Scientists Discover That This Neuroscience Technique Can Enhance Creativity

By Kaila Takanaka on April 16, 2016

It's as simple as a zap.

According to researchers at the Georgetown University Medical Center (GUMC), safe levels of electrical brain stimulation can enhance the ability to think more creatively.

The technique, which is published in the journal Cerebral Cortex, investigates the ability of Transcranial Direct Current Stimulation (tDCS), a form of neurostimulation which delivers low electrical currents to the brain via electrodes on the scalp, to stimulate a specific brain region known to be linked with creativity — the frontopolar cortex.

In previous studies, neuroscientists have delivered these mild electric pulses to patients' brains in order to help lower levels of depression, reduce symptoms of anxiety, reduce pain and improve motor function. However, the potential to enhance creativity with this technique wasn't explored until now.

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The researchers got the idea to test out tDCS in the frontopolar cortex because they had found that people who were most able to "zero in" activity in the region were also most able to fuel creativity in the connections they formed.

"Since ramping up activity in frontopolar cortex appeared to support a neural boost in creative thinking," the psychologist explains, "we predicted that stimulating activity in this brain region would facilitate this boost, allowing people to reach higher creative heights."

After using tDCS in the frontopolar cortex, study participants were asked to complete two creativity tasks. The researchers observed that the two subjects were able to form more creative analogical connections between sets of words after receiving the mild zaps to the brain, as well as generate more creative associations between words.

"This work is a departure from traditional research that treats creativity as a static trait," Green says. "Instead, we focused on creativity as a dynamic state that can change quickly within an individual when they put their thinking cap on."

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According to cognitive neurologist Dr. Peter Turkeltaub, the scientists hope that doctors may one day be able to use this neurostimulation to help people with brain disorders.

"People with speech and language difficulties often can't find or produce the words they need," he explains. "Enhancing creative analogical reasoning might allow them to find alternate ways of expressing their ideas using different words, gestures or other expressions to convey a similar meaning."

The researchers wrote that their results provide "novel evidence" that tDCS enhances analogical reasoning, which is "a form of creative intelligence that is a powerful engine for innovation." Further, they write that the neurostimulation technique enhances the "conscious augmentation of creativity."

However, the researchers made a point that it's important to be cautious about the applications of tDCS since more research remains unknown about how the technique affects brain function in the long-term.

"Any effort to use electric current for stimulating the brain outside the laboratory or clinic could be dangerous and should be strongly discouraged," Green cautioned.

While the neurostimulation technique has definitely caught the attention of scientific researchers for a number of applications, there's still a lot to learn. "We're excited to see what further research will reveal," Green said.

Since you probably won't be able to go off and get mild electric pulses sent to your brain anytime soon, try out these 7 techniques to boost creativity in the meantime.

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