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| <b>Official Title:</b>       | High-density EEG in Neurological Disorders |
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## **CONSENT TO TAKE PART IN RESEARCH**

*Dartmouth-Hitchcock Medical Center*

*Study title:* Dense array EEG in Neurological Disorders

*Principal Co-Investigators:* Yinchun Song, PhD and Krzysztof Bujarski, MD

**You are being asked to take part in a research study. Taking part in research is voluntary.**

This study will use measurements of brain waves using a novel method called dense array EEG to locate and map out the brain areas responsible for important functions such as movement, language, sensation and memory. You are being asked to participate in this study because you have a lesion in your brain and the dense array EEG will be recorded to help your doctors decide the most effective treatment for you. Your decision whether or not to take part will have no effect on the type of medical care that you receive. Please ask questions if there is anything about this study you do not understand.

### **What is the purpose of this study?**

The purpose of the study is to use a new method of EEG recording to better understand which part of your brain is being affected. In addition, this new method of EEG recording will allow us to map important brain areas in movement, sensation, language, thinking and cognition.

### **Will you benefit from taking part in this study?**

You might not personally benefit from being in this research study. The testing procedures we are using are in the research stage and may not provide your doctors with information that would affect your diagnosis and treatment. Your participation will help us to improve and check the accuracy of our testing procedures for mapping brain functions, which should lead to improved care of future patients.

### **What does this study involve?**

If you agree to participate in this study, you will be asked to obtain a 60-120 minute EEG with a dense array EEG cap. The cap fits on your head just as a hat would. During the recording, we may ask you to rest, try to sleep, or to participate in a task. The tasks are usually viewing of pictures, answering questions, speaking, or moving your arm or leg. The tasks allow us to understand which regions of the brain are important in speaking, movement, sensation thinking, and other reasons.

In the following list, we have marked (with an 'X') those tasks which we would like to carry out in your case:

☐ 1. Recording from resting-state brain.

We will ask you to rest and try to fall asleep. The study may last 60-120 minutes dependent on your specific situation.

☐ 2. Recording from brain areas involved in speech.

We will ask you to repeat words, or answer simple questions.

☐ 3. Recording from brain areas involved in movement.

We will ask you to make simple, repetitive movements of fingers, feet or eyes.

\_\_\_ 4. Recording from brain areas involved in sensation.

We will use a clinical evoke-potential system to stimulate your ulnar/median/tibial nerves through sticky pad electrodes to map your somatosensory area (brain region that control your sensation of your arms/legs). You will be asked to keep still with eyes closed. You might feel some twitching sensation on your arms/legs.

\_\_\_ 5. Recording from brain areas involved in vision.

We will use a television monitor to present pictures such as shapes, colors, or objects such as faces. You may be asked to make simple choices about these pictures and to indicate your choice by pressing buttons or by counting.

\_\_\_ 6. Recording from brain areas important for memory.

You will perform a series of tasks which require you to make choices about words or figures, or to decide whether a word or figure has already been seen or heard.

\_\_\_ 7. Recording from areas important in social and emotional processing.

We will use a computer monitor to present pictures and videos of people engaged in social interaction, and present well standardized tasks designed to understand the nature of emotions. Some of these images may be emotionally disturbing. If you are not comfortable viewing such images, please do not participate in this study.

\_\_\_ 8. Recording from areas important in auditory processing.

We will use a speaker to play music or ambient noise in front of you to understand how the auditory cortex is connected in the brain networks.

**What are the options if you do not want to take part in this study?**

Participation in this study is optional. If you choose not to participate in this study, we will carry out your evaluation and treatment using previously established methods.

**If you take part in this study, what activities will be done only for research purposes?**

All of the above procedures are for research purposes.

**What are the risks involved with being enrolled in this study?**

This study poses few risks. The EEG cap used during the recording is approved for clinical use. It is not an invasive procedure. Any equipment used in your testing will be electrically isolated and arranged to eliminate the possibility that you would be injured. If you have known seizure history, our experimental testing will be temporarily suspended if you have a seizure, and indefinitely suspended if you are having a flurry of seizures or don't feel able to continue. Experimental testing would only be resumed when you feel able to do so, are willing to do so, and your doctors agree that it is advisable. Some of the pictures shown to you in the tasks may be considered emotionally disturbing. If you any objection to pictures or the video or to the memory testing, you can stop the study at any time.

For the sensory task, we will use some non-invasive sticky pad electrodes to stimulate your peripheral nerve at a minimum current. You might feel some twitching sensation on your arms or legs. Normally you will not have any pain or numbness as a result of the peripheral nerve stimulation. If you experience any discomfort from the stimulation, we can stop the task at any

time. Although rare, there is a potential for the sticky pad electrodes to cause mild irritation to delicate skin. Let us know if you have an allergic reaction to adhesives or tapes.

**Other important items you should know:**

- **Leaving the study:** Your decision whether or not to participate in this study, or a decision to withdraw will not involve any penalty or loss of benefits to which you are entitled. You may choose to stop your participation in this study at any time. Your decision to stop your participation will have no effect on the quality of medical care. If you choose to withdraw from the study, you may revoke your approval for the use of your medical information. To do this you may contact the researcher in writing.
- **Number of people in this study:** We expect 20 patients with brain lesion to enroll in this study here.
- **Funding:** There is no outside funding for this research project.

**How will your privacy be protected?**

The data collected in this study will consist primarily of EEG data that would be recorded along with timing and performance data when tasks are being done. We will also utilize your routinely obtained imaging data (MRI, CT) to assess the anatomical localization of the EEG data, and compare our mapping results to other forms of functional assessment data obtained as part of your diagnostic workup. Data gathered in the course of this study will be maintained indefinitely or as required by federal or state regulations. Every effort will be made to protect the identities of the participants and the confidentiality of the research data used in this study. The research team may share de-identified EEG and imaging data collected for this study with other institutions. This de-identified data may be added to public databases of EEG data. All other data will be used by the research team for purposes as described in this form.

**Who may use or see your health information?**

By signing this form, you allow the research team to use your health information and give it to others involved in the research. The research team includes the study director plus others working on this study at Dartmouth-Hitchcock Medical Center and elsewhere. You also permit any health care provider holding health information needed for this study to give copies of your information to the research team.

The information collected for this study may be used by researchers or officials of the following institutions.

- Dartmouth College
- Mary Hitchcock Memorial Hospital
- Dartmouth-Hitchcock Clinic
- Dartmouth-Hitchcock Medical Center

In order to conduct this study, researchers need to use your health care information. This data is called Protected Health Information ("PHI"). PHI is protected by federal privacy laws (HIPAA). By signing this consent form, you give your permission to have your PHI collected,

used and disclosed for purposes of this study. There is no intention to disclose your PHI to others outside of the study. There are protections in place to keep your PHI and research data confidential. However, HIPAA requires notification so you are aware *if your* PHI is disclosed to others, it may no longer be protected by federal privacy laws.

No publication or public presentation about the research described above will reveal your identity without another authorization from you.

Identifiable data collected for this study will be used for research purposes which are determined to be reasonable and in line with expectations by a review committee.

Once data collected for this research study is no longer identifiable, the data may be used or disclosed for other purposes.

Your permission to use your health information for this study will not end until the study is completed. During this study, you and others who take part in the study may not have access to the study data. You may ask for study data once the study is over. You have a right to receive a copy of the information in your medical record at any time.

It is possible for a court or government official to order the release of study data including information about you.

**What if you decide not to give permission to use and share your personal health information?**

If you do not allow use of your health information for this study, you may not take part in this study. If you choose to stop taking part in this study, you may cancel permission for the use of your health information. You should let the researcher know if you want to cancel your permission. The study team will assist you in putting your wishes in writing. Information collected for the study before your permission is cancelled will continue to be used in the research.

**What about the costs of this study?**

There will be no costs to you for participating in this study.

**Will you be paid to take part in this study?**

You will not be compensated for your participation.

**Whom should you call with questions about this study?**

If you have questions about this study or concerns about a research related injury, you can call the research director for this study: Dr. Yinchon Song (603 650-8402) or Dr. Krzysztof Bujarski (603 653-6118) during normal business hours.

This research has been reviewed and approved by an Institutional Review Board (“IRB”). You may talk to them at (603) 650-1846 or [irb@hitchcock.org](mailto:irb@hitchcock.org) if:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You have questions about your rights as a research subject.
- You want to get information or provide input about this research.

## CONSENT

I have read the above information about Dense Array EEG in Epilepsy and have been given time to ask questions. I agree to take part in this study and I have been given a copy of this signed consent form.

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| Participant's Signature and Date | / | PRINTED NAME |
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| Researcher or Designee Signature and Date |  | PRINTED NAME |
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