

Low-field synchronized transcranial magnetic stimulation effective for major depressive disorder

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The results of a study assessing safety and efficacy of sTMS therapy with the NEST device in adult patients with Major Depressive Disorder (MDD) have been published in the journal *Brain Stimulation* .

In the study, over 200 subjects were analyzed across 17 leading academic and private psychiatric institutions in the United States; enrollment included both [treatment](#) naïve and treatment-resistant patients as prior exposure to [antidepressant medication](#) was not a requirement for inclusion into the trial.

"The study found sTMS therapy to be significantly more effective than sham when administered as intended, supporting the hypothesis that low-field magnetic stimulation improves [depressive symptoms](#)," said Principal Investigator Andrew Leuchter, MD, Professor of Psychiatry and Director of the Neuromodulation Division in the Semel Institute at UCLA1. "Additional analyses found subjects who failed to benefit from or tolerate prior antidepressant treatment in the current episode were most likely to demonstrate significant benefit from sTMS therapy compared to sham."

When delivered accurately and consistently, antidepressant resistant/intolerant subjects treated with active sTMS therapy achieved clinical response at a rate of 34.2% compared to 8.3% of those treated with an inactive device.

In addition, NEST showed an attractive safety and tolerability profile, with no significant differences seen between active and sham treatment in the rate or severity of adverse events. There were no device-related serious adverse events in this study.

"These promising results indicate that sTMS is a promising novel technology for the treatment of depression," said co-author Mark S. George, MD, Distinguished Professor of Psychiatry, Radiology and Neurology at the Medical University of South Carolina, and the Editor-in-Chief of Brain Stimulation. "This technology is revolutionary in two ways over the current FDA-approved forms of TMS. First, this device tunes the stimulation to the patient's own brain rhythms. By stimulating at each patient's individual resonant frequency, sTMS may be able to achieve therapeutic success using lower energy. Second, this device is safe, easy to use, and portable, which would allow use in a wide variety of treatment settings. sTMS may expand the options we have for treating serious depression."

"We are very pleased with the outcome of this trial and what it could mean for those with MDD, particularly those who have failed to achieve adequate improvement from prior [antidepressant treatment](#)," said Kate Rumrill, President and CEO of NeoSync. "This study is an important milestone for the company on the path to bring sTMS to the market."

More information: Leuchter AF, Cook IA, Feifel D, et al. Synchronized Transcranial Magnetic Stimulation (sTMS) Efficacy and Safety of Low-field Synchronized Transcranial Magnetic Stimulation (sTMS) for Treatment of Major Depression. *Brain Stimulation* 2015 [dx.doi.org/10.1016/j.brs.2015.05.005](https://doi.org/10.1016/j.brs.2015.05.005)

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