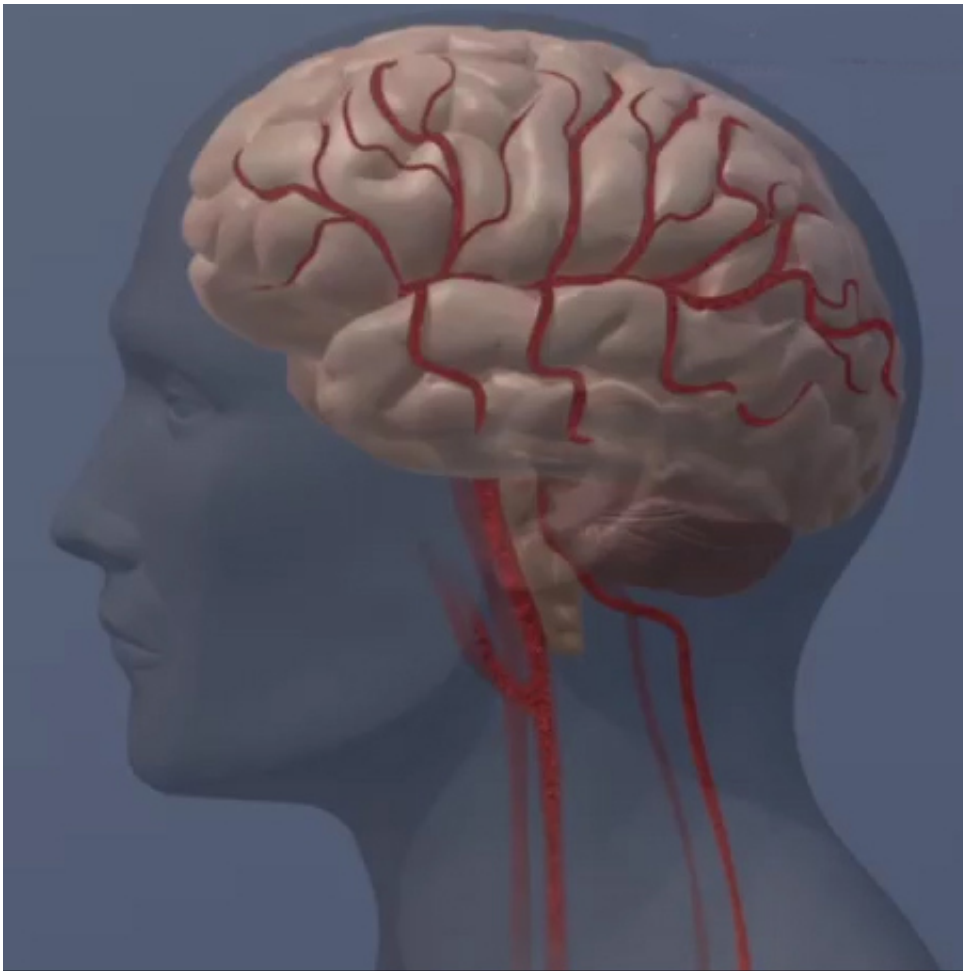


# Neuroscientists improve human memory by electrically stimulating brain

October 25 2017

---



Credit: copyright American Heart Association

Neuroscientists at the David Geffen School of Medicine at UCLA have

discovered precisely where and how to electrically stimulate the human brain to enhance people's recollection of distinct memories. People with epilepsy who received low-current electrical pulses showed a significant improvement in their ability to recognize specific faces and ignore similar ones.

Eight of nine patients' ability to recognize the faces of specific people improved after receiving electrical pulses to the right side of the brain's entorhinal area, which is critical to learning and memory. However, [electrical stimulation](#) delivered to the left side of the region, tested on four other people, resulted in no improvement in the patient's recall.

The study builds on 2012 UCLA research published in the *New England Journal of Medicine* demonstrating that human memory can be strengthened by electrically stimulating the brain's entorhinal cortex.

The researchers followed 13 people with epilepsy who had ultrafine wires implanted in their brains to pinpoint the origin of their seizures. The team monitored the wires to record neuron activity as memories were formed, then sent a specific pattern of quick pulses back into the entorhinal area.

Using the ultrafine wires allowed researchers to precisely target the stimulation but use a voltage as low as one-tenth to one-fifth as strong as had been used in previous studies.

The study suggests that even low currents of electricity can affect the brain circuits that control memory and human learning. It also illustrates the importance of precisely targeting the stimulation to the right entorhinal region. Other studies that applied stimulation over a wide swath of [brain](#) tissue have produce conflicting results.

Electrical stimulation could offer promise for treating [memory](#) disorders

like Alzheimer's disease.

The study was published in the open-access, peer-reviewed journal *eLife*.

Provided by University of California, Los Angeles

Citation: Neuroscientists improve human memory by electrically stimulating brain (2017, October 25) retrieved 4 May 2024 from <https://medicalxpress.com/news/2017-10-neuroscientists-human-memory-electrically-brain.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--