Brain-Boosting Technique Might Help Some Functions While Hurting Others

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We would surely all love a way to boost our brain power. But new research suggests that one promising experimental method could come with a cost. Using a noninvasive technique to stimulate the brain, researchers found they could enhance learning when they targeted a certain spot. But that also made people worse at automaticity, or the ability to perform a task without really thinking about it. Stimulating another part of the brain had the reverse effect, on both learning and automaticity.

“This tells us something about the human brain,” says lead researcher Roi Cohen Kadosh [1], a neuroscientist at the University of Oxford, in England. “We can’t ask for everything without paying a price.” The findings were published Tuesday in the *Journal of Neuroscience*.

Cohen Kadosh and collaborators used a technique called transcranial electrical stimulation (TES), a noninvasive method for stimulating specific parts of the brain. The approach has previously been shown to enhance various brain functions, including working memory and attention, and is being used to help stroke patients regain lost language and motor skills (see “Repairing the Stroke-Damaged Brain [2]”). But until now, little research had been done on whether improving performance on one task would come at the detriment of others.

“Very few people have thought about the real-world pragmatics of using this kind stimulation to improve function,” says Eric Wassermann [3], a neurologist at the National Institute of Neurological Disorders and Stroke, who was not involved in the study.

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