Study Title: Treating Civilian Traumatic Brain Injury With High Definition Transcranial Direct Current Stimulation (ciTBI-HDtDCS)

NCT05408975

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Title of Study: Using High Definition transcranial Direct Current Stimulation to Treat Verbal Retrieval Deficits Secondary to Chronic Traumatic Brain Injury (HDtDCS-CTBI)

Consent to be part of a Research Study
To be conducted at
The University of Texas Southwestern Medical Center
The University of Texas at Dallas

Key Information about this Study

This is an exploratory study being done to attempt to improve word finding and working memory problems that sometimes occur in people who have suffered a traumatic brain injury. Major requirements of this study include that the participant has had a TBI, is between the ages of 18 and 85, and is fluent in speaking and reading English.

This study will use low level electric stimulation (called transcranial Direct Current Stimulation or tDCS) on the part of your brain thought to aid in memory retrieval (the pre-Supplementary Motor Area or pre-SMA). You will be participating in two phases where you will be given tests before and after the 10 sessions of tDCS (occurring once a day for about 20 minutes over 10 days). These tests will help determine the effect of tDCS on the pre-SMA.

There is minimal risk associated with participating in this study. Overall, tDCS has been found to be a safe, well-tolerated device. Further information regarding potential risks are discussed in detail later in this consent form. Potential benefits for participating in this study are that you will be contributing to the development of a non-pharmacological method to treat word finding and memory problems in others with a TBI. It is possible you may also see some improvement in your own word finding and memory problems.

Information about this form

You may be eligible to take part in a research study. This form gives you important information about the study.

Please take time to review this information carefully. You should talk to the researchers about the study and ask them any questions you have. You may also wish to talk to others (for example, your friends, family, or a doctor) about your participation in this study. If you decide to take part in the study, you will be asked to sign this form. Before you sign this form, be sure you understand what the study is about, including the risks and possible benefits to you.

Please tell the researchers or study staff if you are taking part in another research study.

Your doctor could be a research investigator in this study. S/he is interested in both your medical care and the conduct of this research study. At any time, you may discuss your care with another doctor who is not part of this research study. You do not have to take part in any research study offered by your doctor.

Voluntary Participation - You do not have to participate if you don't want to. You may also leave the study at any time. If you decide to stop taking part in this research study, it will not affect your relationship with the UT Southwestern or UT Dallas staff or doctors. If you are a UT Dallas student, your decision whether to participate will not affect your grades or education in any way. Whether you participate or not will have no effect on your legal rights or the quality of your health care.

If you are a medical student, fellow, faculty, or staff at the Medical Center, your status will not be affected in any way.

General Information – "Who is conducting this research?"

Principal Investigator
The Principal Investigator (PI) is the researcher directing this study; the PI is responsible for protecting your rights, safety and welfare as a participant in the research. The PI for this study is John Hart, Jr. MD, Department of Neurology at UT Southwestern Medical Center and Professor and Distinguished Chair in Neuroscience at UT Dallas.

If you require further information regarding the financial arrangements described in this paragraph, you should discuss the matter with the Principal Investigator.

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Purpose – "Why is this study being done?"

The purpose of this study is to increase our understanding of the effects of the multi-electrode transcranial Direct Current Stimulation (tDCS) on word finding and to determine if tDCS may be used as a way to improve word finding in individuals with traumatic brain injury (TBI). tDCS is a form of neurostimulation (also called neuromodulation) where very low levels of constant electrical current are delivered to specifically targeted areas of the brain via several small electrodes.

You are asked to participate in this research study attempting to improve word finding and working memory problems that sometimes occur in people who have suffered a traumatic brain injury.

The researchers hope to learn if using low level electric stimulation (called transcranial Direct Current Stimulation or tDCS) on the part of your brain thought to aid in memory retrieval (the pre-Supplementary Motor Area or pre-SMA) can improve word and memory retrieval functions.

Investigational Use of Drug or Device This study involves the use of an investigational device called transcranial Direct Current Stimulation (tDCS). "Investigational" means that the device has not been approved by the U.S. Food & Drug Administration (FDA) for treating insomnia, depression, and anxiety.

This study will help find out what effects, good and/or bad, this device has. The safety of this device in humans has been tested in prior research studies; however, some side effects may not yet be known.

A description of this clinical trial will be available on http://www.ClinicalTrials.gov, as required by U.S. Law. This Web site will not include information that can identify you. At most, the Web site will include a summary of the results. You can search this Web site at any time.

Information about Study Participants – "Who is participating in this research?"

You are being asked to be a participant in this study because you are between the ages of 18-85 and you have had a traumatic brain injury.

If you are pregnant, you will not be considered for the study.

How many people are expected to take part in this study?
About 30 people will take part in this study at UT Southwestern or UT Dallas.

Information about Study Procedures – "What will be done if you decide to be in the research?"

While you are taking part in this study, you will be asked to attend 12 or 13 visits with the researchers or study staff. You will not be informed if you receive active or sham stimulation. After you complete a total of 12 or 13 visits, you will be invited to participate for an additional 11 visits to receive active stimulation if you have previously received sham stimulation. In this case there will be a total of 23 or 24 visits.

Screening – After you sign this consent to participate, exams, tests, and/or procedures may be done as described below to find out if you can continue in the study; this is called screening. We may be able to use the results of exams, tests, and/or procedures you completed before enrolling in this study. You will be told which results we will obtain and which procedures will not have to be repeated. Many of the procedures are described below as "**standard care**" and would be done even if you do not take part in this research study. You will be told which ones are for "**research only**".

Screening Procedures

- Traumatic brain injury history – You will be asked questions regarding whether or not you have had a concussion or other brain injuries before, and if so, how many, symptoms experienced, and time to recovery.
- Brief medical history review – You will be asked questions about what medical conditions you have and the medications you may be taking to treat these.
- Psychological function – A brief questionnaire will be completed assessing your current emotional adjustment.
- A pregnancy test will be offered to individuals who are at reproductive age and have not undergone menopause to ensure that there is no pregnancy.

This visit will take approximately 1.5 hour and all of the procedures are for research only.

The results of the screening exams, tests, and/or procedures will be reviewed to determine whether you will be allowed to continue in the study. If you are not allowed to continue in the study, the researcher will discuss the reasons with you.

Overview of Study Procedures

Continuing in the study will involve completion of approximately 12 or 13 to 23 or 24 visits. These are outlined below along with estimated durations

Phase 1

- Visit 1 pre-testing neuropsychological assessment/EEG (3 hours)
- Visit 2 (optional) MRI (1 hour)
- Visits 3-11 active or sham stimulation (30 minutes)
- Visit 12-part 1 active or sham stimulation (30 minutes)
- Visit 12-part 2 post-testing neuropsychological assessment/ EEG (3 hours)
- Visit 13 8-week follow-up neuropsychological assessment/ EEG (3 hours)

Phase 2

- Visits 14-22 active stimulation (30 minutes)
- Visit 23-part 1 active stimulation (30 minutes)

- Visit 23-part 2 post-testing neuropsychological assessment/ EEG (3 hours)
- Visit 24 8-week follow-up neuropsychological assessment/ EEG (3 hours)

Assignment to Study Groups –
When it is determined that you are eligible for the study, you will be assigned by chance (like drawing numbers out of a hat) to one of 2 study groups during Phase 1.

- One group will receive the neurostimulation at 1 mA, the intervention being assessed in the study, and we call this the *active intervention group*.
- The other group will not receive the intervention, even though the device will be placed on their head, and we call this the *sham intervention group*.

You will have a one in two chance of being in the active intervention group.

Neither you nor the research staff conducting the study procedures will know whether you are receiving the active or sham intervention during Phase 1. Research personnel not involved with conducting the study procedures will have a way to find out which you are receiving when it comes time to study the results.

After you complete a total of 12 or 13 visits during Phase 1 of the study, you will be invited to participate for an additional 11 visits to receive active stimulation if you have previously received sham stimulation. In this case there will be a total of 23 or 24 visits.

Study Procedures - as a participant, you will undergo the following procedures:
(All procedures will take place at Dr. Hart's lab at UT Dallas except the MRI)

- Neuropsychological evaluation (Research Purposes): You will complete a brief battery of tests assessing your thinking skills and psychological functions, including attention, memory, and emotional adjustment at the initial visit, immediately following the last session of receiving active or sham intervention, and at a 2-month follow-up visit for both Phases 1 & 2.
- You may have an MRI of your brain as an option if there is sufficient funding. We no longer perform brain MRI as routine due to termination of prior federal funding (Research Purposes): For this procedure, you will lie still inside a large, doughnut-shaped magnet, also called the MRI scanner at the imaging center at the UT Southwestern Medical Center. The MRI technologist can see and hear you during the procedure. You will also be given a squeeze ball to use for communication. You will be inside the MRI scanner for approximately 40 minutes.
- Brain wave test (Research Purposes): You will also undergo event-related electroencephalography (EEG). The EEG procedure is a non-invasive technique that requires the placement of 64 sensors (metal electrodes) on the scalp. The electrodes will record brain electrical activity while you will perform computer tasks. This is a common research procedure. During the event-related EEG you will be asked to react (as fast as you can) to visual cues shown on a screen using a button box. This will be done at the initial visit, immediately following the last session of receiving active or sham intervention, and at a 2-month follow-up visit for both Phases 1 & 2.
- Neurostimulation (Research Purposes): A cap with an array of electrodes, used to deliver the current, will be placed on your head and gently secured to prevent the cap from moving during each session. However, it will be important to stay as completely still as possible for each session. You may feel some tingling on the scalp of your head, but the electrical stimulation does not produce skin irritation or discomfort.
- Booster Sessions: If, as determined by the team, follow-up treatments might be helpful to your overall outcome, you will be contacted to see if you are interested in returning at a later date to have repeat tDCS treatments. These treatments would be every day for 5-7 days.

Could your participation end early? There are several reasons why the researchers may need to end your participation in the study (early withdrawal). Some reasons are:

- The researcher believes that it is not in your best interest to stay in the study.
- You become ineligible to participate.
- Your condition changes and you need treatment that is not allowed while you are taking part in the study.
- You do not follow instructions from the researchers.
- The study is stopped.

It is possible that this study will identify information about you that was previously unknown, such as disease status or risk. Any clinically relevant results of the research will be communicated to you. Clinically relevant means that the information indicates that you may be at risk for a serious illness known at the time of testing to be treatable and it can be confirmed. In that case, we will attempt to notify you using the contact information you have provided.

If you do not want to be notified of any of these incidental findings, please initial below.

_____ Please do not notify me of any incidental findings obtained from this research.

Risks – "What are the risks of participation in the research?"

Risks from the research

There are slight risks to taking part in this research study. One risk is that you may have side effects such as tiredness while in the study.

Everyone taking part in the study will be watched carefully for any side effects. However, be sure to tell a research member immediately, about any side effect that you have while taking part in the study. The research team will stop the procedure immediately if you choose.

The following section will describe the risks related to your participation in this research study. You should talk to your study doctor about any side effects or other problems that you have while taking part in the study.

Risks and side effects related to the neuropsychological and EEG assessment include tiredness or emotional discomfort.

Risks and side effects related to the neurostimulation include those which are:

Rare

In 100 people, approximately 1 may have:

- Possible skin sensations, such as tingling, itching, and burning sensations at the site of electrodes, that resolves when stimulation is finished. When experienced, the majority of these are mild in nature with fewer than 4% of individuals describing the sensations as intense.
- Very rarely, temporary skin irritation may occur under the electrode. This creates a darkening of the skin, which normalizes after a week and heals. The size of such is a few millimeters.
- Tiredness

To minimize risk, all subjects will be monitored with one-on-one direct supervision during neurostimulation sessions. If subjects experience discomfort more than the mild tingling or itching expected during neurostimulation and are unable to continue, the session will be immediately terminated.

MRI: There are no known risks from exposure to magnetic fields. You may experience nervousness and/or anxiety due to the loud banging made by the machine while it is taking pictures and from confinement in a tight space (claustrophobia). If you become anxious, you can stop the procedure at any time. You may also experience some discomfort and fatigue from lying still during imaging.

If you have any metal clips or plates in your body, you should tell the investigator. MRI may not be appropriate if you are pregnant or are trying to conceive. MRI may not be appropriate if you have permanent eyeliner or eyebrows or have pieces of metal in your body contraindicated for an MRI environment, such as the following:

- Heart pacemaker, heart valve replacement, or aortic clips
- Metal fragments in your eyes, skin, or elsewhere in your body
- Brain clips or pieces of metal used in aneurysm surgery or intracranial bypass
- Venous umbrella
- Pieces of metal in the body resulting from work as a sheet-metal worker or welder
- Clips placed in an internal organ
- Prosthetic devices, such as middle ear, eye, joint, or penile implants
- Joint replacement
- Hearing aid that cannot be removed
- Neurostimulator
- Insulin pump
- Shunts or stents
- Metal mesh or coil implants
- Metal plate, pin, screws, or wires, or any other metal implants

If you have a history of an implanted device or clips in your pelvis (involving your uterus or fallopian tubes) or under your skin, acting as a contraceptive to prevent pregnancy, the MRI technologist will obtain specific information about the make and model of your implanted device to determine if it is safe for you to receive the MRI examination.

Reproductive Risks

Concerns for sexually active women: You should not become pregnant while taking part in this study because we do not know how the study drugs/procedures could affect a fetus, if a woman becomes pregnant during the study. It is important that you talk to your study doctor about avoiding pregnancy during this study. If you think you might have become pregnant while you are in this study, you must tell one of the study doctors right away so that management of the pregnancy and the possibility of stopping the study can be discussed.

If you are a woman who is pregnant or could be pregnant, you cannot take part in this study because we do not know how the brain wave test (EEG) and neurostimulation might affect a developing fetus. We will do a pregnancy test before you start treatment to make sure you are not pregnant.

Risks of MRI and tDCS are not proven for pregnant individuals. The literature has not shown any associated risks but the evidence is not unbiased. Due to pure research purpose of our study and unproven risks, we would exclude pregnant individuals from participation.

Risk of Loss of Confidentiality: Any time information is collected there is a potential risk for loss of confidentiality. Every effort will be made to keep your information confidential; however, this cannot be guaranteed.

For more information about risks and side effects, ask one of the researchers or study staff.

Are there Risks related to withdrawing from the study?
If you decide to withdraw from this study early, please discuss your decision with the principal investigator. The researcher may ask you to complete study withdrawal procedures at a final study visit. This visit includes completing paperwork to process any reimbursement you may be eligible for as part of your participation. There is no risk to you if you do not complete the final withdrawal procedures and you can choose not to participate in them.

Are there risks if you also participate in other research studies?
Being in more than one research study at the same time, may increase the risk to you of experiencing tiredness or emotional discomfort from participating in this study. It may also affect the results of the studies. You should not take part in more than one study without approval from the researchers.

What if a research-related injury occurs?
The researchers have taken steps to minimize the known or expected risks. However, you may still experience problems or side effects, even though the researchers are careful to avoid them. In the event of a research-related injury or if you experience an adverse reaction, please immediately contact your study doctor. See the section “Contact Information” for phone numbers and additional information. You may also need to tell your regular doctors.

If you are injured or made sick from taking part in this research study, medical care will be provided. This care may be billed to you or your insurance. Depending on the circumstances, this care may be provided at no cost to you. We have no plans to give you money if you are injured. The investigator can provide you with more information.

If you sign this form, you do not give up your right to seek additional compensation if you are harmed as a result of being in this study.

Benefits – “How could you or others benefit from your taking part in this study?”
The possible benefit of your participating in this study is you may notice improvements in some of your thinking skills. Also, your participation, regardless of what group you are selected to will add knowledge about the effectiveness of a safe, low cost, and non-pharmacological intervention for individuals experiencing mild memory changes in aging. This could impact what treatments are available to you and others with similar symptoms.

We hope the information learned from this study will benefit other people with similar conditions in the future.

Payments – Will there be any payments for participation?

You will not be paid to take part in this research study. There are no funds available to pay for parking expenses, transportation to and from the research center, lost time away from work and other activities, lost wages, or child care expenses.

Confidentiality – How will your records be kept confidential?

Information we learn about you in this study will be handled in a confidential manner, within the limits of the law. If we publish the results of the study in a scientific journal or book, we will not identify you. The Institutional Review Board and other groups that have the responsibility of monitoring research may want to see study records which identify you as a subject in this study.

How will my information and/or tissue samples be used?

With appropriate permissions, your collected information may also be shared with other researchers here, around the world, and with companies.

By agreeing to participate in this study, your information could be used for future research studies or sent to other investigators for future research studies without additional consent from you. The information that identifies you will first be removed from your information. If you do not want your information to be used for future research studies without your consent, you should not participate in this study.

Research policies require that private information about you be protected, and this is especially true for your health information. However, the law sometimes allows or requires others to see your information. The information given below describes how your privacy and the confidentiality of your research records will be protected in this study. Medical information collected during this study and the results of any test or procedure that may affect your medical care may be included in your medical record. The information included in your medical record will be available to health care providers and authorized persons including your insurance company.

What is Protected Health Information (PHI)?

Protected Health Information is information about a person's health that includes information that would make it possible to figure out whose it is. According to the law, you have the right to decide who can see your protected health information. If you choose to take part in this study, you will be giving your permission to the investigators and the research study staff (individuals carrying out the study) to see and use your health information for this research study. In carrying out this research, the health information we will see and use about you will include: relevant demographic information such as your age, sex, race, level of education, marital status, medical history, and the scores obtained from the neuropsychological tests.

How will your PHI be shared?

Because this is a research study, we will be unable to keep your PHI completely confidential. We may share your health information with people and groups involved in overseeing this research study including:

- The members of the local research team.
- The Institutional Review Board, Human Research Protection Program Office and the Compliance Office of the University of Texas Southwestern Medical Center, the Human Subjects Research Office of The University of Texas at Dallas, and other groups that oversee how research studies are carried out.
- The Research offices at the University of Texas Southwestern Medical Center.
- The Food and Drug Administration (FDA) and other U.S. and international governmental regulatory agencies involved in overseeing device research.

- Representatives of domestic and foreign governmental and regulatory agencies may be granted direct access to your health information for oversight, compliance activities, and determination of approval for new medicines, devices, or procedures.

If you decide to participate in this study, you will be giving your permission for the groups named above, to collect, use and share your health information. If you choose not to let these groups collect, use, and share your health information as explained above, you will not be able to participate in the research study.

Parts of your PHI may be photocopied and sent to a central location or it may be transmitted electronically, such as by e-mail or fax. The groups receiving your health information may not be obligated to keep it private. They may pass information on to other groups or individuals not named here.

How will your PHI be protected?
In an effort to protect your privacy, the study staff will use code numbers instead of your name, to identify your health information. Initials and numbers will be used on any photocopies of your study records, and other study materials containing health information that are sent outside of the University of Texas Southwestern Medical Center or The University of Texas at Dallas for review or testing. If the results of this study are reported in medical journals or at meetings, you will not be identified.

Do you have to allow the use of your health information?
You do not have to allow (authorize) the researchers and other groups to see and share your health information. If you choose not to let the researchers and other groups use your health information there will be no penalties, but you will not be allowed to participate in the study.
After you enroll in this study, you may ask the researchers to stop using your health information at any time. However, you need to say this in writing and send your letter to

John Hart, Jr., MD
Neurology - NE-Cognitive & Memory
5303 Harry Hines Blvd., 8th Floor
Dallas, Texas 75390

If you tell the researchers to stop using your health information, your participation in the study will end and the study staff will stop collecting new health information from you and about you for this study. However, the study staff will continue to use the health information collected up to the time they receive your letter asking them to stop.

Can you ask to see the PHI that is collected about you for this study?
The federal rules say that you can see the health information that we collect about you and use in this study. Contact the study staff if you have a need to review your PHI collected for this study.

You will only have access to your PHI until the end of the study.

How long will your PHI be used?
By signing this form, you agree to let us use and disclose your health information for purposes of the study until the end of the study. This permission to use your personal health information expires when the research ends and all required study monitoring is over.

Contact Information – Who can you contact if you have questions, concerns, comments or complaints?

If you have questions now, feel free to ask us. If you have additional questions, concerns, comments or complaints later or you wish to report a problem which may be related to this study please contact:
Primary contact:
John Hart, MD, can be reached at 972-883-3161.
If primary is not available, contact
Ashna Adhikari, MS, can be reached at 214-494-1520.

The University of Texas Southwestern Medical Center Human Research Protection Program (HRPP) oversees research on human subjects. HRPP and Institutional Review Board (IRB) representatives will answer any questions about your rights as a research subject, and take any concerns, comments or complaints you may wish to offer. You can contact the HRPP by calling the office at 214-648-3060.

Research Consent & Authorization Signature Section

If you agree to participate in this research and agree to the use of your protected health information in this research, sign this section. You will be given a copy of this form to keep. You do not waive any of your legal rights by signing this form.

SIGN THIS FORM ONLY IF THE FOLLOWING STATEMENTS ARE TRUE:

- You have read (or been read) the information provided above.
- Your questions have been answered to your satisfaction about the research and about the collection, use and sharing of your protected health information.
- You have freely decided to participate in this research or you are voluntarily giving your consent for another person to participate in this study because you believe this person would want to take part if able to make the decision and you believe it is in this person's best interest.
- You understand that a copy of this signed consent document, information about this study, and the results of any test or procedure that may affect your medical care, may be included in your medical record. Information in your medical record will be available to health care providers and authorized persons including your insurance company.
- You authorize the collection, use and sharing of your protected health information (another person's protected health information) as described in this form.

Adult Signature Section

			AM PM
Printed Name of Participant	Signature of Participant	Date	Time
			AM PM
Printed Name of Person Obtaining Consent	Signature of Person Obtaining Consent	Date	Time

Blind or Illiterate Signature Section *At the time of consent, also complete this section if consent is obtained from an individual who is unable to read and/or write but can otherwise communicate and/or comprehend English (e.g., blind, physically unable to write, etc.)*

Declaration of witness:

By signing below, I confirm I was present for the entire consent process. The method used for communication (e.g., verbal, written, etc.) with the subject was: _____ .

The specific means (e.g., verbal, written, etc.) by which the subject communicated agreement to participate was: _____.

Printed Name of Witness	Signature of Witness	Date	Time AM PM