

School of Psychology
Information Sheet



**The University of
Nottingham**

UNITED KINGDOM • CHINA • MALAYSIA

Title of Project

Evaluating the Role of the Medial Temporal Lobe in Episodic Memory and
Category Learning using Optically-pumped Magnetometers

Ethics Approval Number F1546

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This is an invitation to take part in a research study on how the brain uses
memories to makes decisions.

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 it involve for you?

If you participate, you will be asked to complete a brief medical questionnaire
and to sign a consent form. You will be asked to attend three separate
sessions. In the first session, you will be invited to the School of Psychology,
where you will be introduced to a computer-based task in which you will be
asked to memorise a set of images and learn to categorise them. You will
have an opportunity to practice the task. This visit will typically not take longer
than one hour and does not involve any brain imaging. We will record your
eye movements using an eyetracking camera to ensure that you are learning
the task correctly. Eyetracking cameras are completely safe and do not record
any video of your face or eye (merely where you are looking on the screen).
In the second session, you will be asked to visit the Sir Peter Mansfield
Imaging Centre for an OPM-MEG brain imaging session. The visit will typically
not last longer than 2 hours.

We will talk you through the procedure and familiarize you with the OPM-MEG scanner. You will then sit in a chair inside a magnetically-shielded room while wearing a helmet containing the MEG sensors (more information on MEG is below). You will then perform the same task you practiced. We will present images to by projecting them onto a screen in front of you, and you will perform the task using button presses or a mouse or trackball. The experiment in the scanner will last about 70 to 80 minutes, and you will spend no more than 90 minutes in the scanner. The whole procedure will last approximately 2 hours.

In the third session, you will be asked to visit the Sir Peter Mansfield Imaging Centre for an MRI brain imaging session. We will acquire an image of your brain's structure which we can use to identify the origin in the brain of the signals we measure with MEG. The visit will typically not last longer than 1 hour. You will receive an inconvenience allowance (£10/hour) for your time.

What is Magnetoencephalography (MEG)?

Magnetoencephalography (MEG) is a technique for directly measuring brain activity. Brain cells communicate with one another by exchanging small electrical currents and these currents induce a magnetic field that is distributed around the head. Such fields are detectable using a MEG scanner and their measurement allows us to determine the location of any electrical activity in the brain, and how the patterns of that electrical activity change over time.

What is Magnetic Resonance Imaging (MRI)?

Magnetic resonance imaging (MRI) is a powerful technique for diagnosing disease and investigating physiological and pathological processes. The School of Physics and Astronomy at the University of Nottingham has pioneered the development of MRI and continues to be at the forefront of work in this area. MRI allows us to take highly detailed images of your brain.

What are the possible risks of taking part?

Magnetoencephalography is an entirely passive scanning technique and involves no risks at all. Magnetic resonance imaging (MRI) uses radio waves

similar to those used in radio and TV transmission. These have a much lower energy than X-rays and as such are considered biologically safe. We scan at field strengths of up to 3T. We will be following strict national safety guidelines which are designed to prevent the potential hazards of MRI which are burns and electric shocks. Preventable accidents like skin burnt at the contact point have never occurred in the Sir Peter Mansfield Magnetic Resonance Center (SPMMRC) and have only very rarely occurred elsewhere in the UK. While there is no evidence to suggest that MRI is harmful during pregnancy, the Medicines and Healthcare products Regulatory Agency (MHRA) advises against scanning pregnant women in the first three months of pregnancy or at fields above 2.5T. If you could possibly be in the first 14 weeks of pregnancy (e.g. if you have had unprotected sexual intercourse since your last period) then you must not be scanned. Pregnancy tests are available in the women's toilets of the SPMMRC.

What will we do if we notice something abnormal?

Since you are healthy, it is extremely unlikely that your scan will show any abnormality. Even if there were an abnormality it is unlikely that we would notice it since we are taking these scans for scientific research, so they are not the same as scans collected by doctors for medical purposes. Furthermore, the pictures will not be looked at by a radiologist (a doctor qualified to find abnormalities in scans).

However, there is a small chance that we will notice something abnormal on your scan. This might have the benefit of allowing you to start treatment earlier than you would have otherwise, but it may also have implications for your future ability to find employment and obtain insurance.

If we did find anything abnormal on your scan the investigator would arrange for an appropriately qualified doctor to look at them. That specialist doctor would contact your GP to explain the situation, so that your GP could then advise you.

Participation in this study is totally voluntary and you are under no obligation to take part. You are free to withdraw at any point before or during the study. 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)
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