School of Psychology and Public Health
College of Science, Health and Engineering

Participant Information Statement

FMRI EXPERIMENTS OF THE VISUAL SYSTEM IN TYPICAL ADULTS

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You are being invited to participate in a research study investigating the regions of the brain that are active when people perceive objects or act towards them. The purpose of this research is to map and characterise areas of the human brain, which are involved in using vision to control actions such as grasping, reaching, eye movements and related functions. This letter contains information to help you decide whether or not to participate in this research study. It is important for you to understand why the study is being conducted and what it will involve. Please take the time to read this carefully and feel free to ask questions if anything is unclear or there are words or phrases you do not understand. If you agree to participate in this study, you will undergo magnetic resonance imaging (MRI) at the Brain Sciences Institute at the Swinburne University of Technology.

Inclusion criteria. In order to participate, you must be right-handed, between the ages of 18 and 65 years, and have normal or corrected-to-normal vision (contact lens but not glasses).

Exclusion criteria. You may not participate in this study if you have any metal in your body, you are a welder or a soldier, you are pregnant, get claustrophobic, have a history of neurological or psychiatric disorder, have experienced an epileptic seizure, get migraines, are susceptible to headaches, and / or require prescribed psychotropic medication or currently take other medication that makes you drowsy.

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What is an MRI? MRI is a medical imaging technique that uses a powerful magnetic field and radio-frequencies to obtain very detailed cross-sectional images inside the body. Functional MRI is an application of MRI that measures brain activity by detecting associated changes in blood flow: when an area of the brain is in use, blood flow to that region also increases.

Is there any preparation? To help us provide an efficient service, you could assist us by: wearing clothing that does not have metal fastenings; not wearing any jewellery and removing all eye make-up (as this can interfere with scans of the head). You will also be required to complete an MRI safety questionnaire before your scan.

Can anyone have an MRI scan? No. There are some preconditions which can make MRI scanning hazardous. Due to the powerful MRI magnetic field any person with a pacemaker, metal clips on arteries or certain implanted devices cannot have an MRI scan. Women who are pregnant or breast feeding cannot have an MRI scan. It is also advisable for some people with specific medical conditions not to have a scan. These conditions will be rigorously screened for during your pre-assessment for MRI scanning.

Is an MRI scan safe? MRI scanning has been in use as a medical imaging tool for many years and with proper safety controls is commonly regarded by clinicians as a safe procedure. It does not employ ionising radiation (such as x-rays) and hence does not induce an additional cancer risk. It does however entail exposure to electromagnetic fields (EMF) which are much higher than levels recommended by international safety guidelines for general exposure (though still within limits of special guidelines for MRI scanning). Very occasionally, these EMFs may cause some tingling or heating sensations. These effects do not persist after scanning and have no known long term impact on health. Your MRI exposure will be carefully controlled to avoid such effects, and you will be constantly monitored for any signs of these effects and may direct us to stop the scan at any time if you experience uncomfortable sensations. The staff on duty will answer any queries you might have on the day, or if in doubt, call our department before your appointment.

Risks. Although very rare, injury and deaths have occurred in MRI units from unsecured metal objects being drawn at high speeds into the magnet or from internal body metal fragments of which the subject was unaware or had not informed MRI staff. To minimize this latter possibility it is essential that you complete a screening questionnaire. Other remote but potential risks involve tissue burns and temporary hearing loss from the loud noise inside the magnet. The latter can be avoided with ear protection that also allows continuous communication between you and the staff during the study.

First aid procedures. The person operating the MRI scanner will have the necessary first aid training to handle minor incidents such as dizziness. For more severe incidents, telephone calls to both Swinburne Security and 000 will be made immediately and the MRI operator will follow specific first-aid procedures as mandated by his or her training until help arrives.

What will happen when I arrive? The MRI Radiographer or another senior MRI staff member will greet you at the MRI unit waiting room and reception, explain the scanning procedures, and ask you MRI screening questions. You will be asked to leave your valuables (coins, keys, watch, jewellery, credit cards, mobile phones, pagers etc) in a locker. The staff member will guide you on to our MRI scan table. Some equipment may be placed around the body part we will be scanning.

Duration of the study. The study will consist of either two or three sessions. The first session will consist of filling out questionnaires (30 minutes to 1 hour). The other sessions will consist of MRI scanning (1 to 2 hours). The length of these sessions will depend on the questionnaires and the experiments that will be administered.

The scanning process. When we are taking the pictures, you will hear a very loud sound, rather like a vibration, and hearing protection will be provided. The session will involve multiple different scans, lasting for 2-15 minutes each. During some of the scans, you will look at images or real objects. You may be asked to look at the displays passively, to make perceptual judgments about the displays, and/or

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to interact with them by moving your eyes or reaching out to touch or grasp them. An eye-tracker may be used to record where your eyes are gazing. This device consists of a camera that will focus on one or both of your eyes and record their movement. If we use this devise, a small calibration procedure at the beginning of the session will be required. For this calibration, we will ask that you gaze at different locations. For experiments involving actions, video recordings of your limbs (excluding your face) may be taken. These recordings will be recorded electronically using an MRI-compatible video camera connected to a computer workstation and will be labelled only by an assigned participant ID code. From these recordings, various measures (e.g. type of actions selected, reaction and movement time, accuracy, etc.) will be calculated off-line. The video recordings will not be used for any other purpose and will be securely stored only on a computer workstation. Eye tracking does not involve video recording; it measures eye positioning in a coordinate space (e.g. x, y, and z) over time.

What will happen after the scan? The images that have been taken will be used to address the research question for the study you have agreed to take part in. In addition they will be examined by a radiologist.

What will happen if an abnormality is found? On extremely rare occasions, the radiologist might find an abnormality that is significant and which should be investigated further. If the radiologist finds such a significant abnormality in your brain, he/she will contact the researcher directly involved in the study. The researcher will then contact you to inform you about the abnormality and, if you wish, can also relay this information to your general practitioner who can in turn advise you about your options.

Additional questionnaires. Aside from a screening questionnaire, we may also ask you to fill out various computerised questionnaires. These additional questionnaires could ask you for your age, gender, and other demographics, as well as other questions about personality traits associated with autism or schizophrenia, the vividness of your imagination, and / or the degree to which you use your right hand. None of the questionnaires are diagnostic. Rather, they are designed to be used by researchers for measuring characteristics related to vision, motor skills, and / or personality traits associated with autism or schizophrenia. The purpose of collecting this information would be to draw associations between these measurements and what we see in the functional MRI results.

Compensation. We will give you $25 for every 60 minutes of testing that you complete to compensate for your time and any inconveniences.

Confidentiality is assured. Any information obtained from this study will be kept confidential. Data obtained from the experiments will be linked only with an assigned participant ID code (e.g. S1, S2, etc) and stored on password-protected computers and / or on university servers (either at La Trobe University or the Swinburne University of Technology) which are also secure. After completion of the study, the data will be transferred to storage disks and stored in a locked room for five years, after which they will be destroyed.

Benefits. While this study will not result in any direct benefit to you, it will advance our understanding of how the brain uses visual information.

Participation in this study is voluntary. You may refuse to participate, refuse to answer questions, or withdraw from the study at any time with no effect on your academic or employment status. You should ask to stop the experiment if you feel uncomfortable or tired. Likewise, the investigators have the right to end the experiment at any time, for whatever reason.

Participation in this study is completely independent from any academic studies. This study is not related to a student's academic studies. If you are a student, not participating in this study or withdrawing your consent from this study at any time will not have any adverse impact to your academic studies.

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Additional questions? Any questions regarding this project may be directed to the chief investigator (Dr. Philippe Chouinard of the School of Psychological Science, P: 03 5444 7028, E: p.chouinard@latrobe.edu.au). If you have any complaints or concerns about your participation in the study that the researcher has not been able to answer to your satisfaction, you may contact the Secretary of the Human Ethics Committee, Research Services, La Trobe University, Victoria, 3086, ph: 03 9479 1443, e-mail: humanethics@latrobe.edu.au. Please quote HEC application reference number: HEC14-084.

Withdrawal of consent. You also have the right to demand that data arising from your participation are not used in the research project provided that this right is exercised within four weeks of the completion of your participation in the project. To withdraw you consent within this time frame, you are asked to notify the chief investigator by email or telephone that you wish to withdraw your consent for your data to be used in this research project and to complete the "Withdrawal of Consent Form". Once this is done, any data resulting from your participation will be destroyed and can no longer be analysed or used for any other purposes.

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