Medical University of South Carolina
CONSENT TO BE A RESEARCH SUBJECT

TITLE OF RESEARCH: Combining Transcutaneous Auricular Vagus Nerve Stimulation (taVNS) with Transcranial Magnetic Stimulation (TMS) to Enhance Cortical Excitability

SUMMARY

You are being asked to volunteer for a research study. Research studies are voluntary and include only people who are willing to take part in them. You are being asked to participate because you are a healthy individual without any metal in your body.

This study will test the use of ear stimulation paired with magnetic stimulation of the movement area of your brain. Your participation is voluntary, and the purpose is to test a new research tool. This study will have 5 visits. You will attend a baseline testing visit, and if you pass the baseline testing, you will then attend 4 experimental visits.

The baseline testing will let the study team know if you respond to magnetic stimulation. In the 4 experimental visits we will give you magnetic brain stimulation and ear stimulation. Some visits you will receive real stimulation and some you may receive placebo – and this is random like flipping a coin. During all visits you will have stickers placed on your thumb that measure movement.

There are minimal risks involved in this study, and the greatest risks of this study are the very rare accidental seizure from TMS. You may experience a warm, tingling sensation on your ear. You may also feel sore on your head where the magnetic stimulation is. The rest of the study details are described below.

You won't receive any benefit from the study, however the knowledge gained will help future stroke patients with their rehabilitation. You may choose to not participate in this study as an alternative and even if you choose to participate you may stop at any time.

A. PURPOSE OF THE RESEARCH

The purpose of this research is to test if a new form of ear stimulation can help improve the effect of brain stimulation. Both the ear stimulation and magnetic stimulation is very safe and this study tests whether stimulating your ear while you are receiving magnetic stimulation.

Please read this consent form carefully and take your time making your decision. As your study doctor or study staff discusses this consent form with you, please ask him/her to explain any words or information that you do not clearly understand. The study is sponsored by the medical university of South Carolina. The investigator in charge of this study at MUSC is Dr. Bashar W. Badran. The study is being done at the Medical University of South Carolina and is the only sites. Approximately 40 people will take part in this study.

B. PROCEDURES

If you agree to be in this study, the following will happen:

Before starting the study, the study team will review your screening forms to make sure you are meet the requirements to participate in the study. If you are a female, you will also be asked to give a urine sample to test for pregnancy.

Visit 1 Baseline Screen (1 hour)

Your first visit will last 1 hour and will consist of performing tests to see how well you are able to move your arm.

1. Stickers will be placed on your hand - The study team will place stickers on your thumb as you are seated. These stickers measure movement of your hand.
2. Navigation – The study team will place reflective stickers on you head that will track your position in the room.
3. Thumb Activity Testing - The study team will place a magnet on your head and deliver magnetic pulses to your brain. This will allow us to measure how active the motor area of your brain is. This will also cause your thumb to twitch and we will measure how big the twitch is using stickers. The magnet will be fixed to your head for the remainder of the visit.
4. Magnetic stimulation – The study team will administer 20 minutes of magnetic stimulation to your head. This will feel like a fast tapping on your head.
5. Thumb Activity Testing - The study team will repeat step 3 for the remaining 20 minutes after stimulation.

Visits 2-5 (1.5 hour each) – If eligible

1. Stickers will be placed on your hand - The study team will place stickers on your thumb as you are seated. These stickers measure movement of your hand.
2. Navigation – The study team will place reflective stickers on you head that will track your position in the room.
3. Thumb Activity Testing - The study team will place a magnet on your head and deliver magnetic pulses to your brain. This will allow us to measure how active the motor area of your brain is. This will also cause your thumb to twitch and we will measure how big the twitch is using stickers. The magnet will be fixed to your head for the remainder of the visit.
4. Magnetic stimulation and Ear Stimulation – The study team will administer 20 minutes of

magnetic stimulation to your head and ear stimulation. This will feel like a fast tapping on your head and a tingle in your ear. Sometimes you will recive real stimulation and sometimes it will be placebo.

5. Thumb Activity Testing - The study team will repeat step 3 for the remaining 20 minutes after stimulation.

C. DURATION

Participation in the study will take 5 visits over a period of 1 month. Each visit should last about 1.5 hours.

D. RISKS AND DISCOMFORTS

Risks are associated with the following procedures conducted in this trial

<u>1. Ear Stimulation:</u>
Ear stimulation is a safe, however there are some risks associated with stimulating your ear:

Potential skin discomfort: You may feel local discomfort on your ear. This is temporary. In extreme cases burns may occur. Prevention of discomfort or burns requires you to notify the study team immediately, and they will stop stimulation and apply vitamin E cream. Tissue surrounding the ear may be sensitive, sore or feel slight numbness, and this is temporary and will go away after stimulation is turned off.

Potential headache, dizziness, and facial pain: Ear stimulation may cause headaches or face pain, which should resolve shortly after treatment.

Safety in case of pregnancy: This protocol will exclude pregnant women. The risks of using taVNS with pregnant women are currently unknown. Please inform the research team if you are pregnant or think that you might have become pregnant during the study. A urine pregnancy test will be performed before the experiment begins.

Potential decrease in heart rate: Ear stimulation may slow your heart rate. In rare cases (less than 1%) decreased blood pressure or fainting may occur. We expect no significant changes in heart rate or blood pressure, but if this occurs, the study team will immediately stop stimulation. If fainting occurs, you will be slowly placed into a position which has you laying flat on your back and your legs lifted.

Unknown Risks: Although taVNS considered very safe, taVNS is still an experimental procedure that has not been approved by the FDA. The Principal Investigator will let you know if they learn anything that might make you change your mind about participating in the study.

<u>4. TMS:</u>

The TMS coil makes noise, much like a loud pop when it produces its magnetic energy. You may or may not feel your thumb twitch depending on the strength of the TMS pulse, but you might also feel your facial muscles twitch slightly just around your left eye. This twitch is just as brief as the thumb twitch and is a result of the TMS directly stimulating the facial nerves and muscles that run directly under your scalp. It is not painful. TMS can cause heating or movement of metallic objects in or near the head. In addition, the inactivation of pacemakers, medication pumps, cochlear prostheses and other implantable hardware may occur. Magnetic media such as credit cards, etc. and watches near the coil may also be damaged. To minimize this risk the researchers will have asked you about any metal implants which would exclude you from the study.

There is a risk of a loss of confidentiality of your personal information as a result of participation in this study. However, this risk will be minimized by following health information guidelines and keeping the study data in a secured location that is only accessible by authorized personnel.

Because you may not receive real stimulation each time, the risks vary by each day. Risks are greater associated with conditions in which you receive real stimulation rather than placebo.

E. MEDICAL RECORDS

Information about your study participation will not be in your medical record. This means that neither your research participation nor any of your research results will be included in any MUSC medical record.

F. BENEFITS

There are no benefits to participants for being a part of this study. However, it is hoped that the information gained from the addition of stimulation will help in the treatment of future patients with conditions like yours/will help the researcher learn more about chronic stroke.

G. COSTS

There will be no cost to you as a result of participation in this study.

H. PAYMENT TO PARTICIPANTS

Payment for study visits will be made using a pre-paid debit card, called a ClinCard. It works like a bank debit card and you may use the card to purchase goods or services everywhere Debit MasterCard is accepted. You will be given a ClinCard at the end of the initial study visit. Each time you receive payment for participation in this study from another visit, the money will be added to the card, as outlined in the visit schedule above. You will be paid $40 for baseline visit 1, and $50 for each of the experimental visits 2-5 if you complete these visits. The maximum payment you may receive is $240. Payment will be dispersed onto the ClinCard following each visit.

Payments that you receive from MUSC for participating in a research study are considered taxable income per IRS regulations. Payment types may include, but are not limited to: checks, cash, gift certificates/cards, personal property, and other items of value. If the total amount of payment you receive from MUSC reaches or exceeds $600.00 in a calendar year, you will be issued a Form 1099.

I. ALTERNATIVE

You may choose to not participate in this study as an alternative and you may stop at any time.

J. DATA SHARING

No information about you that is collected as part of this research (whether or not it is identifiable) will be used or distributed for future research studies under any circumstances.

K. DISCLOSURE OF RESULTS

Results will not be disclosed to participants in the study, however will be released for public dissemination in published manuscripts and conference presentations.

L. AUTHORIZATION TO USE AND DISCLOSE (RELEASE) MEDICAL INFORMATION

As part of this research study, your study doctor and his/her research team will keep records of your participation in this study.

The health information MUSC may use or disclose (release) for this research study includes information in your medical record, results of physical exams, medical history, lab tests or certain health information indicating or relating to your condition.

Your study doctor and his/her research team will use and disclose (release) your health information to conduct this study. The health information listed above may be used by and/or disclosed (released) to the following, as applicable:

- The sponsor of the study including its agents such as data repositories or contract research organizations monitoring the study;
- Other institutions and investigators participating in the study;
- Data Safety Monitoring Boards;
- Accrediting agencies;
- Clinical staff not involved in the study whom may become involved if it is relevant;
- Parents of minor children if less than 16 years old. Parents of children 16 years old or older require authorization from the child; or
- Health insurer or payer in order to secure payment for covered treatment;
- Federal and state agencies and MUSC committees having authority over the study such as:

- The Institutional Review Board (IRB) overseeing this study; Committees with quality improvement responsibilities; Office of Human Research Protections; Food and Drug Administration; National Institutes of Health or Other governmental offices, such as a public health agency or as required by law.

Those persons who receive your health information may not be required by Federal privacy laws (such as the Privacy Rule) to protect it and may share your information with others without your permission, if permitted by laws governing them. You do not have to sign this consent form. If you choose not to sign, it will not affect your treatment, payment or enrollment in any health plan or affect your eligibility for benefits. However, you will not be allowed to be a participant in this research study.

You will be given a copy of this consent form. Your authorization will expire at the conclusion of this study or, if you are participating in a study designed for the development of a drug or device, your authorization will remain in effect until the drug or device is approved by the FDA or until the company's application to study the drug/device is withdrawn. You have the right to withdraw your agreement at any time. You can do this by giving written notice to your study doctor. If you withdraw your agreement, you will not be allowed to continue participation in this research study. However, the information that has already been collected will still be used and released as described above. You have the right to review your health information that is created during your participation in this study. After the study is completed, you may request this information.

Your health information will be used or disclosed when required by law. Your health information may be shared with a public health authority that is authorized by law to collect or receive such information for the purpose of preventing or controlling disease, injury or disability and for conducting public health surveillance, investigations or interventions. No publication or public presentation about the research study will reveal your identity without another signed authorization from you.

If you have questions or concerns about this Authorization or your privacy rights, please contact MUSC's Privacy Officer at (843) 792-8740.

Regulations require that you be given a copy of the MUSC Notice of Privacy Practices (NPP) describing the practices of MUSC regarding your health information. One can be found at the end of this form.

L. SIGNIFICANT NEW FINDINGS

If there are significant new findings during the course of the study, you will be notified by any manner you prefer (phone or email).

M. STUDENT PARTICIPATION

Your participation or discontinuance will not constitute an element of your academic performance, nor will it be a part of your academic record at this Institution.

N. EMPLOYEE PARTICIPATION

Your participation or discontinuance will not constitute an element of your job performance or evaluation, nor will it be a part of your personnel record at this Institution.

P. FUTURE CONTACT

The researcher in charge of this study might like to contact you in the future about other research opportunities. Please initial by your choice below:

____Yes, I agree to be contacted

____No, I do not agree to be contacted

Results of this research will be used for the purposes described in this study. This information may be published, but you will not be identified. Information that is obtained concerning this research that can be identified with you will remain confidential to the extent possible within State and Federal law. The sponsor and the Food and Drug Administration (FDA) will receive copies of the research records. The investigators associated with this study, employees of the sponsor, the FDA, and the MUSC Institutional Review Board for Human Research will have access to identifying information. All records in South Carolina are subject to subpoena by a court of law.

In the event of a study related injury, you should immediately go to the emergency room of the Medical University Hospital, or in case of an emergency go to the nearest hospital and tell the physician on call that you are in a research study. They will call your study doctor who will make arrangements for your treatment. If the study sponsor does not pay for your treatment, the Medical University Hospital and the physicians who render treatment to you will bill your insurance company. If your insurance company denies coverage or insurance is not available, you will be responsible for payment for all services rendered to you.

Your participation in this study is voluntary. You may refuse to take part in or stop taking part in this study at any time. You should call the investigator in charge of this study if you decide to do this. The data collected on you to this point remains part of the study database and may not be removed. Your decision not to take part in the study will not affect your current or future medical care or any benefits to which you are entitled.

The investigators and/or the sponsor may stop your participation in this study at any time if they decide it is in your best interest. They may also do this if you do not follow the investigator's instructions.

Volunteers Statement

I have been given a chance to ask questions about this research study. These questions have been answered to my satisfaction. If I have any more questions about my participation in this study or study related injury, I may contact **Dr. Bashar W. Badran at 843-792-6076**. I may contact the Medical University of SC Patient and Family Care Liaison (843) 792-5555 concerning medical treatment.

If I have any questions, problems, or concerns, desire further information or wish to offer input, I may contact the Medical University of SC Institutional Review Board for Human Research IRB Manager or the Office of Research Integrity Director at (843) 792-4148. This includes any questions about my rights as a research subject in this study.

I agree to participate in this study. I have been given a copy of this form for my own records.

______________________________________ ______________________________________
Signature of Person Obtaining Consent Date *Name of Participant

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Signature of Participant Date

NOTICE OF PRIVACY PRACTICES

MUSC Organized Health Care Arrangement (OHCA)

THIS NOTICE DESCRIBES HOW MEDICAL INFORMATION ABOUT YOU MAY BE USED AND DISCLOSED AND HOW YOU CAN GET ACCESSS TO THIS INFORMATION. PLEASE REVIEW IT CAREFULLY.

The Medical University of South Carolina and its affiliates (including but not limited to the Medical University Hospital Authority, MUSC Physicians, and MUSC Physicians Primary Care) participate in a clinically integrated health care setting. As a result of this clinical integration, these organizations function as an Organized Health Care Arrangement (OHCA) as defined by the Health Insurance Portability and Accountability Act (HIPAA). For purposes of this notice, the members of the MUSC OHCA are collectively referred to in this document as "MUSC." W**e collect or receive this information about your past, present or future health condition to provide health care to you, to receive payment for this health care, or to operate the hospital and/or clinics.**

HOW WE MAY USE AND RELEASE YOUR PROTECTED HEALTH INFORMATION (PHI)

A. The following uses do NOT require your authorization, except where required by SC law:

1. For treatment. Your PHI may be discussed by caregivers to determine your plan of care. For example, the physicians, nurses, medical students and other health care personnel may share PHI in order to coordinate the services you may need.

2. To obtain payment. We may use and disclose PHI to obtain payment for our services from you, an insurance company or a third party. For example, we may use the information to send a claim to your insurance company.

3. For health care operations. We may use and disclose PHI for hospital and/or clinic operations. For example, we may use the information to review our treatment and services and to evaluate the performance of our staff in caring for you.

4. For public health activities. We report to public health authorities, as required by law, information regarding births, deaths, various diseases, reactions to medications and medical products.

5. Victims of abuse, neglect, domestic violence. Your PHI may be released, as required by law, to the South Carolina Department of Social Services when cases of abuse and neglect are suspected.

6. Health oversight activities. We will release information for federal or state audits, civil, administrative or criminal investigations, inspections, licensure or disciplinary actions, as required by law.

7. Judicial and administrative proceedings. Your PHI may be released in response to a subpoena or court order.

8. Law enforcement or national security purposes. Your PHI may be released as part of an investigation by law enforcement.

9. Uses and disclosures about patients who have died. We provide coroners, medical examiners and funeral directors necessary information related to an individual's death.

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10. For purposes of organ donation. As required by law, we will notify organ procurement organizations to assist them in organ, eye or tissue donation and transplants.

11. Research. We may use your PHI if the Institutional Review Board (IRB) for research reviews, approves and establishes safeguards to ensure privacy.

12. To avoid harm. In order to avoid a serious threat to the health or safety of a person or the public, we may release limited information to law enforcement personnel or persons able to prevent or lessen such harm.

13. For workers compensation purposes. We may release your PHI to comply with workers compensation laws.

14. Marketing. We may send you information on the latest treatment, support groups and other resources affecting your health.

15. Fundraising activities. We may use your PHI to communicate with you to raise funds to support health care services and educational programs we provide to the community. You have the right to opt out of receiving fundraising communications with each solicitation.

16. Appointment reminders and health-related benefits and services. We may contact you with a reminder that you have an appointment.

B. You may object to the following uses of PHI:

1. Hospital directories. Unless you object, we may include your name, location, general condition and religious affiliation in our patient directory for use by clergy and visitors who ask for you by name.

2. Information shared with family, friends or others. Unless you object, we may release your PHI to a family member, friend, or other person involved with your care or the payment for your care.

3. **Health plan.** You have the right to request that we not disclose certain PHI to your health plan for health services or items when you pay for those services or items in full.

C. Your prior written authorization is required (to release your PHI) in the following situations:

You may revoke your authorization by submitting a written notice to the privacy contact identified below. If we have a written authorization to release your PHI, it may occur before we receive your revocation

1. Any uses or disclosures beyond treatment, payment or healthcare operations and not specified in parts A & B above.

2. Psychotherapy notes.

3. Any circumstance where we seek to sell your information.

WHAT RIGHTS YOU HAVE REGARDING YOUR PHI

Although your health record is the physical property of MUSC, the information belongs to you, and you have the following rights with respect to your PHI:

A. The Right to Request Limits on How We Use and Release Your PHI. You have the right to ask that we limit how we use and release your PHI. We will consider your request, but we are not always legally required to accept it. If we accept your request, we will put any limits in writing and abide by them except in emergency situations. Your request must be in writing and state (1) the information you want to limit; (2) whether you want to limit our use, disclosure or both; (3) to whom you want the limits to apply, for example, disclosures to your spouse; and (4) an expiration date**.**

B. The Right to Choose How We Communicate PHI with You. You have the right to request that we communicate with you about PHI in a certain way or at a certain location (for example, sending information to your work address rather than

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your home address). You must make your request in writing and specify how and where you wish to be contacted. We will accommodate reasonable requests.

C. The Right to See and Get Copies of Your PHI. You have the right to inspect and receive a copy of your PHI (including an electronic copy), which is contained in a designated record set that may be used to make decisions about your care. You must submit your request in writing. If you request a copy of this information, we may charge a fee for copying, mailing or other costs associated with your request. We may deny your request to inspect and receive a copy in certain very limited circumstances. If you are denied access to PHI, you may request that the denial be reviewed.

D. The Right to Get a List of Instances of When and to Whom We Have Disclosed Your PHI. This list may not include uses such as those made for treatment, payment, or health care operations, directly to you, to your family, or in our facility directory as described above in this Notice of Privacy Practices. This list also may not include uses for which a signed authorization has been received or disclosures made more than six years prior to the date of your request.

E. The Right to Amend Your PHI. If you believe there is a mistake in your PHI or that a piece of important information is missing, you have the right to request that we amend the existing information or add the missing information. You must provide the request and your reason for the request in writing. We may deny your request in writing if the PHI is correct and complete or if it originated in another facility's record.

F. The Right to Receive a Paper or Electronic Copy of This Notice: You may ask us to give you a copy of this Notice at any time. For the above requests (and to receive forms) please contact: Health Information Services (Medical Records), Attention: Release of Information / 169 Ashley Avenue / MSC 369 / Charleston, SC 29425. The phone number is (843) 792-3881.

G. The Right to Revoke an Authorization. If you choose to sign an authorization to release your PHI, you can later revoke that authorization in writing. This revocation will stop any future release of your health information except as allowed or required by law.

H. The Right to be Notified of a Breach. If there is a breach of your unsecured PHI, we will notify you of the breach in writing.

HEALTH INFORMATION EXCHANGES

MUSC, along with other health care providers belongs to health information exchanges. These information exchanges are used in the diagnosis and treatment of patients. As a member of these exchanges, MUSC shares certain patient health information with other health care providers. Should you require treatment at another location that is a part of one of these exchanges, that provider may gather historical health information to assist with your treatment. You have the option of saying that this cannot be done. If you choose not to take part in these alliances, please contact the MUSC Privacy Office at 792-4037.

HOW TO COMPLAIN ABOUT OUR PRIVACY PRACTICES

If you think your privacy rights may have been violated, or you disagree with a decision we made about access to your PHI, you may file a complaint with the office listed in the next section of this Notice. **Please be assured that you will not be penalized and there will be no retaliation for voicing a concern or filing a complaint. We are committed to the delivery of quality health care in a confidential and private environment.**

PERSON TO CONTACT FOR INFORMATION ABOUT THIS NOTICE OR TO COMPLAIN ABOUT OUR PRIVACY PRACTICES

If you have any questions about this Notice or any complaints about our privacy practices please call the Privacy Officer (843) 792-4037, the Privacy Hotline (800) 296-0269, or contact in writing: HIPAA Privacy Officer / 169 Ashley Avenue / MSC 332 / Charleston SC 29425. You also may send a written complaint to the Office of Civil Rights. The address will be provided at your request.

CHANGES TO THIS NOTCE

We reserve the right to change the terms of this Notice at any time. We also reserve the right to make the revised or changed Notice effective for existing as well as future PHI. This Notice will always contain the effective date. You may view this notice and any revisions to it at: http://www.musc.edu/privacy.

EFFECTIVE DATE OF THIS NOTICE

This Notice went into effect on April 14, 2003.
Revised September 2013.