

Data Management Plan: Mapping the emergence of dimension-selective attention in auditory category learning

Three types of data will be collected from the participants:

1. Behavioural: performance in identifying a sound as belonging to a particular category.
2. Structural images of the brain using magnetic resonance imaging (MRI) with a high resolution qualitative multi-parameter mapping (MPM) v3H protocol and diffusion tensor imaging.
3. Functional images associated with auditory stimulation will be recorded using functional magnetic resonance imaging (fMRI)
4. Basic demographic data (e.g. age, sex, handedness) that are routinely reported in scientific report in this field.
5. Participants' MRI-relevant occupational and medical history (safety pre-screening).

Here we describe how we are going to manage the collected data in order to be in accordance with the General Data Protection Regulation (GDPR) 2018. Please also refer to the workflow at the end of this document for a general overview.

All 3 data types will be usable for future research in some form, subject to appropriate measures being implemented to protect participant confidentiality. MR data will first be stored in pseudonymised form on password-protected servers behind firewalls at the Birkbeck-UCL Neuroimaging Centre (BUCNI). Pseudonymised MR data will be transferred to Birkbeck's encrypted servers using the SSH File Transfer Protocol. The MR data will be held securely in password-protected laptops and desktops with security software and stringent firewalls running, which will be accessible only to project members.

Behavioural and basic demographic data will have ID code and no identifiable personal information on them. These data will be transferred via SFTP from BUCNI to the Principal Investigator's (PI's) password-protected server which is only accessible from institution-internal IP address or VPN. Files containing the ID codes linking names to codes will be kept on a secure password- and firewall-protected computer at Birkbeck or UCL in password-protected files. The forms containing ID codes linking names to codes and the consent forms will be stored in a locked cabinet in a locked office.

The information related to the participants' occupational and medical history is necessary to ensure that it is safe for them to enter the MRI scanner (e.g., to ensure they do not have medical implants which would be affected by the magnetic fields). This information will be stored securely at BUCNI, and will not be retained by the research team, or copied.

At the conclusion of the research project, the research team will decide what data must be maintained for further research purposes. Any data deemed unnecessary for future projects will be properly deleted in accordance with GDPR 2018. Any remaining data will be archived at UCL or Birkbeck in an office where only the research team can access it.

We plan to share raw data with other researchers in well-established open access repository such as the Open fMRI database (<https://openfmri.org/>) or the data depository mechanism required by the journal in which the study is published, within the legal and ethical limitations. This will be done after the completion of the project. These data will not have any identifiable data included and the MR data will be skull-stripped to remove the possibility of facial identification. When the data is made available in this way, it will be stored and reused at the discretion of the users of the database. These users may be based in countries outside the European Economic Area (EEA) subject to different laws and therefore data may ultimately not be stored/reused in accordance with the General Data Protection Regulation and the Data Protection Act 2018, UCL Retention Schedule, UCL Research Data Policy, and UCL Staff IPR Policy. We will consult UCL Data Protection to ensure GDPR-compliance during this process and will only make data public when advised to do so. We will complete a thorough process of risk mitigation as guided by UCL and comply with all precedents set by the university.

