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THE STATE UNIVERSITY OF NEW JERSEY

NCT 05105126

PARENTAL PERMISSION TO PERMIT CHILD TO TAKE PART IN RESEARCH

TITLE OF STUDY: Title: A Pilot Study of Transcranial Direct Current Stimulation (tDCS) in Children with Autism Spectrum Disorder.

Principal Investigator: PI: Barbie Zimmerman-Bier, M.D.

STUDY SUMMARY: This consent form is part of an informed consent process for a research study and it will provide information that will help you decide whether you want your child to take part in this study. It is your choice for him/her to take part or not.

The **purpose of the research:** To see if *transcranial direct current stimulation* (tDCS) when used during ABA therapy improves learning in children with Autism Spectrum Disorder (ASD). If your child takes part in the research, s/he will receive (tDCS) while receiving her/his ABA therapy.

Their **time in the study will take**: Your child will participate in the study for a total of five months. S/he will receive 20 sessions of tDCS as well as 20 sessions sham (fake) tDCS. A resting EEG using a portable headset will be obtained about one time per month. A resting state EEG is an EEG measured when the child is quiet but not sleeping(for example watching a video or listening to audio)..

Possible harms or burdens of taking part in the study occur with tDCS. There may be some temporary discomfort, such as mild tingling where the electrode is placed on your child's forehead. It is also possible that s/he may feel some fatigue after treatment or some itching under the site where the electrode was placed. There is a small chance your child will experience a headache, nausea, or insomnia (this happens to less than 1%). We current do not know whether these are the only risks associated with tDCS. Participation will require the family to fill out questionnaires and for your child to have a resting EEG (5 total). The possible benefits of your child participating in the study may be that your child's speech and learning may improve.

An alternative to taking part in the research study Your child's alternative to taking part in the research study is not to take part in it.

The information in this consent form will provide more details about the research study and what will be asked of your child if you permit him/her to take part in it. If you have any questions now or during the study, you should feel free to ask them and should expect to be given answers you completely understand. After all of your questions have been answered and you wish your child to take part in the research study, you will be asked to sign this permission form. You are not

giving up any of your child's legal rights by permitting him/her to take part in this research or by signing this parental permission form.

Who is conducting this research study?
Dr. Zimmerman-Bier is the Principal Investigator of this research study. A Principal Investigator has the overall responsibility for the conduct of the research. However, there are often other individuals who are part of the research team.

Dr. Zimmerman-Bier may be reached at (732) 235-7083
The Principal investigator or another member of the study team will also be asked to sign this informed consent. You will be given a copy of the signed consent form to keep.

Sponsor of the Study
The New Jersey Governor's Council on Medical Research and Treatment of Autsm is the sponsor of this research study.

Why is this study being done?
We are examining whether a non-invasive brain stimulator called *transcranial direct current stimulation* (tDCS) when used during ABA therapy improves learning in children with ASD.

tDCS involves the application of weak electric currents (generated by a single 9-volt battery) to change the firing rates of neurons under the scalp. The actual current entering your child's brain during tDCS is exceedingly small. tDCS has been used safely in many research studies.
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Who may take part in this study and who may not?
1. Girls and boys between 5 and 12 years with ASD
2. Enrolled in a New Jersey ABA-based program (school or in-home) supervised by a Board-Certified Behavior Analyst (BCBA)
3. Stable medical and behavioral treatments for at least 4 weeks prior to, and during the study
4. Able to tolerate wearing tDCS and EEG with a week-long daily desensitization training, which will involve getting your child used to the equipment.

Who may not take part?
Your child may not partake in the study if they have:
1. Any implanted metal device (heart pacemaker, cochlear implant, surgical clips, etc.)
2. Severe neurological disorders such as traumatic brain injury (TBI), brain tumor, intracranial infection
3. Seizure disorder with a seizure within the last two years
4. Skull defect
5. Blindness or deafness
6. Medication that might affect tDCS,For example if your child is taking an SSRI such as Prozac or an antipsychotic (such as resperidal) they will not be able to participate in the study. .
7. Acute skin disease
8. History of magnetic or electrical stimulation

Why has my child been asked to take part in this study?

Your child is being asked to take part in this study because he/she is between 5-12 years old, diagnosed with ASD, and enrolled in an ABA program.

How long will the study take and how many subjects will take part?
Each child will participate for 5 months in the study. We will enroll 24 children from New Jersey in this study. A total of 20 children are needed to complete the entire study. The entire study will run for two years.

What will my child be asked to do if s/he takes part in this study?

- **Your child will be in one of two groups.**

  - Group A will receive 20 active tDCS first, then 20 sham (fake) stimulation second.
  - Group B will receive 20 sham (fake) stimulation first, then 20 active tDCS second.

This way, all children will receive both sham and active tDCS but in different order, which allows us to compare whether tDCS was helpful. You, your child, and the study doctors will remain ***blinded (does not know)*** to which group your child is assigned. However, one study doctor will remain unblinded because she will be randomizing your child into Group A or B and programming the tDCS device accordingly. Your child has a 50% chance of receiving active tDCS first, and 50% chance of receiving sham (fake) first.

- **We will see if your child is able to tolerate the tDCS headset.**

We will see how easy your child adjusts to wearing the headset. Dr Yoo will work to help you get your child used to the headset using a desensitization (making your child less sensitive) program.

- **Your child will receive tDCS treatment for 20 min during ABA therapy five days per week for 4 weeks.**

To the left is a picture of the tDCS equipment. It is made by Soterix. It is very easy to set up. There are two plastic straps that are fitted to your child's head size. There are a pair of disposable sponges pre-soaked with saline that are attached to the headset**.** Then the headset is placed around the child's head and securely snapped into place
You will receive training on how to set up and put the headset on your child. It takes about 3 minutes to set up the tDCS device. At the end of the 20-minute session, the device will turn itself off automatically. The Research Assistant will videoconference with you to ensure the application is correctly applied and removed. If you are not comfortable putting the headset on than a RA will assist you.

- **Your child will complete a resting EEG (electroencephalogram) which is a recording of brain activity.**

EEG measurements will be taken at the beginning of the study and before and after each treatment phase (A or B) This will require your child to wear a portable EEG headset for about 5 minutes. Your child will not be engaged in ABA therapy during EEG measures. We are using a portable wireless EEG system made by Zeto and your child can move freely once the headset is secured. The Zeto system looks like a bicycle helmet, requires no goop, does not pull-on hair and is adjusted to fit your child's head. It is designed for quick set up and can be used in the office or home setting. One to two minutes of awake, non-task-oriented EEG data will be recorded each EEG session. If your child is too fussy or can not tolerate the EEG then the recording will be discontinued.

- **Study Timeline**

Below are the visits for this research study. We can use videoconference for most of the visits (except for visit 2). The exact date and time of each visit will be decided based on your preference and availability. We will send you a link to a WebEx meeting that you can open on your phone or computer. We also have office space in the Child Health Institute on 89 French Street in New Brunswick room 1324. We practice social distancing require masks and screen for temperature, illness and recent travel. We do not allow visitors on site who may have been recently exposed or have symptoms of COVID-19 19.
The Enrollment (2 visits) will include medical history, review of medication history and current medication and review of educational and IEP records provided by you. You will also be asked to fill out several questionnaires at the end of each phase (every 4 weeks). If your child has not had an cognitive test (psychological testing/ I.Q.) in the past 3 years, then our study psychologist (Dr. Yoo) will administer the Leiter 3 (a non-verbal test of intelligence

PHASE		Enrollment	Baseline 1`	Phase A (active or sham)	Crossover/ Baseline 2	Phase B (active or sham)	Baseline 3
Time		Week 1-3	Week 4	Week 8	Week12	Week 16	Week 20
Consent		X					
Medical History		X					
Vineland -lll		X					
Leiter 3*		X					
Caregiver tDCS training		X					
Desensitization		X					
Randomization		X					
BRIEF			X	X	X	X	X
PDDBI			X	X	X	X	X
ABA program DTT data			X	X	X	X	X
EEG 2-5 min of continuous recording during rest.			X	X	X	X	X

Enrollment

Visit 1: Enrollment (telemedicine): About 90 mins

You have the option to attend the screening visit in person or via telemedicine. Your child is not required to attend. During the pre-enrollment visit, the following procedures will be conducted:

- Medical history and medication history
- Previous and current medications your child is taking
- Introduction to online surveys
- Vineland Adaptive Behavior Scale—III (VABS-3) (1 hour)

Visit 2: Enrollment - in Child Health Institute Research Office– time 2 hours (up to 3 hours)*

You will attend the screening visit in-person with your child. During the enrollment visit the following procedures will be conducted:

- Review of medical / school records for ASD diagnosis and recent cognitive (I.Q. testing). *If your child has not received an IQ assessment within the last 3 years our study psychologist will complete a Leiter 3 psychological test on Nonverbal intelligence (1-2 hours) .This can be completed at Visit 2 or at another study visit depending the child and family preference.*
- Head circumference measurement
- Your child will be introduced to the tDCS headset and EEG.
- A 2-minute resting EEG will be obtained using a portable headset. Your child will wear the headset for about 5 minutes total. The headset takes about 3 minutes to put on and adjust and requires no gel or glue and can be recorded wirelessly.
- If your child appears uncomfortable or is crying a lot (more than 5 min) then the tDCS training will stop. You will then meet with Dr. Yoo (videoconference or in office) and she will give you detailed training on how to conduct a daily headset desensitization training (getting used to wearing the headset). Dr Yoo will follow up with you if additional help is needed.

Begin Baseline Phase

- Then, for 4 weeks, baseline will occur.
- You will complete two questionnaires during week 4
    - PDDBI 30 min and BRIEF min

After that, your child will be randomly assigned into one of the two groups (Group A or Group B). You will complete the parent questionnaires online

- Group A will receive 20 active tDCS first, then 20 sham (fake) stimulation second.
- Group B will receive 20 sham (fake) stimulation first, then 20 active tDCS second.

Phase one (A or B)

You (or another caregiver) will conduct 20 tDCS sessions during your child's ABA therapy. 4 weeks is needed to complete tDCS 20 sessions (one 20-minute session per weekday). The research assistant will video conference with you during the tDCS set up (to ensure that tDCS is correctly set up and that there are no questions or concerns) as well as during the tDCS removal. A research assistant is also available to assist with tDCS headset application and removal during the 20 tDCS sessions.

After the completion of 20 sessions of Phase 1, you will complete the following questionnaires, which will take 20 minutes to complete:

- BRIEF
- PDDBI

Your child will complete a resting EEG – this will occur right after the last tDCS session.

Washout/Crossover- Baseline 2

For this 4-week break period, no stimulation sessions will be conducted. Your child will continue to receive his/her regular ABA therapy. At the end of the 4-week break, you will complete the following questionnaires:

- BRIEF
- PDDBI

Your child will complete a resting EEG

Phase 2 (B or A)

You (or another caregiver or a research assistant) will again conduct 20 tDCS sessions during your child's ABA therapy. 4 weeks is needed to complete 20 sessions (one per weekday).

After the completion of 20 sessions of Phase 2, you will complete the following questionnaires:

- BRIEF
- PDDBI

Your child will have a resting EEG completed at the end of 4 weeks.

Baseline 3

For this 4-week break period, no stimulation sessions will be conducted. Your child will continue to receive his/her regular ABA therapy. At the end of the 4-week break, you will complete the following questionnaires:

- BRIEF
- PDDBI

Your child will complete a resting EEG

Optional

Visit 3: (telemedicine): About 60-mins. After completing the 20 sessions and the above questionnaires, you can meet with the study doctor to discuss the end of Phase 2.

- The blind will be broken. You and the study doctors will find out which group your child was assigned.
- You and the study doctor can discuss whether there was benefit for your child and your experience with the study.

What are the risks of harm or discomforts my child might experience by taking part in this study?
The application of tDCS may cause some temporary discomfort, such as mild tingling where the electrode is placed on your child's forehead. It is also possible that s/he may feel some fatigue after treatment or some itching under the site where the electrode was placed. There is a small chance your child will experience a headache, nausea, or insomnia (this happens to less than 1%). We current do not know whether these are the only risks associated with tDCS. So, it is possible that there are unknown risks associated with the use of tDCS. The effects of tDCS are thought to be temporary, and it is not known to cause any permanent effects, either beneficial or harmful. Please report any adverse effects you may experience during tDCS stimulation to the study doctor so that we can monitor these symptoms.

Are there any benefits to my child if s/he takes part in this study?

The benefits of taking part in this study may be improvement in your child's speech and behavior. You may also notice that your child makes more progress with learning. However, it is possible that s/he may not receive any direct benefit from taking part in this study.

What are my alternatives if I do not want to take part in this study?
Instead of taking part in this study, you may choose to continue with ABA, standard behavior intervention for ASD.

How will I know if new information is learned that may affect whether I am willing to allow my child to stay in the study?
During the study, you will be updated about any new information that may affect whether you are willing to allow your child to continue taking part in the study. If new information is learned that may affect your child after the study or their follow-up is completed, you will be contacted.

Will I receive the results of the research?
In general, we will not give you any individual results from the study. If we find something of urgent medical importance to your child, we will inform you, although we expect that this will be a very rare occurrence.

Will there be any cost for my child to take part in this study?
There are no costs for your child to take part in this study.

Will my child be paid to take part in this study?
Your child will not be paid to take part in this study.

How will information about my child be kept private or confidential?
All efforts will be made to keep your child's personal information in the research record confidential, but total confidentiality cannot be guaranteed.
All efforts will be made to keep your and your child's personal information in their research record confidential, but total confidentiality cannot be guaranteed. We will take the following precautions.

- Your child will be assigned a unique study number. A patient identification key that links your child's study ID to his/her name, date of birth, address and other contact information will be recorded in a password protected database on the study investigator's computer. Only the Investigators and study coordinator will have access to the patient identification key.

- All electronic storage of study-related documents and data will be stored in a separate secured, password protected database at Robert Wood Johnson University. Your child will only be identified by the unique study number (e.g., A111). Only the research team will have access to the de-identified study data.

- All educational records or reports that you provide will have identifying information (i.e. name , date of birth , address) removed and labeled with your child's research I.D. These records will be destroyed once entered into our online database.

There is minimal risk of loss of privacy. For example, there is a potential for misplacement of paper copies of health information, although systems are in place to prevent misplacement of paperwork. All efforts will be made to keep your child's personal information in their research record confidential, but total confidentiality cannot be guaranteed.

A description of this clinical trial will be available on https://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 website at any time.

The research team may use or share your child's information collected or created for this study with the following people and institutions:
- The Rutgers University Institutional Review Board and Compliance Boards
- The Office for Human Research Protections in the U.S. Dept. of Health and Human Services
- The Food and Drug Administration.
- New Jersey Governors Council for Medical Research and Treatment of ASD.

What will happen if my child is injured during this study?
Participants in this study will be exposed to certain risks of personal injury in addition to those associated with standard forms of treatment, which are described throughout this consent form. The University will make appropriate referrals for medical treatment for participants who sustain personal injuries or illnesses as a direct consequence of participation in the research. The participant's health insurance carrier or other third-party payer will be billed for the cost of this treatment; provided that the University shall not submit to federally funded programs (e.g.,

Medicare, Medicaid or CHAMPUS) for reimbursement first if submission to such programs is prohibited by law. No financial compensation will be provided by the University and no other type of assistance is available from the University.

What will happen if I do not wish my child to take part in the study or if I later decide that I do not wish my child to stay in the study?
It is your choice whether your child takes part in the research. You may choose to have your child take part, not to take part or you may change your mind and withdraw your child from the study at any time. If you do not want your child to enter the study or decide to stop taking part, their relationship with the study staff will not change, and s/he may do so without penalty and without loss of benefits to which your child is otherwise entitled.

You may also withdraw your permission for the use of data already collected about your child, but you must do this in writing to

Dr. Barbie Zimmerman-Bier
Department of Pediatrics
Children's Health Institute
89 French Street RM 1218
New Brunswick, NJ 08901

Any data that has already been collected cannot be withdrawn because there may not be any identifiers to link the data with your child. Any data that has already been sent to the New Jersey Governor's Council on Autism (sponsor of this study) cannot be withdrawn because there may not be any identifiers connected with the data.

At any time, the study doctor can take your child out of this study because it would not be in his/her best interest to stay in it. The study doctor can stop tDCS sessions even if you are willing to allow your child to stay in the study.

Even if you decide to withdraw your child from the study for any reason, your child may be asked to return for at least one additional visit for safety reasons.

Who can I call if I have questions?
If you have questions, concerns, problems, information or input about your child taking part in the research or if you feel your child may have suffered a research related injury, you can call

Barbie Zimmerman-Bier, M.D.
Telephone: (732) 235-7083

If you have questions, concerns, problems, information or input about the research or would like to know more about your child's rights as a research subject**, you can contact the Rutgers IRB Director: (732) 235-9806** or the **Rutgers Human Subjects Protection Program at (973) 972-1149, email us at human-subjects@ored.rutgers.edu or write us at 65 Bergen Street, Suite 507, Newark, NJ 07107.**

PARENTAL PERMISSION FOR CHILD

I have read this entire form, or it has been read to me, and I believe that I understand what has been discussed. All of my questions about this form or this study have been answered.

I am the [ ] parent or [ ] legal guardian of _____ (name of child) and I agree for my child to take part in this research study.

Subject/Child's Name (Print):_____

Parent or Legal Guardian Name (Print):_____

Parent or Legal Guardian Signature:_____ Date:_____

Signature of Investigator/Individual Obtaining Consent:

To the best of my ability, I have explained and discussed the full contents of the study including all of the information contained in this consent form. All questions of the research subject and those of his/her parent or legal guardian have been accurately answered.

Investigator/Person Obtaining Consent Name (Print):_____

Signature:_____ Date: _____

Recontacting Your Family

The research team is interested in re-contacting (get in touch with) families who participate in this study, for future research studies, including but not limited to, follow-up questionnaire information, or a wish to re-test your child at a later date so as to chart their development over time. Even if you agree to be contacted in the future, you can always change your mind and decide not to participate. In addition, there is no obligation to participate in additional research studies.

Please initial one of the following sentences:
_____ I agree to be contacted by the investigators for future research studies.____ (initial)

_____ I do not agree to be contacted by the investigators for future research studies. __ (initial