

**Title of Project: An effective connectivity study of visual and motor cortex interactions.**

Ethics Approval Number: F1655

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This is an invitation to take part in a research study on how the motor and visual cortex communicate. Before you decide if you wish to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully.

**What will happen if you agree to take part?**

You will be asked to attend two sessions on different days. On the first day, we will show you the machine we use to perform Transcranial Magnetic Stimulation (TMS). We will let you try the stimulation and will give you time to ask any questions you might have. Then we will try to locate your visual cortex. To do so we will ask you to wear a blindfold and will apply a TMS pulse. TMS on the visual cortex can generate a visual sensation, that we call phosphenes. These are often described as a flash of light appearing straight after the stimulation. After every pulse, we will ask you if have perceived anything. We will try different spots. It is possible that you will not perceive phosphenes and if this is the case. Around 30% of people don't perceive them, and it is just because of the limitations of the TMS.

If you can't, you can still take part to the next session. During the second session, we will locate your motor cortex and to do so we will attach 3 electrodes on a small muscle of your right hand and will use single TMS pulses. The motor cortex is the spot on your scalp that will generate a small twitch in your hand muscle. Afterwards, we will start the experiment.

**If you can perceive phosphenes.**

You will be asked to keep your eyes open but to wear a blindfold. During the experiment, we will stimulate the motor cortex and the visual cortex and will ask you to report if you perceive phosphenes. The experiment will last around 20 minutes, but you will have a break every 4-5 minutes.

**If you can't perceive phosphenes.**

During the experiment, we will stimulate the motor cortex and just after we will show you a small stimulus on computer screen and will ask you to report if you have seen it or not. The experiment will last just above 30 minutes, but we will have plenty of break, one every 7 minutes. Before we start the experiment, we will attach electrodes for measuring electrical activity (EEG) on your scalp. This is painless and involves cleaning the skin with alcohol and then using gel. You will be asked to sit still during the entire measurement since movements will interfere with getting accurate data. At the end of the experiment, the gel can be removed by a hair wash.

**Are there any risks associated with TMS?**

If you decide to participate in this study, you will receive magnetic brain stimulation (TMS) which has a temporary effect of increasing or decreasing brain cell activity. This involves a coil being placed on the head to deliver magnetic pulses to the brain. This is a safe and painless procedure as used in the School of Psychology and has no long-term effects. The most serious known risk is epileptic seizures, but these have not been reported in healthy adults at normal levels of stimulation. As a precaution, you will be asked to complete a safety screening questionnaire and to report any unexpected after-effects.

In susceptible individuals, TMS may cause tension-type headaches that usually respond well to mild analgesics (e.g., paracetamol). This is however infrequent. Should a headache develop, please tell us right away so that we can immediately discontinue the study.

In some cases, depending on the site of stimulation, there is the possibility of uncomfortable muscle stimulation. We will try to reduce this, but if the procedure happens to be uncomfortable, the experiment will be terminated.

**Important:**

Participation in this study is voluntary and you are under no obligation to take part. You are free to withdraw at any point before or during the study without providing any explanation. All data collected will be kept confidential and used for research purposes only. It will be stored in compliance with the Data Protection Act.

If you have any questions or concerns, please don't hesitate to ask now. We can also be contacted after your participation at the above address.

If you have any complaints about the study, please contact:  
Stephen Jackson (Chair of Ethics Committee)  
[stephen.jackson@nottingham.ac.uk](mailto:stephen.jackson@nottingham.ac.uk)