You are being invited to take part in a research study. Before you decide whether or not to take part, it is important that you understand why the research is being done and what it will involve. Please take time to read this information carefully and discuss it with friends and relatives if you wish. If there is anything you do not understand, or if you would like more information, please ask us. Thank you for taking the time to read this.

**What is the purpose of the study?**
In the present study we will investigate the ongoing brain activity when you perform a task. This study will teach us more about how specific brain activity may enable people brains to perceive, interact and response to particular situations. For information on the purpose of the MEG session in this study, please see the Appendix.

**Why have I been invited?**
You have been invited because you have replied to a poster advertisement and informed us that you are aged between 14 and 90 years and would be interested in taking part in this study. Before you will be registered as a participant in this study, we will check with you whether you do not have a neuropsychological condition that could interfere with the effect of certain aspects of the study. Conditions that we will screen for are a formal diagnosis of attention deficit (hyperactivity) disorder (AD(H)D), or autistic spectrum disorder (ASD). In addition, it is important that you do not suffer from impaired eyesight which cannot be corrected with glasses.

**Do I have to take part?**
No. It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep and a consent form to sign. You can ask the researcher questions about the study before you decide whether to participate. You are free to withdraw from the study at any time, including following data collection, without giving a reason. If the data collected until the time of withdrawal could be used, you will specifically be asked to give your consent to having the data included in any analysis. You can withdraw your data until up
to 1 week after participation by notifying the researcher. Students will not receive any academic penalty for withdrawal from the study.

What will happen next if I take part?

--- MEG session ---
This study will consist of one MEG session at the CHBH in which you will perform a task while we record your brain activity. Before we can include you in the study, we will first check whether you suffer from any of the conditions that may prevent you from safely participating in our study or that may interfere with certain aspects of the task that you will perform (see above). If that is not the case, you will be invited for an MEG session. At the beginning of this session we will take 30 minutes to prepare the MEG recording. During the preparation period of the MEG session you will get the chance to get familiarized with the experimental environment and the procedure for the study. We will also use this period to position several electrodes that will help us to track the heart rate and position of your head and eyes in the MEG system. Following the preparation you will perform a task while we record you brain activity in the MEG. During the task, you will be presented with stimuli e.g. visual display or tones. You will be instructed how to response to these stimuli. E.g. by a button press. Throughout the task, you will need to keep your eyes focused on fixation. The experiment will be interspersed by breaks in which you will be able to freely move your eyes and relax. Attention tasks will usually last approximately 60 minutes. In total, the MEG session will last approximately 90-120 minutes.

--- MRI session ---
In order to be able to accurately analyse the data collected during the attention task, we will need a structural scan of your brain. If you have previously taken part in a neuroimaging study in Birmingham at BUIC or CHBH then there may be a structural scan of your brain on record. To prevent you having unnecessary repeat scans, we would like to reuse these scans if possible. With your permission, we will contact the designated database person at BUIC or CHBH and give them your name and date of birth so they can check whether they have a suitable brain scan for you that we may use. If a suitable scan exists, the researcher from your previous study will release an anonymised copy of your scan to us, and they will keep a copy of the consent form from this study in their locked cabinets. Your personal details will not be shared with anyone else.

If there is no scan of your brain on record in the centre, or if the scan that is on record may not be usable by us, we will invite you to come in for an additional neuroimaging session in which we will make a structural scan of your brain. In this case, a researcher will go over the information sheet for the MRI session with you before the MEG session, explain the procedures, and go through a pre-screening form with you to check if it is safe for you to participate, in accordance with the BUIC/CHBH screening and safety protocols. If you agree, we would ask you to come in for a second visit during which we will obtain an MRI-scan of your brain and will then proceed with the MEG session. To undergo magnetic resonance (MRI) scanning you would be asked to lie still on a table inside the MRI scanner for a period of 10 minutes, without performing any tests. In total, the MRI session will take 30 minutes. The entire study might take up one morning or afternoon of your time. The research team can direct an accompanying person to an area where they can wait. Please let us know beforehand if you wear contact lenses or glasses.

How does MEG work?
MEG is a silent, non-invasive brain imaging technique that measures the magnetic fields produced by nerve cells. The MEG system contains 306 very sensitive detectors arranged around a helmet shaped hollow. Brain activity is measured from a participant as they sit or lie with their head inside this hollow. Because the magnetic signals produced by brain activity are tiny compared to those produced by the earth and electrical equipment, the MEG system is in a specially built magnetically shield room that attenuates disturbances from the environment.
MEG does not generate any magnetic fields and does not involve any ionising radiation. There are no known risks associated with MEG. MEG is a very sensitive technique and measurements can be affected by metal in the room. Participants will be asked to remove metallic objects that they are carrying or wearing, for example, jewellery, body piercings, removable dental braces and clothing with metal parts. Participants who wear glasses should inform the researcher in advance and they may be given special non-metallic glasses to wear. Participants with metal in their body (e.g. plates, dental work, pacemakers) should discuss this with the researcher in advance. In some cases it may not be possible to record the participant.

Before the MEG recordings, the researcher attaches sensors to the participant’s wrists to measure their heartbeat and around their eyes to measure eye movements. The researcher also places small coils on the participant’s forehead and above their ears to record their head position in the MEG system. In some cases they will also attach a 64 channel EEG cap. Participants can ask the researcher to stop at any time.

Your brain health

MEG/EEG is not a useful diagnostic tool in detecting neurological conditions or undiagnosed epileptic seizures and structural abnormalities. Furthermore, the researchers at the CHBH or BUIC are not trained in detecting functional or structural abnormalities. This means that should you have any abnormalities in the structure or functionality of your brain partaking in this study will not be of use in detecting or diagnosing these. Although the pictures are not diagnostic scans, in the unlikely event that any unusual findings are noted incidentally by the scan operator, further advice will be sought and you will be contacted at a later date to discuss any follow-up.

EEG/MEG will not induce functional or structural abnormalities to your brain. For more information on the risks associated with the MRI session, please see Appendix (last page of document). If you have any concerns regarding symptoms, please consult your GP.

If you suspect you may have an undiagnosed medical condition affecting your brain then please consult your GP. In this case you should not take part in this study and you do not need to give a reason for your withdrawal.

If you know that you have a medical condition affecting your brain you should either not take part in the study (you do not have to give a reason); or you could inform the researcher and check whether you are eligible to take part.

Should you have any questions please feel free to ask the experimenter/researcher now or at any point in time later.

Are there any benefits from taking part in this study?

No. There will not be any direct benefits to you directly in this study. It is hoped that the results from this research will help us to identify better measures for future studies in patients with neuropsychological conditions that are associated with impaired attentional control: for example, attention-deficit disorder. For information on the benefits associated with the MEG session in this study, please see the Appendix (last pages of this document).

Will my taking part in the study be kept confidential?

Yes, any information collected about you during the study will be kept strictly confidential and can only be accessed by the named researchers for this study.

All collected data and task results will be assigned a code so that the results can be linked to your name. The file that links your name with the data will be kept in a secure, password protected computer file and will be kept indefinitely. This password protected file can only be viewed by the researchers from this study and a limited number of key BUIC/CHBH personnel.
We keep your identifying details on record in case you ever need your brain scan data for medical reasons, and to enable us to compare your brain activity if you return to the centre to take part in multiple studies. The datasets collected are anonymised and only your code together with this password protected file can be used to identify you. Your date of birth and gender will be stored with the collected data. The file that links your name with the other task results will be kept in a secure, password protected computer file and will be deleted as soon as it is not needed.

A copy of your consent form will be kept in a locked cabinet for ten years. This form does not contain information that could link your name to your individual datasets and results.

If BUIC or CHBH may already have a structural MRI for you, then your name and date of birth may be shared with the designated database person at each of these centres, and the researcher from the study you previously took part in. Your personal details will not be shared with anyone else and they will ensure any personal data is stored securely and deleted once not needed.

Sometimes, new methods to analyse data become available after a study has ended. Therefore we would ask for your permission to use your anonymised data in future studies, and to share data, such as your anonymised scan data, with other researchers both inside and outside the European Union. With your consent, we will keep your personal information on a secure database in order to contact your for future studies.

**What will happen to the results of the study?**

We expect that the results of this study will be published in scientific journals and presented at scientific meetings, but participants will never be identified. We will not give feedback on the results of each individual participant as this is usually not meaningful.