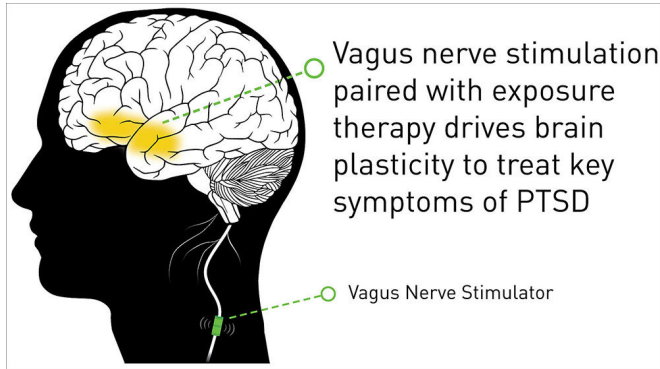


# Vagus nerve stimulation therapy shows progress in battling PTSD symptoms

23 October 2017, by Katherine Morales



Credit: Texas Biomedical Device Center

Researchers at The University of Texas at Dallas are exploring how mild stimulation of the vagus nerve could help alleviate symptoms of post-traumatic stress disorder (PTSD), a complex condition that can cause debilitating anxiety and mental anguish.

The vagus nerve controls the parasympathetic nervous system, which oversees a vast array of crucial bodily functions including digestion and slowing the heart rate. Vagus nerve stimulation (VNS) is already used as a treatment for disorders including epilepsy and depression, and it has been shown to enhance memory retention.

The technique's effect on memory is key: UT Dallas researchers theorized it could help those with PTSD successfully learn to overcome [fear responses](#) in non-threatening situations.

In a new preclinical study published in the journal *Translational Psychiatry*, UT Dallas scientists found that mild electrical pulses to the vagus nerve indeed showed some protective effects against PTSD symptoms.

"We found evidence that treating the traumatic

memory produced lasting improvements in other PTSD-like symptoms such as anxiety, arousal and avoidance," said Dr. Christa McIntyre, associate professor of neuroscience in the School of Behavioral and Brain Sciences and the study's senior author.

Researchers applied painless electrical stimulation to the vagus nerve in rodents with symptoms of PTSD. Those symptoms included fear responses, and anxious behavior in non-threatening situations and reduced social interactions.

After receiving VNS, the animals showed diminished fear responses and increased social interaction, suggesting that the treatment was effective in minimizing PTSD symptoms. If VNS provides the same benefit in humans, it could provide a powerful addition to current therapies, said Dr. Michael Kilgard, professor of neuroscience at UT Dallas and a study author.

"Therapies currently in use for patients with PTSD include talk therapy and exposure therapy. They can work, but patients, understandably, don't always adhere to those treatments because they don't want to re-experience trauma," said Kilgard, Margaret Fonde Jonsson Professor. "We wanted to explore ways of making treatment better tolerated and more effective."

Kilgard said that improvements for those with PTSD may be short-lived even if they faithfully adhere to current treatments. If they re-experience a trauma in their lives such as a death in the family, instead of having mild setbacks in PTSD symptoms, they typically lose much of their progress.

"In our study, we found that VNS not only improved fear responses in non-stressful situations, but those improvements lasted even after another traumatic experience occurred," Kilgard said.

Researchers also found that VNS therapy provided

some protection after treatment was discontinued entirely.

"We were encouraged to find that after one week of no VNS treatments at all, there were still protective effects," said Lindsey Noble, lead author of the study and a doctoral student at UT Dallas. "We definitely want to learn more about this and see if VNS could offer more benefits across the board for other disorders, like obsessive-compulsive disorders and addiction."

Provided by University of Texas at Dallas

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