Research Project Title: Transcranial direct current stimulation to improve motor function in children with cerebral palsy: A pilot study

Short Title: StimCP

Participant Information Sheet (Parent/Guardian)

Version: 1.3 Date: 04/12/2020

We are inviting your child to take part in a research study at Oxford Brookes University, University of Oxford and Brunel University, examining whether we can improve movement for people with Cerebral Palsy (CP) using a safe and painless form of brain stimulation, in combination with physiotherapy training. **Before you decide whether or not you** would like **her/him to take part, please** take time to read the following information carefully.

PART 1: SUMMARY OF THE STUDY

What is the study about?

Many young people with CP have difficulty with movement. Transcranial Direct Current Stimulation (TDCS) is a safe, painless and non-invasive type of brain stimulation which has the potential to increase the ability of the brain to adapt. The aim of this study is to determine if this could be effective at improving movement and function when combined with physical therapy. We would like to test the short and longer term benefits of 10 days of TDCS combined with therapy for the arm and leg in young people with cerebral palsy (CP).

Why was my child invited to take part?

We are inviting young people with CP to participate. They should be aged between **10-16 years** old, be able to stand and walk short distances (with or without assistance), but have some difficulties with mobility and/or hand/arm movement. They will not be able to take part if they have had seizures in the previous 2 years, are pregnant, have a pacemaker or metal implant in the head or neck.

Additional exclusion criteria apply for the optional brain scanning (Magnetic resonance imaging; MRI) study. MRI scanning for research purposes would not be performed without further investigation if your child has any of the following:

- A heart pacemaker, mechanical heart valve

- Mechanical implant such as an aneurysm clip
- Metallic hardware (e.g. Hip replacement or similar)
- Presence of other pieces of metal that have accidentally entered their body.
- We do not test for pregnancy as routine so if you think your child may be pregnant they should not take part in this research. While there is no evidence to suggest that MRI is harmful to unborn babies, as a precaution, the Department of Health advises against scanning pregnant women unless there is a clinical benefit.

People who are excluded from MRI scanning will still be able to undergo all other aspects of the research study.

If your child wants to participate we will assess their suitability, including asking you to fill in safety screening forms before inviting them to attend a baseline assessment appointment. We will also ask for permission to access your child's clinical records as it is relevant to their participation in the study.

What are the possible benefits of taking part?

All participants will receive physiotherapy and therefore may see some improvement in their movement.

Are there any risks in taking part?

The procedures and tests in this study are routinely used for assessing children and young person's performance. However, it is important for us to make sure that all aspects of the study are safe for your child before we start. For this reason, we will ask you to complete detailed safety screening questionnaires. More detailed information is provided in Part Two.

Does my child have to take part?

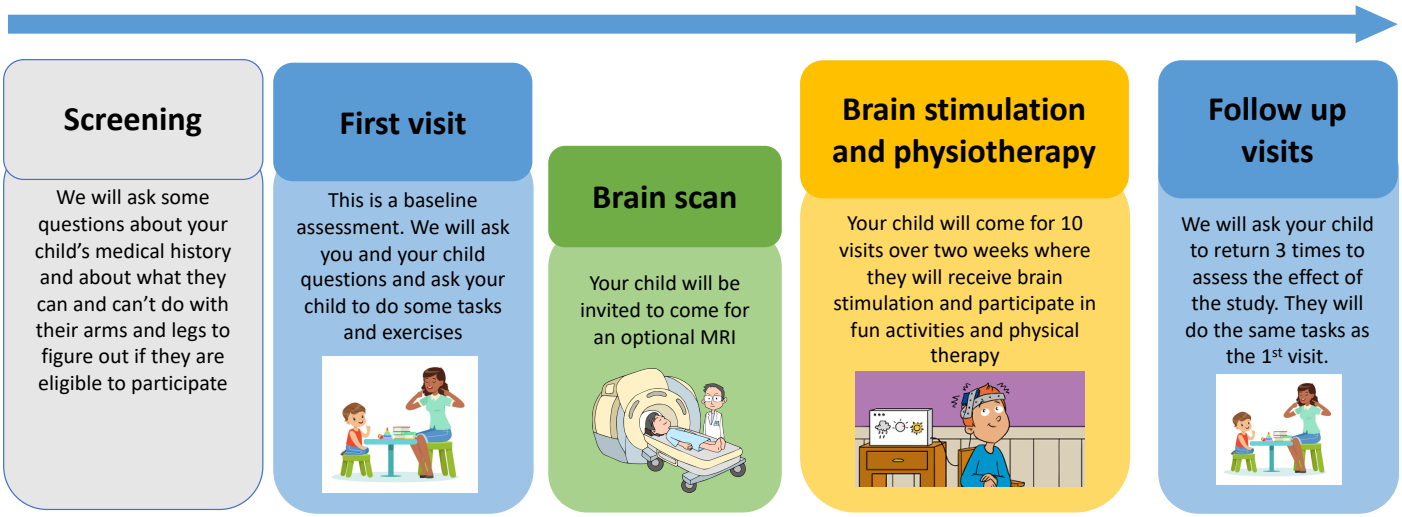
- *No, their participation is entirely voluntary.*
- Before starting the study you will have the opportunity to raise any questions or concerns with the research team.
- The safety and well-being of your child is our top priority. Involvement in the study will not influence any of their on-going or future treatment or interfere with your child's schoolwork**.**

Will we be compensated for time/travel?

All participants will be given £15 per session as reimbursement for their time. Any travel expenses incurred will be reimbursed.

What will happen to my child if he/she takes part?

The study is summarised in the figure below:



For more information on each visit, assessments, physical training and brain stimulation, please read Part Two of this information sheet.

Who should we contact if my child or I have some more questions?

If you are interested and/or have any questions regarding the study, please contact the researcher team using the contact details below. We would be more than happy to speak with you:

Foteini Mavrommati , PhD student

Email: foteini.mavrommati@brookes.ac.uk

Professor Helen Dawes , Principal Investigator

Email: hdawes@brookes.ac.uk

For queries regarding the MRI scanning part of the study:

Dr Bronwyn Gavine , PhD Student

Email: bronwyn.gavine@ndcn.ox.ac.uk

Dr Melanie Fleming , Research Associate

Email: melanie.fleming@ndcn.ox.ac.uk

PART TWO: DETAILED INFORMATION

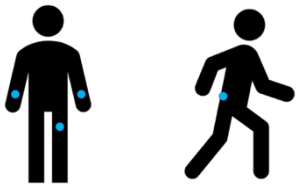
This is a detailed schedule of the processes that will take place if you and your child decide to take part to the study.

Screening

- We will first ask you to provide consent for us to obtain information about your child in order to determine if they are eligible to take part.
- We will then ask questions about their age, medical history (including medications) and current movement abilities. If your child is female, we will also ask if there is any chance she could be pregnant.This will be done either over the phone, video call using a secure app (Zoom or Google Meet) and/or online questionaires

First Session

- If your child is thought to be eligible to take part they will be invited to a first/baseline assessment session
- We will ask you to sign a consent form and your child to sign another form that says that they would like to take part.
- We will then perform some movement assessments. These include tasks to assess movement of the hand and arm, as well as measures of standing, walking and balance. Your child can wear any clothing that they want, so long as they can move comfortably.
- We will video record your child's hand movements for one of the assessments.
- We may place sensors on your child's arms, legs and back to measure their balance and movement. The sensors are shown as blue dots in the figure alongside.



- We will also complete some questionnaires with yourself and your child.
- This session will last approximately 2 hours and will be held either at your child's school, or at Brunel University (London) or Oxford Brookes University (Oxford). Your child can take breaks at any time that they wish.

After the first test session, your child will be invited to attend an MRI (brain scanning) session.

The reason behind including a brain scan is that we would like to identify any measures that could be used to predict who will show improvement with this treatment. This is an optional procedure.

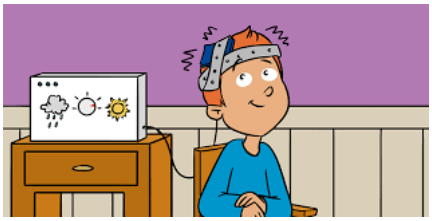
- If your child is happy to participate in this part of the study, then you will be asked to complete an MRI safety screening questionnaire and a time will be arranged to attend the Wellcome Centre for Integrative Neuroimaging, University of Oxford, at the John Radcliffe Hospital in Oxford for one appointment.
- On arrival, one of our research team would meet you and your child to describe what the scan will involve and answer any questions that either of you may have.
- We will go through the screening form with you and your child, and you will be asked to sign a consent form for this part of the study.
- The research would involve having a series of MRI scans which will last about 30 minutes in total.

During the scan

- Your child will be asked to lie on their back and keep their head as still as possible.
- For parts of the scan they will be asked to keep their eyes open and look at an image on the screen.
- In other parts of the scan they will be able to close their eyes if they want or to watch a film (e.g. nature documentary).
- Please let us know beforehand if your child wears contact lenses or glasses.
- There is an area where you will be able to wait during the MRI scan.

The next 10 sessions (over 2 weeks) will involve the following:

- When your child arrives, we will explain the process and then set up the TDCS. We will place small pieces of plastic (electrodes) in sponges which are soaked in a salty (saline) solution onto the scalp. These will be attached to your child's head using stretchy bands and connected to the brain stimulation unit using long cables.



- TDCS is painless. However, your child may feel a tingling, prickling or itching sensation on their scalp when the stimulation is first turned on. This is normal and typically fades away after a minute or two. The tDCS will continue for 20 minutes during which your child will start the physical therapy exercises.
- Participants will be randomly allocated to either the real or the placebo stimulation group. ''Placebo'' is defined as a treatment deliberately designed to be inactive. In this research study, half of the participants will receive the real brain stimulation, and half will receive a placebo stimulation.
- Neither you, nor your child, will be able to know whether they are receiving the real stimulation or not.
- All participants will undergo the physical therapy training. We do this so that we can tell whether improvements are due to the physical therapy training alone or the combination of physical therapy and brain stimulation.

The physical therapy training

- Will be conducted in groups of up to 5 children and will last for 1.5 hours.
- This will involve activities and games designed to improve movement of the hand/arm and the legs. Your child can wear any comfortable clothing that they can move in.
- Your child may have sensors placed on your their arms, legs and back to measure their balance and movement during the training sessions. If they do not want to have the sensors then let us know, it is not compulsory.
- Your child will be asked to wear a monitor on their wrist(s) over this two week period, both during the training sessions and at home/school etc. This is to measure how much activity they do over this period. If your child does not want to wear the monitor then please let us know, it is not compulsory.

These sessions will take place at either Oxford Brookes University in Oxford, Brunel University in London or your child's school.

Follow up assessments

We will repeat all the movement assessements and questionnaires from the first session to measure improvements. These assessments will be conducted **1 week** after the end of the training period, then approximately **6 weeks and 3 months later**. We will also ask you and your child some questions to find out about their experience being in the study. We may use these answers as anonymous quotes (without mentioning you or your child's names) in reports or articles that we produce from this study.

All testing is safe. It follows standardized procedures. Your child will be monitored by a trained physio or tester to ensure they are comfortable and confident with all the tasks. We will guide your child through the activities and exercises. Your child can go to the toilet whenever they ask. We will ensure there is little interference with education.

Is there anything I need to do before the sessions?

We will give you a copy of the safety screening forms to look over before the first session, if you have any concerns about any of the questions then please do let us know and we can go through details with you.

Are there any risks in taking part?

Assessments and physical therapy training

If your child does not regularly take part in physical activity, the physical therapy training may require a level of effort not normally undertaken in their daily living. This means their muscles may ache the day after the session. This is a perfectly normal response. It's a sign that your child has worked their muscles harder than usual.

Brain stimulation

The TDCS is painless and there are no known serious side effects. It is possible that your child will feel a tingling/prickling or itching sensation on their scalp and there may be some short-term redness on the skin where the sponges are held in place. This is normal and should not cause serious discomfort. Your child may experience a mild headache after the stimulation which should go away on its own or with over the counter medication such as paracetamol.

TDCS uses a very low electrical current and is not known to be harmful. There have been many studies worldwide and no side effects have been observed, other than the slight tingling mentioned above, and occasional headaches. However, as with all techniques that stimulate the brain, TDCS has the possibility to induce seizures in people who are susceptible to them. It is our policy not to give TDCS to anyone with uncontrolled seizures, or anyone who may be pregnant. We will ask you to complete a safety screening questionnaire which will ask about any history of epilepsy,

other neurological disorders or psychiatric disorders or whether there is any possibility your child may be pregnant. If your child is taking prescription medication, you should discuss this with the researcher beforehand.

MRI Brain Scanning

MRI is safe and non-invasive and does not involve any ionizing radiation (x-rays). However, because it uses a large magnet to work, MRI scans are not suitable for everybody. Because of this, you will be asked safety screening questions to help determine if your child is able to take part. If you think your child might be claustrophobic, please discuss this in advance with the researcher. As the scans are noisy, we would give your child earplugs to make this quieter. It is important that these are fitted correctly to protect their hearing, so a radiographer or scan operator would fit them.

In preparation for the scan and for your child's comfort and safety we may ask them to change into pocketless and metal free "pyjama-style" top and trousers, which are available in a range of sizes. Your child may keep their underwear and socks on but we would ask ladies to remove underwired bras, if they have a suitable non-wired bra they may wear this instead. Please avoid any fabrics that contain metallic threads or have been silver impregnated (often marketed as anti-microbial/bacterial or anti-odour/stink). Metal jewellery including body piercing must also be removed. Eye shadow and mascara must also be avoided, since some types contain materials that can interact with the magnetic field. If your child wishes to wear eye makeup to the scan we can provide makeup removal wipes, but they will need to bring their own makeup to reapply after the scan. Lockers are provided to secure personal belongings and clothing.

Participants will be introduced carefully to the scanner and allowed to leave at any stage. Whilst in the scanner your child will have easy access to a call button should they wish to stop the scan or speak with the radiographer or operator. We will talk to your child via the intercom during the scan to make sure that they are doing alright.

It is important to note that we do not carry out scans for diagnostic purposes, only for research. Our scans are not routinely looked at by a doctor and are therefore not a substitute for a doctor's appointment. We see unexpected findings in about 10% of the children we scan. In such cases, we would ask a doctor to review the scan and determine whether it was thought to be medically important. You would be contacted directly and further investigations, such as a hospital (NHS) diagnostic scan might be recommended. Not all findings have implications for your child's current or future health.

COVID-19 pandemic

We will follow University and government guidance with regards to social distancing, personal protective equipment and contact tracing. You will be provided with details about what this will involve prior to any in-person appointments.

The researchers are fully trained first aiders. Your child can stop at any time without giving a reason.

What will happen if I don't want my child to carry on with the study?

Participation is entirely voluntary. ***You or your child can decide to withdraw consent without providing a reason.*** Taking part in the research, or declining to do so will have no impact on any assessments at school. If your child does withdraw, the information collected up until that point may still be used.

What if there is a problem?

This project is covered under Brookes University's clinical trial coverage. The institution is required to keep a central record of all trials which is declared periodically to our insurers.If you have a concern about any aspect of this study, please speak to the researchers. They will do their best to answer your questions.

In the unlikely event that your child sustains an injury during the research project then you may have grounds to claim compensation from Oxford Brookes University. You may have to pay your own legal costs. Nevertheless, if you wish to complain, please contact Sarah Quinton, chair of Oxford Brookes University Research Ethics Committee on 01865 485694 or email ethics@brookes.ac.uk

What will happen in case of any safeguarding concerns?

This study will meet current EU ethics and UK Government statutory requirements relating to measures to protect the health, wellbeing and human rights of individuals, especially children (Safeguarding). Any Safeguarding issues or concerns will be reported through the University's Safeguarding system. Please report any issues or concerns to the researchers in the study team. The research group has a safeguarding officer (Dr Andy Meaney) and a Good Clinical Practice officer (Dr Johnathan Collett). We have led many studies involving children with different physical and cognitive abilities, and a broad range of clinical conditions. All researchers are safeguarding and governance trained, including data protection (GDPR (2018)) and in taking of Informed Consent.

What happens when the research study stops?

The study would end for your child after completion of the final assessment, or immediately if consent is withdrawn. After this time you would still be free to contact any of the researchers with any queries you may have. The results from the study will be presented at academic conferences and published scientific or clinical journals.

What will happen to my child's information?

Oxford Brookes University is the sponsor for this study. We will be using information from your child in order to undertake this study and will act as the data controller for this study. This means that we are responsible for looking after your child's information and using it properly. Research data generated during the study will be recorded using code numbers, not by name, and will be kept securely in paper or electronic form for a period of 5 years following publication of the study results , following the university data retention policy. Data will be stored at an Oxford Brookes University research data storage facility, on a secure server protected by the University's firewall. Final data will be

deposited and retained in an appropriate University repository (i.e. RADAR). When we ask for your consent for your child's participation to the study, we will also ask you to consent to this.

We will need to use information from your child and from their medical records. This information will include their initials, NHS number, name and contact details. The researchers will use this information to do the research or to check their records to make sure that the research is being done properly. People who do not need to know who you/your child is will not be able to see names or contact details. The data will have a code number instead. We will keep all information about your child safe and secure. Once we have finished the study, we will keep some of the data so that we can check the results. We will write our reports in a way that no-one can work out that your child took part in the study.

Your child's rights to access, change or move information are limited, as we need to manage their information in specific ways in order for the research to be reliable and accurate. If your child withdraws from the study, we will keep the information about them that we have already obtained. To safeguard your child's rights, we will use the minimum personally-identifiable information possible.

Individuals from Oxford Brookes University (or Action Medical Research UK) and regulatory organisations may look at the research records during the study for quality and monitoring purposes. The only people in Oxford Brookes University who will have access to information that identifies you will be people who need to contact you in regards to the project or to audit the data collection process.

As this study is run in conjunction with researchers at the University of Oxford, your child's contact details will be passed to the researchers involved to contact you with respect to the MRI component of this study. Additionally, pseudoanymised data (recorded using code numbers) will be shared with the University of Oxford researchers involved in this study.

Where can I find out more about how my child's information is used?

- at www.hra.nhs.uk/information-about-patients/
- by asking one of the research team
- by sending an email to info.sec@brookes.ac.uk

What will happen to the findings of this study?

The data will be kept strictly confidential and securely stored, identified with only a code number, rather than their name. Please note that, as the data would be pseudonymised, the legal limitations to confidentiality do apply. Therefore, information can remain confidential only within the limitations of the law. Results of this study will be intended for publication and aspects will be written up as part of a PhD/DPhil thesis. After the study we can provide you with a summary of the research findings and/ or provide you with information about your child's results.

Who is organising and funding the research?

This study is sponsored by Oxford Brookes University and organised by The Centre for Movement, Occupational and Rehabilitation Sciences, Oxford Brookes University and The Wellcome Centre for Integrative Neuroimaging, University of Oxford. The study is jointly funded by Action Medical Research UK and the Chartered Society of Physiotherapy.

Who has reviewed the study?

The research has been approved by the Oxford Brookes University Research Ethics Committee. The trial has also been submitted and approved by the NHS Research Ethics Committee (NHS REC- TBC) and by the Health Research Authority (HRA). This is consistent with the requirements of Oxford Brookes University, who has agreed to act as the trial sponsor. If you have any concerns about how the project is being conducted, please contact FREC@brookes.ac.uk

Thank you for taking time to read the information sheet.