When TMS is applied to most areas of the brain, participants do not consciously experience any effect, although their behavior changes. One exception is that, when TMS is applied to the visual cortex, participants may see flashes of light.

Walsh and his colleagues are investigating how TMS can be used to treat migraines and strokes. As he explains in the video, sometimes migraines are caused by too much activity in the visual brain area, and sometimes by too little activity. TMS could potentially balance this activity out. If a person feels a migraine coming on, they could put electrodes on their head that provide very small currents to the brain to reduce pain for up to 90 minutes at a time.

More information: via: New Scientist and PopSci