Title: Virtual Reality System for Cross-modal Rehabilitation of Hemianopia
NCT:NCT04230486
Date: 1/19/2021

Wake Forest®
School of Medicine

Department of Neurobiology & Anatomy

VIRTUAL REALITY SYSTEM FOR CROSS-MODAL REHABILITATION OF HEMIANOPIA

Informed Consent Form to Participate in Research
Huai Jiang, PhD, Principal Investigator

SUMMARY

You are invited to participate in a research study. The purpose of this research is to investigate the effectiveness of a new rehabilitation for visual hemianopia called cross-modal visual auditory rehabilitation. You are invited to be in this study because you have been diagnosed with homonymous hemianopia / homonymous hemianopsia. Homonymous hemianopia, also called homonymous hemianopsia, is a condition where a person can only see one side (right or left) of the visual field. This visual field loss is present in both eyes, not just one. Your participation in this research will involve 36 to 66 visits and last about 1 to 2 months with a possible 2 follow-up visits that occur 3 months and 6 months after you complete cross-modal visual auditory rehabilitation.

Participation in this study will involve visual-auditory stimulus training and visual tests. There is the possibility that you may benefit from participation in this study. Your visual field may increase from cross-modal visual auditory rehabilitation.

Your participation in this study is voluntary. You do not have to participate in this study if you do not want to. You will not lose any services, benefits, or rights you would normally have if you choose not to participate.

The remainder of this form contains a more complete description of this study. Please read this description carefully. You can ask any questions if you need help deciding whether to join the study. The person in charge of this study is Dr. Huai Jiang *(Principal Investigator, PI)*. If you have questions, suggestions, or concerns regarding this study or you want to withdraw from the study his contact information is: hjiang@wakehealth.edu.

If you have any questions, suggestions or concerns about your rights as a volunteer in this research, contact the Institutional Review Board at [redacted] or the Research Subject Advocate at Wake Forest at [redacted].

INTRODUCTION

You are invited to be in a research study. Research studies are designed to gain scientific knowledge that may help other people in the future. You are being asked to take part in this study because you have homonymous hemianopia, also known as homonymous hemianopsia. Your participation is voluntary. Please take your time in making your decision as to whether or not you wish to participate. Ask your study doctor or the study staff to explain any words or information contained in this informed consent document that you do not understand. You may also discuss the study with your friends and family.

WHY IS THIS STUDY BEING DONE?

The purpose of this research study is to find out what effects (good and bad) virtual reality cross-modal visual auditory rehabilitation has on you and your condition. This rehabilitation uses a virtual reality headset to present a pattern of visual and auditory stimuli to train for 30 minutes each day for 1-2 months. The study investigates whether combined visual auditory stimuli can induce plasticity changes in neuronal pathways. We expect any visual field improvements to start from the midline and expand through the peripheral visual field.

The virtual reality rehabilitation system is an investigational drug/device. This means it has not been approved by the U.S. Food and Drug Administration (FDA). Drugs and devices that do not have approval by the FDA cannot be sold or prescribed by your physician.

HOW MANY PEOPLE WILL TAKE PART IN THE STUDY?

5 people at this research site will take part in this study. In order to identify the 5 subjects needed, we may need to screen as many as 10 because some people will not qualify to be included in the study.

WHAT IS INVOLVED IN THE STUDY?

At your first study visit, your vision will be tested to make sure cross-modal visual auditory rehabilitation may be a good fit for you. You will be asked to look at a light straight ahead and identify where sounds are coming from. If you meet the visual and auditory qualifications in this test, your records will be reviewed to make sure your hemianopia condition may be receptive to the cross-modal visual auditory rehabilitation. We will also collect information (e.g. age) from you that are needed to analyze our data. If your records for hemianopia diagnosis are available to the Wake Forest system, we will request your permission to access your records. If they are not available to Wake Forest's system or you do not wish to give permission to access your records from the Wake Forest system, we will ask you to bring your medical records for hemianopia diagnosis to this visit, and provide them to us at this time. If your records show cross-modal

visual auditory rehabilitation treatment may be appropriate for you, you will be then given a test to determine your peripheral visual field. During this test you will be asked to push a button if you see lights in different locations. Following this test you will complete questionnaires about your vision and quality of life.

During your second study visit, you will be given a Humphrey visual field perimetry test. The Humphrey visual field perimetry is a clinical test used to measure visual field. During the test, you will rest your chin on a chin rest so you can see and respond to small points of light. This visit may be omitted if you have a previous Humphrey visual field perimetry test result and give the study team permission to view and keep a copy of the results.

If you qualify for cross-modal visual auditory rehabilitation, you will receive the rehabilitation training for 30 days (study visits 3-32). The training uses a virtual reality (VR) headset to show you images, and play sounds through headphones. You will also use a game controller to interact with the rehabilitation system. After each training session, you will complete a short 5 minute test using the VR headset to help us track your rehabilitation progress. Each session and test should take around 30 minutes and you must do one training session daily for 30 days. These sessions can occur at Wake Forest Baptist Medical Center or in your home. For home training sessions, we can loan you a VR rehabilitation device for you to use at home that you will return after you have completed all cross-modal visual auditory rehabilitation sessions. It is important that you are able to commit 30 minutes to perform the training once daily for 30 consecutive days. If you are not comfortable with using the VR rehabilitation device, you can use an alternative free-field frame device for the training. This device consists of a semi-circular frame that holds lights and speakers at various locations in your visual field and a button box for you to interact with the cross-modal visual auditory rehabilitation. During training, the free-field frame device will be placed in front of you. The lights and speakers on the device will provide the same cross-modal visual auditory rehabilitation training program as the VR rehabilitation device. If you opt to use the free-field frame device, your sessions will occur at Wake Forest Baptist Medical Center since this device is not portable and cannot be used for at-home cross-modal visual auditory rehabilitation.

If your visual field does not improve after 30 days, you will continue to receive the cross-modal visual auditory rehabilitation training for another 30 days (study visits 33-62).

*If your visual field **does not** improve after study visit 62*, your final study visit (study visit 63) will occur. During this visit you will complete questionnaires about your vision and quality of life.

*If your visual field **does** improve, you will complete the following visits:*

After cross-modal visual auditory rehabilitation has finished, you will be given tests to measure the visual capabilities in your recovered visual field. These tests will be either your 33rd study visit (if you experience visual field expansion during the initial 30 days of cross-modal visual auditory rehabilitation) or 63rd study visit (if you repeat the cross-modal visual auditory

rehabilitation). During this visit, you will complete:

- Peripheral frame test: During this test, you will be asked to push a button if you see lights in different locations.
- Visual acuity test: You will see gratings on a computer monitor, and identify the direction of the lines in the gratings.
- Color recognition test: You will identify different colors shown on a monitor in your recovered visual field.
- Shape recognition test: You will identify shapes shown on a monitor in your recovered visual field.
- Questionnaires about your vision and quality of life.

During your next study visit (either study visit 34 or 64 if you repeat cross-modal visual auditory rehabilitation), you will be given a Humphrey visual field perimetry test. During the test, you will rest your chin on a chin rest so you can see and respond to small points of light.

You will have a follow-up visit 3 months after the end of cross-modal visual auditory rehabilitation to test for any changes to your visual field. During this visit, you will be given the peripheral frame test and complete questionnaires about your vision and quality of life (visit 35 or 65).

Your final follow-up visit will occur 6 months after the end of cross-modal visual auditory rehabilitation to test for changes to your visual field. During this visit, you will be given the peripheral frame test and complete questionnaires about your vision and quality of life (visit 36 or 66).

If you take part in this study, you will have the following tests and procedures for research purposes:

- Peripheral frame test:
    - This test will be done at Wake Forest Baptist Medical Center during your 1st study visit
    - If you experience visual field expansion: you will be given this test again in your visit after completing cross-modal visual auditory rehabilitation, 3-month and 6-month follow-up visits.
- Humphrey Visual Field Perimetry Test
    - This 30 minute test will be done at Winston-Salem IFB Solutions Community Low Vision Center during your 2nd visit. This visit may be omitted if you have a previous Humphrey visual field perimetry test result and give the study team permission to view and keep a copy of the results.
    - If your visual field expands, you will be given this test again after you complete cross-modal visual auditory rehabilitation
- Cross Modal Visual-Auditory Rehabilitation Training
    - Cross-modal visual auditory rehabilitation will occur either at Wake Forest

Baptist Medical Center or in your home
    - Each rehabilitation session is expected to take approximately 30 minutes daily.
    - Rehabilitation will last 30 days and may be repeated for another 30 days depending on your visual field expansion progress.
- Rehabilitation Progress Test
    - You will be given a short 5-minute progress test after each cross-modal visual auditory rehabilitation session either at Wake Forest Baptist Medical Center or in your home
- NEI VFQ-25 and VA LV VFQ-48 Questionnaires
    - You will complete these questionnaires at Wake Forest Baptist Medical Center during your 1st study visit, the visit following the end of cross-modal visual auditory rehabilitation, 3 months and 6 months follow-up visits.
- Visual Acuity Test
    - If your visual field expands, this test will be done at Wake Forest Baptist Medical Center after you have completed cross-modal visual auditory rehabilitation.
- Color Recognition Test
    - If your visual field expands, this test will be done at Wake Forest Baptist Medical Center after you have completed cross-modal visual auditory rehabilitation.
- Shape Recognition Test
    - If your visual field expands, this test will be done at Wake Forest Baptist Medical Center after you have completed cross-modal visual auditory rehabilitation.

As part of this research study, you will be photographed/videotaped/audiotaped. This is being done to ensure you are properly completing cross-modal visual auditory rehabilitation and to record your answers during tests. You understand that you may request the filming or recording be stopped at any time during the course of the research study. You can also withdraw your consent to use and disclose the photograph/videotape/audiotape before it is used. You should also understand that you will not be able to inspect, review, or approve the photographs, videotapes, audiotapes or other media (including articles containing such) before they are used in this study.

Please choose one of the following regarding the use and disclosure of the photograph/videotape/audiotape used in this research study:

_____ I would like the photographs/videotapes/audiotapes of me to be destroyed once their use in this study is finished.

____ The photographs/videotapes/audiotapes of me can be kept for use in future studies provided they are kept secure and any future study will be reviewed by an IRB. I understand that I will not be able to inspect, review or approve their future use.

We can send copies of your test results to you or your personal physician. Even if you do not wish to have any of your medical information sent to your physician, you can still participate in this research study. After cross-modal visual auditory rehabilitation training has ended, we can

send you or your personal physician copies of your Humphrey Visual Field test results at your request.

Do you request that we send important medical findings from your study tests/exams to you or your personal physician?

[ ] Yes [ ] No _____ Initials

HOW LONG WILL I BE IN THE STUDY?

You will be in the study for 36 - 66 days depending on your visual field expansion.

We expect cross-modal visual auditory rehabilitation to take 1-2 months. You will complete one 30-minute rehabilitation session each day until your visual field has expanded by 30° or 60 days of cross-modal visual auditory rehabilitation have occurred. If your visual field does not expand, cross-modal visual auditory rehabilitation will stop after 60 days and you will have one final visit, where you will complete questionnaires. If you experience any visual field expansion, you will have two visits after cross-modal visual auditory rehabilitation where you will complete visual tests and questionnaires, as well as two follow-up visits 3 months and 6 months after you have stopped cross-modal visual auditory rehabilitation.

WHAT ARE THE RISKS OF THE STUDY?

As part of the study, you are required to complete one 30-minute cross-modal visual auditory rehabilitation session each day for up to 2 months. If you are unable to make this time commitment, please let the study staff know. Cross-modal visual auditory rehabilitation sessions may occur at Wake Forest Baptist Medical Center or in your home. For home training sessions, we can loan you a VR rehabilitation device for you to use at home that you will return after you have completed all cross-modal visual auditory rehabilitation sessions.

There is a chance that you may experience motion sickness when using the virtual reality rehabilitation system. To minimize this possibility, each cross-modal visual auditory rehabilitation session is only 30 minutes and you are encouraged to take breaks whenever needed. If you do experience motion sickness, you may continue the cross-modal visual auditory rehabilitation using a different rehabilitation device which does not use virtual reality. This alternative free-field rehabilitation system consists of a frame holding lights and speakers, that will be placed in front of you. The lights and speakers will deliver the same cross-modal visual auditory rehabilitation training program. If you opt to use the free-field rehabilitation system, you will need to complete all cross-modal visual auditory rehabilitation training sessions at Wake Forest Baptist Medical Center.

There is a slight risk of a breach of confidentiality. We will do our best to protect your confidential information. There also may be other risks that we cannot predict. You should tell the research staff about all the medications, vitamins and supplements you take and any medical conditions you have. This may help avoid side effects, interactions and other risks.

Taking part in this research study may involve providing information that you consider confidential or private. Efforts, such as coding research records, keeping research records secure and allowing only authorized people to have access to research records, will be made to keep your information safe.

ARE THERE BENEFITS TO TAKING PART IN THE STUDY?

If you agree to take part in this study, there may or may not be direct benefit to you. We hope the information learned from this study will benefit other people in the future. The benefit of participating in this study may be improvement of your visual field.

Based on experience with cross-modal visual auditory rehabilitation in animals, researchers believe it may be of benefit to subjects with your condition. Because individuals respond differently to therapy, no one can know in advance if it will be helpful in your particular case.

WHAT OTHER CHOICES ARE THERE?

You do not have to be in this study to receive treatment. You should talk to your doctor about all the choices you have. Instead of being in this study, you have these options:

There are 2 alternative methods that may help you compensate for lost visual field: optical therapies and eye movement-based therapies.

- Optical therapies aim to improve visual perception by distorting or replacing part of the intact visual field with part of the damaged field. Prisms are most commonly used for this method. Prism glasses can help reflect objects into your field of vision.

- Eye movement therapy approaches rehabilitation by attempting to improve visual performance with eye movement training. Explorative Saccade Training improves exploratory behavior to help you use your remaining vision more effectively.

WHAT ARE THE COSTS?

All study costs, including any study procedures related directly to the study, will be paid for by the study. Costs for your regular medical care, which are not related to this study, will be your

own responsibility. Neither you nor your insurance company will be billed for the investigational device.

WILL YOUR RESEARCH RECORDS BE CONFIDENTIAL?

The results of this research study may be presented at scientific or medical meetings or published in scientific journals. Your identity and/or your personal health information will not be disclosed unless it is authorized by you, required by law, or necessary to protect the safety of yourself or others. There is always some risk that even de-identified information might be re-identified.

Participant information may be provided to Federal and other regulatory agencies as required. The Food and Drug Administration (FDA), for example, may inspect research records and learn your identity if this study falls within its jurisdiction.

The purpose of this research study is to obtain data or information on the safety and effectiveness of the virtual reality rehabilitation system; the results will be provided to the sponsor, the Food and Drug Administration and other federal and regulatory agencies as required.

Audio or video recordings will be stored in password protected computer or servers that can only be accessed by members of the research study team. Recordings will be retained up to 3 years after the completion of research. You may request that recordings be stopped at any time.

WILL YOU BE PAID FOR PARTICIPATING?

You will be paid $200 if you complete all the scheduled study visits and $50 for each completed follow-up visit. You will be compensated $40 for your travel costs if you complete visit 1 but do not qualify for cross-modal visual auditory rehabilitation.

To receive payment, you must provide your social security number, name and address so that we can comply with IRS (Internal Revenue Service) reporting requirements. When payments are reported to the IRS we do not let them know what the payment is for, only that you have been paid. If you do not wish to provide this information you can still take part in this study but you will not be paid.

The findings from this research may result in the future development of products that are of commercial value. There are no plans to provide you with financial compensation or for you to share in any profits if this should occur.

WHO IS SPONSORING THIS STUDY?

This study is being sponsored by Wake Forest University Health Science. The sponsor is providing money or other support to Wake Forest University Health Sciences to help conduct

this study. The researchers do not, however, hold a direct financial interest in the sponsor or the product being studied.

WHAT HAPPENS IF YOU EXPERIENCE AN INJURY OR ILLNESS AS A RESULT OF PARTICIPATING IN THIS STUDY?

Should you experience a physical injury or illness as a direct result of your participation in this study, Wake Forest University School of Medicine maintains limited research insurance coverage for the usual and customary medical fees for reasonable and necessary treatment of such injuries or illnesses. To the extent research insurance coverage is available under this policy the reasonable costs of these necessary medical services will be paid, up to a maximum of $25,000. Wake Forest University Baptist Medical Center holds the insurance policy for this coverage. It provides a maximum of $25,000 coverage for each claim and is limited to a total of $250,000 for all claims in any one year. The Wake Forest University School of Medicine, and the North Carolina Baptist Hospitals, Incorporated do not assume responsibility to pay for these medical services or to provide any other compensation for such injury or illness. Additional information may be obtained from the Medical Center's Director of Risk and Insurance Management, at [redacted].

If you are injured, the insurer may require information such as your name, social security number, and date of birth in order to pay for your care. This is because the insurer is required by law to report any payments made to cover the care of any persons who are members of a government insurance plan to the Department of Health and Human Services.

You do not give up any legal rights as a research participant by signing this consent form. For more information on medical treatment for research related injuries or to report a study related illness, adverse event, or injury you should call Huai Jiang at [redacted] or email [redacted]

WHAT ABOUT MY HEALTH INFORMATION?

In this research study, any new information we collect from you and/or information we get from your medical records or other facilities about your health or behaviors is considered Protected Health Information. The information we will collect for this research study includes**:** medical records relating to your hemianopia diagnosis and results from visual tests in the study.

If this research study involves the diagnosis or treatment of a medical condition, then Protected Health Information collected from you during this study may be placed in your medical record, and may be used to help treat you, arrange payment for your care, or assist with Medical Center operations.

We will make every effort to keep your Protected Health Information private. We will store

records of your Protected Health Information in a cabinet in a locked office or on a password protected computer.

Your personal health information and information that identifies you ("your health information") may be given to others during and after the study. This is for reasons such as to carry out the study, to determine the results of the study, to make sure the study is being done correctly, to provide required reports and to get approval for new products.

Some of the people, agencies and businesses that may receive and use your health information are the research sponsor; representatives of the sponsor assisting with the research; investigators at other sites who are assisting with the research; central laboratories, reading centers or analysis centers; the Institutional Review Board; representatives of Wake Forest University Health Sciences and North Carolina Baptist Hospital; representatives from government agencies such as the Food and Drug Administration (FDA) or the Office of Human Research Protections (OHRP), the Department of Health and Human Services (DHHS) and similar agencies in other countries.

Some of these people, agencies and businesses may further disclose your health information. If disclosed by them, your health information may no longer be covered by federal or state privacy regulations. Your health information may be disclosed if required by law. Your health information may be used to create information that does not directly identify you. This information may be used by other researchers. You will not be directly identified in any publication or presentation that may result from this study unless there are photographs or recorded media which are identifiable.

Monitors, auditors, IRB or other regulatory agencies will be granted direct access to the participant's original medical record for verification of clinical trial procedures or data, without violating confidentiality of the participant and to the extent permitted by other applicable laws.

If required by law or court order, we might also have to share your Protected Health Information with a judge, law enforcement officer, government agencies, or others. If your Protected Health Information is shared with any of these groups it may no longer be protected by federal or state privacy rules.

Any Protected Health Information collected from you in this study that is maintained in the research records will be kept for at least six years after the study is finished. At that time any research information not already in your medical record will either be destroyed or it will be de-identified. You will not be able to obtain a copy of your Protected Health Information in the research records until all activities in the study are completely finished.

You can tell Dr. Huai Jiang that you want to take away your permission to use and share your Protected Health Information at any time by sending a letter to this address:

[redacted]

However, if you take away permission to use your Protected Health Information you will not be able to be in the study any longer. We will stop collecting any more information about you, but any information we have already collected can still be used for the purposes of the research study.

By signing this form you give us permission to use your Protected Health Information for this study.

If you choose to participate in this study, your medical record at Wake Forest University Baptist Medical Center will indicate that you are enrolled in a clinical trial. Information about the research and any medications or devices you are being given as a participant may also be included in your medical record. This part of the medical record will only be available to people who have authorized access to your medical record. If you are not a patient at this Medical Center, a medical record will be created for you anyway to ensure that this important information is available to doctors in case of an emergency.

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

Laboratory test results and other clinically relevant medical reports created as a result of your participation in the research study may be entered into the computer systems of Wake Forest University Health Sciences and North Carolina Baptist Hospital. These will be kept secure, with access to this information limited to individuals with proper authority, but who may not be directly involved with this research study.

A North Carolina Baptist Hospital (NCBH) medical record will be created for all study participants. Information about your participation in the study will be placed in the NCBH medical record, along with any routine medical test results that were obtained at NCBH as part of this study.

WHAT ARE MY RIGHTS AS A RESEARCH STUDY PARTICIPANT?

Taking part in this study is voluntary. You may choose not to take part or you may leave the study at any time. Refusing to participate or leaving the study will not result in any penalty or loss of benefits to which you are entitled. If you decide to stop participating in the study we encourage you to talk to the investigators or study staff first to learn about any potential health or safety consequences. The investigators also have the right to stop your participation in the study at any time. This could be because you failed to follow instructions, it is in your best medical

interest, new information becomes available, or because the entire study has been stopped. Information that identifies you may be removed from the data or specimens that are collected as part of this study and could be used for future research or shared with others without additional consent.

You will be given any new information we become aware of that would affect your willingness to continue to participate in the study.

WHOM DO I CALL IF I HAVE QUESTIONS OR PROBLEMS?

For questions about the study or in the event of a research-related injury, contact the study investigator, Huai Jiang at [redacted] or email [redacted]

The Institutional Review Board (IRB) is a group of people who review the research to protect your rights. If you have a question about your rights as a research participant, or you would like to discuss problems or concerns, have questions or want to offer input, or you want to obtain additional information, you should contact the Chairman of the IRB at [redacted] or the Research Subject Advocate at [redacted]

You will be given a copy of this signed consent form.

SIGNATURES

I agree to take part in this study. I authorize the use and disclosure of my health information as described in this consent and authorization form. If I have not already received a copy of the Privacy Notice, I may request one or one will be made available to me. I have had a chance to ask questions about being in this study and have those questions answered. By signing this consent and authorization form, I am not releasing or agreeing to release the investigator, the sponsor, the institution or its agents from liability for negligence.

Subject Name (Printed):_____

Subject Signature: _____ Date: _____Time:_____ am pm

Person Obtaining Consent (Printed):_____

Person Obtaining Consent:_____ Date:_____ Time:_____ am pm