# Does brain stimulation boost memory or improve focus? It depends

In the past six years, the number of studies testing the therapeutic effects of a class of techniques called transcranial electrical stimulation has skyrocketed. These therapies deliver a painless, weak electrical current to the brain through electrodes placed externally on the scalp. The goal is to excite, disrupt or synchronize signals in the brain to improve function.

Researchers have tested transcranial alternating current stimulation (tACS) and its sister technology, tDCS (transcranial direct current stimulation), on both healthy volunteers and those with neuropsychiatric conditions, such as depression, Parkinson's disease or addiction. But study results have been conflicting or couldn't be replicated, leading researchers to question the efficacy of the tools.


The authors of the new analysis, led by Robert Reinhart, director of the cognitive and clinical neuroscience laboratory at Boston University in Massachusetts, say they compiled the report to quantify whether tACS shows promise, by comparing more than 100 studies of the technique, which applies an oscillating current to the brain.

…

Their meta-analysis, published on 24 May in *Science Translational Medicine*, concluded that tACS treatment brings about moderate improvements in attention, long-term memory, working memory, the ability to process new information and solve problems, and other high-level cognitive processes.

**This is an excerpt. Read the original article here**