

Training program facilitates home-based transcranial electrical stimulation

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Credit: Human Brain Project

Traveling to and from a clinic or a laboratory for treatment can be difficult and expensive for older Americans. To address this, scientists developed and tested a new training and supervision program for older adults so they can receive Transcranial Electrical Stimulation (tES), a promising intervention for various clinical conditions, in their homes.

Published in *Neuromodulation: Technology at the Neural Interface*, this training and supervision program was designed to introduce and teach caregivers, [family members](#), and patients how to administer home-based transcranial electrical stimulation (HB-tES), equipping them with the skills necessary to do so safely and effectively. The program's feasibility and effectiveness are backed by data from its implementation in over 350 sessions across two pilot clinical trials specifically targeting older adults.

The [study](#), "An educational program for remote training and supervision of home-based transcranial electrical stimulation: feasibility and preliminary effectiveness," assesses the feasibility and educational effectiveness of the program, aligned with International Federation of Clinical Neurophysiology guidelines, through sessions led by trained lay older adults.

The researchers used insights from numerous clinical studies involving tES interventions to develop both the general framework of the HB-tES training and monitoring program and the specific content of the instructional resources.

The training and supervision program discussed in the study provides a comprehensive curriculum with instructional materials, a set of remote hands-on practices, a standardized framework for ongoing remote supervision and monitoring, and on-demand assistance.

The study found that all participants successfully completed the training. Participants reported high satisfaction levels with the program and confidence in their ability to administer HB-tES. Technical assistance from teaching staff was rarely needed across over 350 sessions, with an impressive adherence rate exceeding 98% and no adverse events.

The findings indicate that the HB-tES training program is both effective

and well-received by participants.

"The HB-tES approach ensures that everyone can access tES, regardless of ability to travel, immunocompromised status, or risk of falling. Our remote program was developed to offer equal tES treatment opportunities to all.

"Also, including a broader and more diverse group of people in studies strengthens the robustness and generalizability of our findings, enabling us to gather stronger evidence on tES effectiveness across various health conditions. The design of our program allows for easy adaptation to various HB-tES research applications and devices, and is accessible online, making it a versatile tool for the scientific community.

"By promoting uniformity in study methods, the adoption of this program is poised to significantly advance the field of tES research," said Dr. Davide Balos Cappon, MS, Ph.D., an assistant professor of neurology at Harvard Medical School, neuropsychologist at the Deanna and Sidney Wolk Center for Memory Health, and assistant scientist at the Hinda and Arthur Marcus Institute for Aging Research at Hebrew SeniorLife.

"We hope that the remote nature of this training program will facilitate increased accessibility to HB-tES clinical trials among underrepresented racial and ethnic populations across diverse demographics and locations. This program is designed for easy adaptation to different HB-tES research applications and devices.

"The adoption of this program is expected to facilitate uniformity of study methods in future HB-tES studies and thereby accelerate the pace of tES intervention discovery," Dr. Cappon added.

The remote [training](#) program will boost HB-tES research accessibility,

enabling diverse demographics and locations to adopt standardized methods and speeding up tES intervention discoveries.

More information: Davide Cappon et al, An Educational Program for Remote Training and Supervision of Home-Based Transcranial Electrical Stimulation: Feasibility and Preliminary Effectiveness, *Neuromodulation: Technology at the Neural Interface* (2023). [DOI: 10.1016/j.neurom.2023.04.477](https://doi.org/10.1016/j.neurom.2023.04.477)

Provided by Hebrew SeniorLife Hinda and Arthur Marcus Institute for Aging Research

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